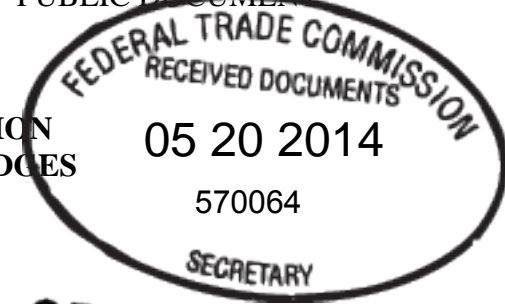


UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION
OFFICE OF THE ADMINISTRATIVE LAW JUDGES
Washington, D.C.

PUBLIC DOCUMENT



In the Matter of

ECM BioFilms, Inc.,
a corporation, also d/b/a
Envioplastics International,

Respondent.

Docket No. 9358

ORIGINAL

PUBLIC

**RESPONDENT'S MOTION TO COMPEL EXPERT RESPONSE TO SUBPOENAS
DUCES TECUM**

Pursuant to Rules 3.31 and 3.38, Respondent ECM BioFilms, Inc. (ECM) hereby moves this Court to compel Complaint Counsel's experts, Drs. Stephen McCarthy ("McCarthy"), Thabet Tolaymet ("Tolaymet"), and Shane Frederick ("Frederick") (collectively "Deponents"), to respond to Respondent's subpoenas *duces tecum*. On April 7, 2014, Respondent issued subpoenas to those experts, and Complaint Counsel accepted service on their behalf. On April 25, 2014, Complaint Counsel objected to the subpoenas, refusing to produce any documents except Dr. Tolaymet's curriculum vitae.

ECM has an undoubted right to discover all grounds germane to expert qualifications, knowledge, training, and experience, including expert bias, conflicts of interest, and lack of independence. Subpoenas *duces tecum* are the most appropriate means to achieve that end. ECM therefore moves this Court to compel Complaint Counsel's experts to respond to ECM's subpoenas *duces tecum*.

Respectfully submitted,

/s/ Jonathan W. Emord
Jonathan W. Emord (jemord@emord.com)
EMORD & ASSOCIATES, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Telephone: 202-466-6937
Facsimile: 202-466-6938

DATED: May 19, 2014

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION
OFFICE OF THE ADMINISTRATIVE LAW JUDGES
Washington, D.C.

In the Matter of

**ECM BioFilms, Inc.,
a corporation, also d/b/a
Envioplastics International,

Respondent.**

Docket No. 9358

PUBLIC

**RESPONDENT'S MEMORANDUM IN SUPPORT OF MOTION TO COMPEL EXPERT
RESPONSE TO SUBPOENAS *DUCES TECUM***

Respondent ECM BioFilms, Inc. ("ECM") hereby moves for an order compelling Complaint Counsel's experts, Drs. Stephen McCarthy ("McCarthy"), Thabet Tolaymet ("Tolaymet"), and Shane Frederick ("Frederick") (collectively "Subpoena Recipients"), to respond to ECM's subpoenas *duces tecum* (Exhibits RX-A-1 – RX-A-3).¹ Served on April 7, 2014, the foregoing individuals have failed to produce any of the requested documents save one.

The bias, conflict of interest, and independence of Complaint Counsel's experts are germane to their qualifications and opinions. *See* 16 C.F.R. 3.31(c); Fed. R. Evid. 702; *Behler v. Hanlon*, 199 F.R.D. 553, 561 (D. Md. 2001). Evidence within ECM's possession reveals McCarthy to have a vested interest in the outcome of these proceedings.² ECM is entitled under

¹ Copies of ECM's revised subpoena demands issued after discussion with Complaint Counsel are attached as Exhibits RX-B-1 – RX-B-3.

² McCarthy invented a patent for a technology that competes directly with ECM's biodegradable additive. *See* Exh. RX-G (U.S. Patent No. 5,883,199 (issued Mar. 16, 1999)). He profits from that patent. The University of Massachusetts, Lowell ("Umass"), McCarthy's employer, is the patent's assignee. *See* Exh. RX-G; RX-H-1 (Metabolix Website Article). Metabolix, Inc. is the exclusive licensee of the technology. *See* Exh. RX-H-1. Metabolix's potential royalties from licensing Umass patents surpass \$100,000 per year. *See* Exh. RX-H-2

Rule 3.31(c)(1) to probe to the fullest extent possible issues of independence, bias, and conflict of all Complaint Counsel's experts.

BACKGROUND

On April 7, 2014, ECM served subpoenas *duces tecum* on Complaint Counsel's experts. *See* Exh.'s RX-A-1; RX-A-2; RX-A-3. ECM served the subpoenas on Complaint Counsel at their request. *See* Exh. RX-C. On April 11, Complaint Counsel refused to honor the subpoenas, arguing that Rule 3.34 subpoenas were not appropriate for their experts, which they deemed FTC "agents," and that Rule 3.31A defines the universe of information obtainable from FTC's testifying experts. Exh. RX-D. ECM responded on April 15, 2014, explaining that subpoenas *duces tecum* were indeed the appropriate means to obtain documents and information from non-parties, including Complaint Counsel's testifying experts, and that those experts were legally obligated to respond consistent with Rule 3.34. *See* Exh. RX-E. ECM refined some of its requests to accommodate Complaint Counsel's concerns. *See* Exh.'s RX-B-1; RX-B-2; RX-B-3. On April 25, Complaint Counsel reiterated its experts' categorical refusal to comply but, despite the refusal, turned over one responsive document: Dr. Tolaymet's Curriculum Vitae. *See* Exh.'s RX-F-1; RX-F-2; RX-F-3.³

(Umass Website Article). Metabolix supplied grants to Umass of approximately \$2.5 million, sponsored more than 50 students for their master's and doctorate degrees, and has made substantial equipment donations (over \$500,000). *See* Exh. RX-H-2. McCarthy and/or Umass may also be the recipient of other direct and indirect remunerative benefits from the exclusive license. Since 2008, Metabolix has lobbied the FTC to act against ECM. *See* Exh. RX-I. Metabolix is also a member of the Biodegradable Products Institute (BPI), a primary ECM competitor, and sells approximately a dozen products that are "BPI certified." *See* Exh. RX-J-1; RX-J-2. BPI is a vocal opponent of ECM, and has lobbied the FTC repeatedly since at least 2005 to act against ECM and ECM's customers. *See* Exh. RX-N-1 (BPI Correspondence to FTC of April 25, 2005).

³ Complaint Counsel's categorical objection to production accompanied by some production constitutes a waiver of objection.

Complaint Counsel's witnesses have connections relevant to ECM's defense. The green plastics industry is divided into two competing camps, those who market "compostable" products and those who market "biodegradable" products. "Compostables" are a narrow subset of biodegradable plastics. *Compare* FTC's Revised Green Guides 16 C.F.R. § 260.7(b) (for compostability marketing, the marketer must have evidence that "all the materials in the item will break down into, or otherwise becomes part of, usable compost") *with* FTC's Revised Green Guides 16 C.F.R. § 260.8(b) (for degradability marketing, the marketer must have evidence that "the entire item will completely break down and return to nature"). Advocates of compostables benefit by regulation that limits what may be advertised as "biodegradable" when that limit is based on rate, and they have successfully lobbied the Commission to achieve that restriction in the Green Guides. *See, e.g.*, Exh. RX-M (Comments of BPI from January 30, 2008) (recommending to FTC that, in order for a product to be advertised as biodegradable, the product must break down within 12-18 months); RX-N-1; RX-N-2 (BPI Correspondence to FTC of March 30, 2010) (convincing FTC to act against two additional companies marketing their products as biodegradable).

McCarthy will testify concerning biodegradability of plastics made with ECM's additive. *See* Exh. RX-L. McCarthy invented, and holds a lucrative patent for, a competing technology, which patent is exclusively licensed to Metabolix, Inc. *See* Exh. RX-G. Metabolix has supplied grants to Umass of at least \$2.5 million. *See* Exh. RX-H-2. Since 2008, Metabolix has been lobbying the FTC to act against ECM. *See* Exh. RX-I. Metabolix is a member of BPI, which is controlled by manufacturers of compostables, and sells approximately a dozen products that are "BPI certified." *See* Exh. RX-J-1. Like Metabolix, BPI is a vocal ECM opponent and has lobbied FTC since at least 2005 to act against ECM and ECM's customers. *See* Exh. RX-N-1.

Information concerning McCarthy’s economic ties are thus highly relevant to the issues of bias, conflict of interest, and independence.

ARGUMENT

A. Subpoenas *Duces Tecum* Are Proper to Discover Information from Testifying Experts

Commission Rules do not exempt testifying experts from discovery, including subpoenas *duces tecum*. See Rule 3.34(b), *cf.* 3.31A(e) (exempting consulting but not testifying experts). Subpoenas are routinely used to obtain discoverable information from testifying experts. See *All W. Supply Co. v. Hill’s Pet Prods. Div., Colgate-Palmolive Co.*, 152 F.R.D. 634, 639 (D. Kan. 1993) (“[For] nonparties such as plaintiff’s expert witness, . . . documents may be [obtained] by subpoena *duces tecum*”).

1. Rule 3.31A Is Not a Discovery Limit

Complaint Counsel claims expert subpoenas are verboten, arguing that Rule 3.31A describes the universe of information discoverable from its testifying experts, thereby relieving them of the obligation to reveal any evidence of bias, conflict of interest, and lack of independence. See Exh. RX-D (CC Letter of Apr. 11, 2014). That interpretation violates ECM’s right to develop a full record in defense, thus also violating its Fifth Amendment right to procedural due process. See *F.C.C. v. Schreiber*, 329 F.2d 517, 525 (9th Cir. 1964) *modified*, 381 U.S. 279, 85 S. Ct. 1459, 14 L. Ed. 2d 383 (1965) (“the [APA] assures due process under the Fifth Amendment where there is a trial-type, adjudicative proceeding”); *Mathews v. Eldridge*, 424 U.S. 319, 348-49 (1976) (the “essence of due process” is to “insure that [parties are] given a meaningful opportunity to present their case[s]”) (citations omitted). Rule 3.31A sets a *mandatory* minimum of expert disclosures required but does not define the universe of what may be discovered from experts. See Rule 3.31A(c). Information related to experts’ financial

connections that may reveal bias, conflict, or lack of independence are highly relevant and essential for this Court to assay when assessing the probity and weight of expert testimony. If economic connections of experts are not fair game, how then would it ever be possible to prove an economic conflict of interest, bias, or lack of independence? Without access to such information, the FTC can improperly shield bias and benefit from that non-disclosure.

Complaint Counsel argues that *Marsh v. Jackson*, 141 F.R.D. 431 (W.D. Va. 1992) supports its position. Not so. *Marsh* and its progeny are inapposite, because ECM requests information germane to bias and lack of independence that is independent of the proffered expert reports in this case and of case information in FTC's files. *Marsh* addressed discovery requests for "entire files" related to the opposing party. In *Marsh*, the movant had sought to circumvent the limits of privilege and the court's scheduling order by obtaining that party information through non-party subpoenas. Nothing of that kind exists here.

In its defensive correspondence to ECM, Complaint Counsel mistakenly relies on cases concerning expert files developed for the *specific case* at issue (or involving information from *consulting* experts, which falls within a separate protection under Rule 3.31A(e)). *See, e.g., Thomas v. Marina Assocs.*, 202 F.R.D. 433, 434 (E.D. Pa. 2001) ("information sought pertained . . . to one of the parties in the case"); *see, e.g., In re Fuller*, 2013 WL 5305317, at *1-3 (D. Me. Sept. 18, 2013) (subpoena requested "expert's files"—namely, documents about one of the defendants); *Ambrose v. Southworth Prod. Corp.*, 1997 WL 470359, at *1 (W.D. Va. June 24, 1997) (subpoena requested documents about "[an intervenor-plaintiff] or [the defendant]"); *Marsh v. Jackson*, 141 F.R.D. 431 (W.D. Va. 1992) (subpoenas requested the experts' "entire files related to the plaintiff"). ECM does not seek FTC files or FTC documents from the experts; rather, ECM seeks documents germane to the experts' biases, conflicts, and independence. *See*

Quaile v. Carol Cable Co., 1992 WL 277981, at *2 (E.D. Pa. Oct. 5, 1992) (holding that subpoena served on expert is valid if it seeks information for impeachment).⁴

The Federal Rules' advisory notes are instructive. The counterpart to Rule 3.31A is FRCP Rule 26(a), and that federal rule contemplates use of subpoenas *duces tecum* in expert discovery:

The enumeration in Rule 26(a) of items to be disclosed does not prevent a court from requiring by order or local rule that the parties disclose additional information without a discovery request. *Nor are parties precluded from using traditional discovery methods to obtain further information regarding these matters, as for example asking an expert during a deposition about testimony given in other litigation beyond the four-year period specified in Rule 26(a)(2)(B).*

Advisory Comm. Notes for 1993 Amends, to Fed.R.Civ.P. 26(a) (emphasis added); *United States v. Bazaarvoice, Inc.*, C 13-00133 WHO (LB), 2013 WL 3784240 (N.D. Cal. July 18, 2013) (“Rule 26(a)(2)(B) . . . does not preclude parties from obtaining further information through ordinary discovery tools”) (citations omitted). Precedent favors ECM’s position. *See Expeditors Int’l of Wash., Inc. v. Vastera, Inc.*, No. 04 C 0321, 2004 WL 406999, at *3 (N.D. Ill. Feb. 26, 2004) (“Subpoena *duces tecum* is . . . an appropriate discovery mechanism against nonparties such as a party’s expert witness”); *Reit v. Post Prop., Inc.*, No. 09 Civ. 5455(RMB)(KNF), 2010 WL 4537044, at *9 (S.D.N.Y. Nov. 4, 2010) (“Subpoena *duces tecum*. . . is an appropriate discovery mechanism against a nonparty expert”); *Lawrence E. Jaffe Pension Plan v. Household Int’l, Inc.*, No. 02 C 5893, 2008 WL 687220, at *2 (N.D. Ill Mar. 10, 2008)

⁴ Complaint Counsel cites *In the Matter of Basic Research*, No. 9318, 2004 FTC LEXIS 237, at *9 (Dec. 9, 2004). That case, however, supports ECM’s position because it concerned the propriety of the subpoenas’ content, not the authority to issue them *ab initio*. *See In the Matter of Basic Research*, at *9.

(“It is clear . . . that a subpoena *duces tecum* . . . is an appropriate discovery mechanism against . . . a party's expert witness”) (citation omitted).

2. Subpoenas Are Proper for Non-Party Experts

Subpoenas, not document requests or interrogatories, are proper to obtain additional discovery from experts. *See* 16 C.F.R. § 3.34(b) (broadly stating that a party may command “a person” to produce designated documents and other materials, and that “any party” may use a subpoena for “discovery”). Nothing in Rule 3.34 prohibits additional discovery from testifying experts. Complaint Counsel proceeds hypocritically, because it has discovered information of ECM’s experts beyond the information contemplated in Rule 3.31A. *See, e.g.*, Exh. RX-K (CC Request for Production of Documents); RX-L (CC Third Set of Interrogatories). Moreover, FTC misapprehends the status of its experts; they are not FTC “agents.” Experts testifying for ECM and for FTC are not ECM and FTC agents by that fact alone. *See Glendale Fed. Bank, FSB v. United States*, 39 Fed. Cl. 422, 424 (Fed. Cl. 1997) (“The expert witness, testifying under oath, is expected to give his own honest, *independent* opinion. . . He is *not the sponsoring party's agent at any time* merely because he is retained as its expert witness”). Documents requested under Rule 3.37(a) from experts are inappropriate because those requests seek production of information about a “party” to the case; experts are neither parties nor party agents. The information discoverable from experts is not a possession of the parties; it is the property of the experts themselves. 16 C.F.R. § 3.37(a).

B. ECM Is Entitled to Discovery Concerning Expert Witness Bias, Conflicts and Lack of Independence

Evidence of an expert’s bias, conflicts, and lack of independence are directly relevant and discoverable. *See Behler v. Hanlon*, 199 F.R.D. 553, 556–57 (D. Md. 2001) (citing *United States v. Abel*, 469 U.S. 45, 49–52 (1984)) (other citations omitted) (“[A] witness may be impeached by

a showing he or she is biased, has an interest in the outcome of the litigation, is prejudiced in some relevant way, or has a motive to testify in a particular way”). *Behler*, 199 F.R.D. at 557 (emphasis added) (“[T]he importance of credibility of witnesses . . . cannot be overstated, and *this is especially true with respect to expert witnesses*”). ECM is afforded “very considerable latitude” to investigate the bias of Complaint Counsel’s experts. *LNC Invs., Inc. v. First Fid. Bank*, No. 92 Civ. 7584(CSH), 2000 WL 1182772 (S.D.N.Y. Aug. 21, 2000).⁵ ECM seeks no documents subject to the attorney-client privilege or work-product doctrine; its subpoenas do not request case files possessed by experts (e.g., those containing correspondence with counsel). *See* Exh’s. RX-RX-B-1; RX-B-2; RX-B-3.

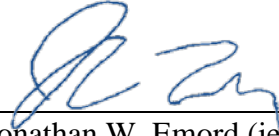
ECM has discovered evidence of McCarthy’s conflicts, lack of independence, and interest in the outcome of these proceedings. *See* Exh. RX-G; RX-H-1; RX-H-2. His economic ties are “classic evidence of bias” that parties must be allowed to discover through subpoenas. *See Crowe v. Bolduc*, 334 F.3d 124, 132 (1st Cir. 2003); *Behler*, 199 F.R.D. at 561 (allowing party to obtain, through subpoena *duces tecum*, evidence relating to an expert witness’s financial ties as relating to bias); *Siligan Containers v. Nat’l Union Fire Ins.*, No. C 09-05971 RS(LB), 2011 WL 1058861, at *6 (N.D. Cal. Mar. 23, 2011). Hypocritically, Complaint Counsel’s own non-party subpoenas have sought correspondence and documents related to bias and conflict. *See, e.g.*, Exh. RX –O-1; RX-O-2.

⁵ “[T]he concern remains that expert witnesses are, in effect, hired guns, who, while educated and experienced in the field, are willing and able to hire themselves out to the highest bidder to provide opinions in favor of the hiring party. Such concerns have led courts to open the door to the opposing party to obtain information from experts beyond that provided in Rule 26(a)(2)(B), including financial information that would indicate their lack of impartiality and their bias in favor of the hiring party.” *Campos v. MTD Products, Inc.*, 2:07-0029, 2009 WL 920337 (M.D. Tenn. Apr. 1, 2009) (not reported).

RELIEF

ECM moves this Court to compel Drs. McCarthy, Tolaymet, and Frederick to respond fully to ECM's subpoenas.

Respectfully submitted,



Jonathan W. Emord (jemord@emord.com)
EMORD & ASSOCIATES, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Telephone: 202-466-6937
Facsimile: 202-466-6938

DATED: May 19, 2014

STATEMENT CONCERNING CONFIDENTIALITY

The undersigned Respondent's Counsel hereby states that the content of the foregoing motion, memorandum, and exhibits do not contain confidential information under this Court's Protective Order and, so, ECM hereby files this motion to the public docket.


DATED: May 19, 2014.

/s/ Jonathan W. Emord
Jonathan W. Emord
EMORD & ASSOCIATES, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Telephone: 202-466-6937

STATEMENT CONCERNING MEET AND CONFER

Pursuant to Rule 3.22(g), 21 C.F.R. § 3.22(g), the undersigned counsel certifies that, on May 19, 2014, at approximately 11:30 AM EST, Respondent's counsel, Lou Caputo, conferred by conference call with Complaint Counsel, Jonathan Cohen, in a good faith effort to resolve by agreement the issues raised in the foregoing Motion for Sanctions. The parties have been unable to reach an agreement on the issue raised in the attached motion.

Respectfully submitted,



Jonathan W. Emord (jemord@emord.com)
EMORD & ASSOCIATES, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Telephone: 202-466-6937
Facsimile: 202-466-6938

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION
OFFICE OF THE ADMINISTRATIVE LAW JUDGES
Washington, D.C.

In the Matter of

ECM BioFilms, Inc.,
a corporation, also d/b/a
Envioplastics International,

Respondent.

Docket No. 9358

PUBLIC

**[PROPOSED] ORDER GRANTING RESPONDENT ECM BIOFILMS, INC.'S MOTION
TO COMPEL**

This matter having come before the Administrative Law Judge on May ____, 2014, upon a Motion to Compel (“Motion”) filed by Respondent ECM BioFilms, Inc. (“ECM”) pursuant to Commission Rule 3.31 and 3.38, for an Order to compel Complaint Counsel.

Having considered ECM’s Motion and all supporting and opposing submissions, and for good cause appearing, it is hereby ORDERED that ECM’s Motion is GRANTED; it is ORDERED that Drs. Frederick, McCarthy, and Tolaymet shall forthwith and without delay provide full responses to ECM’s pending subpoenas *duces tecum*.

ORDERED:

Date:

D. Michael Chappell
Chief Administrative Law Judge

CERTIFICATE OF SERVICE

I hereby certify that on May 19, 2014, I caused a true and correct copy of the foregoing to be served as follows:

One electronic copy to the **Office of the Secretary** through the e-filing system:

Donald S. Clark, Secretary
Federal Trade Commission
600 Pennsylvania Ave., NW, Room H-113
Washington, DC 20580
Email: secretary@ftc.gov

One electronic courtesy copy to the **Office of the Administrative Law Judge**:

The Honorable D. Michael Chappell
Administrative Law Judge
600 Pennsylvania Ave., NW, Room H-110
Washington, DC 20580

One electronic copy to **Counsel for Complainant**:

Katherine Johnson
Division of Enforcement
Bureau of Consumer Protection
Federal Trade Commission
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Elisa Jillson
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Benjamin Theisman
Division of Enforcement
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Federal Trade Commission
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I certify that I retain a paper copy of the signed original of the foregoing document that is available for review by the parties and adjudicator consistent with the Commission's Rules.

Respectfully submitted,



Jonathan W. Emord (jemord@emord.com)
EMORD & ASSOCIATES, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Telephone: 202-466-6937
Facsimile: 202-466-6938

DATED: Monday, May 19, 2014

RESPONDENT
EXHIBIT
RX-A-1



A Professional Corporation

WASHINGTON | VIRGINIA | PHOENIX

11808 WOLF RUN LANE
CLIFTON, VA 20124

3210 S. GILBERT ROAD
SUITE 4
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(602) 388-8899 | FAX (602) 393-4361

1050 SEVENTEENTH STREET, N.W.
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WASHINGTON, D.C. 20036
(202) 466-6937 | FAX (202) 466-6938

April 7, 2014

Lou F. Caputo, Esq.
602.388.8901
lcaputo@emord.com

VIA UPS

Dr. Stephen McCarthy, PhD
Dept. of Plastics Engineering
University of Massachusetts Lowell
One University Avenue, Office, Ball 207
Lowell, MA 01854

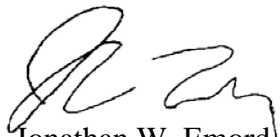
Re: In the Matter of ECM BioFilms, Inc., Docket No. 9358

Dear Dr. McCarthy:

Pursuant to the Federal Trade Commission's Rules of Practice, please find enclosed Respondent ECM BioFilms, Inc.'s subpoena *duces tecum*. This subpoena requests that you produce documents and other materials. Included with the subpoena is Schedule A, which describes the instructions and specific requests of Respondent and a copy of the Protective Order issued in this matter.

Please provide all requested documents no later than April 25, 2014. We welcome you to contact us with questions.

Sincerely,



Jonathan W. Emord
Peter A. Arhangelsky
Lou F. Caputo



SUBPOENA DUCES TECUM

Provided by the Secretary of the Federal Trade Commission, and
Issued Pursuant to Commission Rule 3.34(b), 16 C.F.R. § 3.34(b)(2010)

<p>1. TO Dr. Stephen McCarthy Dept. of Plastics Engineering University of Massachusetts Lowell One University Avenue, Office, Ball 207 Lowell, MA 01854</p>	<p>2. FROM UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION</p>
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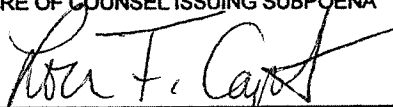
This subpoena requires you to produce and permit inspection and copying of designated books, documents (as defined in Rule 3.34(b)), or tangible things, at the date and time specified in Item 5, and at the request of Counsel listed in Item 9, in the proceeding described in Item 6.

<p>3. PLACE OF PRODUCTION Emord & Associates, P.C. 3210 South Gilbert Road, Suite 4 Chandler, AZ 85286</p>	<p>4. MATERIAL WILL BE PRODUCED TO Peter Arhangelsky</p> <hr/> <p>5. DATE AND TIME OF PRODUCTION April 25, 2014, 5:00 PM EST</p>
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6. SUBJECT OF PROCEEDING
In the matter of ECM BioFilms, Inc., Docket No. 9358

7. MATERIAL TO BE PRODUCED
See Attached Schedule A for description of all documents and materials.

<p>8. ADMINISTRATIVE LAW JUDGE Chief Administrative Law Judge D. Michael Chappell Federal Trade Commission Washington, D.C. 20580</p>	<p>9. COUNSEL AND PARTY ISSUING SUBPOENA Jonathan W. Emord, Peter Arhangelsky, Lou Caputo Emord & Associates, P.C. for Respondent, ECM BioFilms, Inc.</p>
--	---

<p>DATE SIGNED April 7, 2014</p>	<p>SIGNATURE OF COUNSEL ISSUING SUBPOENA </p>
--------------------------------------	--

GENERAL INSTRUCTIONS

APPEARANCE

The delivery of this subpoena to you by any method prescribed by the Commission's Rules of Practice is legal service and may subject you to a penalty imposed by law for failure to comply.

MOTION TO LIMIT OR QUASH

The Commission's Rules of Practice require that any motion to limit or quash this subpoena must comply with Commission Rule 3.34(c), 16 C.F.R. § 3.34(c), and in particular must be filed within the earlier of 10 days after service or the time for compliance. The original and ten copies of the petition must be filed before the Administrative Law Judge and with the Secretary of the Commission, accompanied by an affidavit of service of the document upon counsel listed in Item 9, and upon all other parties prescribed by the Rules of Practice.

TRAVEL EXPENSES

The Commission's Rules of Practice require that fees and mileage be paid by the party that requested your appearance. You should present your claim to counsel listed in Item 9 for payment. If you are permanently or temporarily living somewhere other than the address on this subpoena and it would require excessive travel for you to appear, you must get prior approval from counsel listed in Item 9.

A copy of the Commission's Rules of Practice is available online at <http://bit.ly/FTCRulesofPractice>. Paper copies are available upon request.

This subpoena does not require approval by OMB under the Paperwork Reduction Act of 1980.

SCHEDULE "A" TO SUBPOENA DUCES TECUM DIRECTED TO

DR. STEPHEN MCCARTHY

INSTRUCTIONS

- A. Unless otherwise specified, the time period covered by a numbered request shall be limited to the time period extending from January 1, 2007 until the present date, unless differently stated therein.
- B. Documents must be delivered to Counsel for Respondent at the following address:

Emord & Associates, P.C.,
3210 South Gilbert Road, Suite 4
Chandler, AZ 85286
- C. A complete copy of each document should be submitted even if only a portion of the document is within the terms of the numbered request. The document shall not be edited, cut or expunged and shall include all covering letters and memoranda, transmittal slips, appendices, tables or other attachments.
- D. All information submitted shall be clearly and precisely identified as to the numbered request(s) to which it is responsive. Pages in the submission should be numbered consecutively, and each page should be marked with a unique "Bates" document tracking number.
- E. Documents covered by these numbered requests are those which are in your possession or under your actual or constructive custody or control, whether or not such documents were received from or disseminated to any other person or entity, including attorneys, accountants, directors, officers and employees.
- F. Documents that may be responsive to more than one numbered request need not be submitted more than once. However, your response should indicate, for each document submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- G. Documents that were responsive to, and produced in accordance with, the original subpoena *duces tecum* sent to you on February 13, 2014 need not be submitted again. However, your supplemental response should indicate, for each document s previously submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- H. If any of the documentary materials requested in these numbered requests are available in machine-readable form (such as floppy or hard disks, drums, core storage, magnetic tapes or punch cards), state the form in which it is available and describe the type of computer or other machinery required to read the documents involved. If the information requested is stored in a computer or a file or record generated by a computer, indicate whether you have

an existing program that will print the information in readable form and state the name, title, business address and telephone number of each person who is familiar with the program.

- I. All objections to these numbered requests, or to any individual request, must be raised in the initial response or otherwise waived.
- J. The Federal Trade Commission's Rules of Practice describes withholding requested material responsive to a subpoena under Rule 3.38A. For your convenience, Rule 3.38A states:

(a) Any person withholding material responsive to a subpoena issued pursuant to §3.34 or §3.36, written interrogatories requested pursuant to §3.35, a request for production or access pursuant to §3.37, or any other request for the production of materials under this part, shall assert a claim of privilege or any similar claim not later than the date set for production of the material. Such person shall, if so directed in the subpoena or other request for production, submit, together with such claim, a schedule which describes the nature of the documents, communications, or tangible things not produced or disclosed - and does so in a manner that, without revealing information itself privileged or protected, will enable other parties to assess the claim. The schedule need not describe any material outside the scope of the duty to search set forth in §3.31(c)(2) except to the extent that the Administrative Law Judge has authorized additional discovery as provided in that paragraph.

(b) A person withholding material for reasons described in §3.38A(a) shall comply with the requirements of that subsection in lieu of filing a motion to limit or quash compulsory process.

- K. The Federal Trade Commission's Rules of Practice describes motions to quash and/or limit subpoenas under Rule 3.34(c). For your convenience, Rule 3.34 states in relevant part:

(c) *Motions to quash; limitation on subpoenas.* Any motion by the subject of a subpoena to limit or quash the subpoena shall be filed within the earlier of 10 days after service thereof or the time for compliance therewith. Such motions shall set forth all assertions of privilege or other factual and legal objections to the subpoena, including all appropriate arguments, affidavits and other supporting documentation, and shall include the statement required by §3.22(g). Nothing in paragraphs (a) and (b) of this section authorizes the issuance of subpoenas except in accordance with §§3.31(c)(2) and 3.36.

- L. Some documents that you are requested to provide may be confidential. In the Protective Order dated October 22, 2013, Chief Administrative Law Judge D. Michael Chappell ordered that a party conducting discovery from third parties shall provide such third parties a copy of the Protective Order so as to inform third parties of his, her, or its rights. *See* ALJ Protective Order at 2, ¶4. Accordingly, a copy of the Protective Order is attached with this subpoena.

M. If any requested material is withheld based on a claim of privilege, submit together with such claim a schedule of the items withheld. For each item withheld, the schedule should state: (a) the item's type, title, specific subject matter and date; (b) the names, addresses, positions and organizations of all authors or recipients of the item; and (c) the specific grounds for claiming that the item is privileged. If only part of a responsive document is privileged, all non-privileged portions of the document must be submitted.

DESCRIPTION OF DOCUMENTS REQUESTED

Please produce the original or copies of the following documents (the term "documents" shall include all records, books of account, worksheets, checks, instructions, specifications, manuals, reports, books, periodicals, pamphlets, publications, raw and refined data, memoranda, graphs, drawings, notes, lab books, advertisements, list studies, meeting minutes, working papers, transcripts, magnetic tapes or discs, punch cards, computer printouts, letters, correspondence¹, agreements, drafts of agreements, telegrams, email, drafts, proposals, employee records, customer records, log files recommendations, and any other data recorded in readable and/or retrievable form, whether typed, handwritten, reproduced, magnetically recorded, coded, or in any other way made readable or retrievable):

1. All documents that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.
2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case.

¹ The term "correspondence" is intended, used, and defined in its broadest sense allowable under the FTC Rules of Practice. Such term includes, but is not limited to, emails, documents appended to emails, reports and any other written or electronic document of any kind that is communicated from the subpoena recipient or its agents to any and all other persons and entities.

3. Regardless of the date, all correspondence, contracts, retainers, engagement letters between you and any public or private firm that manufactures and/or produces biodegradable and/or compostable products.

4. Regardless of the date, all reports, analyses, assessments, tests, summaries, and conclusions issued to any public or private firm that manufactures and/or produces biodegradable and/or compostable products.

5. Regardless of the date, all correspondence, contracts, retainers, engagement letters between you and any public or private firm that manufactures and/or produces a product or substance in competition with biodegradable plastics.

6. Regardless of the date, all reports, analyses, assessments, tests, summaries, and conclusions issued to any public or private firm that manufactures and/or produces a product or substance in competition with biodegradable plastics.

7. Regardless of the date, all correspondence, contracts, retainers, and/or agreements with the University of Massachusetts, Lowell (“Umass”) concerning research, funding, or grants related to biodegradable plastics or polymers.

8. Regardless of the date, all patents invented and/or owned by you.

9. Regardless of the date, all pending patents invented and/or sought by you.

10. All licensing or royalty agreements involving or concerning your patents or intellectual property related to biodegradable and compostable products).

11. Copies of the following contract and grant support, all correspondence and proposals concerning such contracts and grants, and sources of funding for same:

a. Metabolix, “Development of Novel of Biodegradable Materials, \$1,500,196

- b. NSF Center for Biodegradable Polymer Research, \$1,200,000 Industrial Members (8/93-present), Principal Investigator
 - c. Polymer Degradation Research Center, \$475,000, Industrial Members (8/89-8/93)
 - d. Digital, "Plastics Materials Research", \$458,706
 - e. Metabolix Inc., Performance of PHA Derived Chemicals and Polyols in Polyurethane, \$141,465
 - f. 3M, "Composting Research", \$155,000
 - g. Warner Lambert, "Biodegradable Polymer Research", \$116,591
 - h. National Science Foundation, "Biodegradable Polymer Research Center", \$110,000 (8/93-8/95)
 - i. Department of the Army, "Polymer Degradation Research", \$104,000
 - j. Institute for Plastics Innovation, "Injection Molding Research", \$75,000
 - k. Massachusetts Centers of Excellence, "Institute for Plastics Innovation", \$75,000
 - l. Metabolix Inc., Performance of Polyhydroxyalkanoate Derived Chemicals and Polyols in Polyurethane, \$71,465
 - m. Battelle, "Biodegradable Packaging Development", \$59,865
 - n. DuPont Corian, \$50,000
 - o. Invista, "Evaluation of Plasticizers", \$ 28,000
 - p. Massachusetts Centers of Excellence, "Polymer Degradation Research", \$25,000
12. All documents and materials concerning your appointment or nomination of any position, title, or role with the BioEnvironmental Polymer Society and/or the Society of Plastics Engineering.

13. All documents concerning any testing or product evaluations involving biodegradable and/or compostable plastics in which you participated on behalf of, or as a member of, the BioEnvironmental Polymer Society and/or the Society of Plastics Engineers.
14. All documents and materials that formed the basis of your nominations and/or awards from the BioEnvironmental Polymer Society, including, but not limited to, the 2008 Jim Hammar Memorial Service Award.
15. All correspondence between you and any employee and/or consultant of the Biodegradable Products Institute (“BPI”).
16. All correspondence with Dr. Ramani Narayan.
17. All correspondence with any employee or contracting employee of O.W.S., Inc. related to biodegradable plastics.
18. All correspondence with any employee and/or representative of the Federal Trade Commission concerning biodegradable plastics.
19. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case.
20. All documents revealing shares of stock or ownership interests held by you in any company.
21. All documents revealing consultant positions, executive or corporate positions, or financial arrangements between you and any company, university, or other financial institution concerning work or employment related to biodegradable plastics or polymers.
22. All correspondence between you and any private company concerning plastics, biodegradation, ECM BioFilms, and any other company involved in the manufacture of biodegradable products.

23. All documents and correspondence between you and the authors of the article Gómez, EF, Michel Jr., FC. “Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation” Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591.

24. Copies of all scientific publications concerning biodegradable and/or compostable polymers that you have authored.

25. Copies of all papers and/or presentations concerning biodegradable and/or compostable plastics that you have delivered or presented.

26. All documents revealing awards, bonuses, stock options, or other accolades bestowed upon you and all correspondence associated with each, for work you performed with biodegradable polymers.

27. All conflict of interest forms or agreements completed or signed by you.

28. All documents concerning ASTM, including, but not limited to, correspondence in which you presented a proposal, voted on a proposal, or opposed a proposal then undergoing active consideration by the ASTM.

29. Regardless of the date, if you have ever been a defendant or a plaintiff in a legal proceeding, copies of all complaints, answers, motions, and deposition, hearing and trial transcripts involving you from that proceeding along with all orders issued by the courts in those proceedings.

30. Regardless of the date, if you have ever served as an expert in any other proceeding, copies of all expert reports and testimony given by you in those proceedings.

INSTRUCTIONS FOR COMPLIANCE BY DELIVERY OF DOCUMENTS

If documents are delivered by hand, overnight delivery service, certified mail, or any other means your response shall be accompanied by an affidavit, executed by you that provides:

The names, addresses, positions, and organizations of all persons whose files were searched and all persons who participated in or supervised the collection of the documents², and a brief description of the nature of the work that each person performed in connection with the collecting the documents.

A statement that the search was complete and that responsive documents are being produced.

A statement as to whether the documents were made at or near the time of the occurrence of the matters set forth in such documents, kept in the course of your regularly conducted business, whether it was your regular practice to make and keep such documents, and the custodian of records and/or other executive(s) and/or employees of the University of Massachusetts, Lowell who have knowledge of such matters, can authenticate the documents and materials produced, and who can testify to such matters.

A statement as to whether any document called for by the subpoena has been misplaced, lost or destroyed. If any document has been misplaced, lost, or destroyed, identify: type of documents the date (or approximate date) of the documents, subject matter of the documents, all persons to whom it was addressed, circulated, or shown; its date of destruction, or when it was lost or misplaced; the reason it was destroyed, lost or misplaced; and the custodian of the documents on the date of its destruction, loss, or misplacement.

A declaration that states:

I declare (or certify, verify, or state) under penalty of perjury that the forgoing is true and correct.

Executed on [date].

[Signature of party executing the declaration]

Respectfully submitted,

² “Document” and “documents” as used in this Attachment are defined in this subpoena’s “Description of Documents Requested” section.

/s/ Jonathan W. Emord

Jonathan W. Emord, Esq.
EMORD & ASSOCIATES, P.C.
11808 Wolf Rune Lane
Clifton, VA 20124
Ph: 202-466-6937
Fx: 202-466-6938
Em: jemord@emord.com
Counsel to ECM BioFilms, Inc.

UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES


In the Matter of)
)
)
ECM BioFilms, Inc.,)
 a corporation, also d/b/a)
)
Enviroplastics International,)
 Respondent.)

DOCKET NO. 9358

PROTECTIVE ORDER GOVERNING DISCOVERY MATERIAL

Commission Rule 3.31(d) states: "In order to protect the parties and third parties against improper use and disclosure of confidential information, the Administrative Law Judge shall issue a protective order as set forth in the appendix to this section." 16 C.F.R. § 3.31(d). Pursuant to Commission Rule 3.31(d), the protective order set forth in the appendix to that section is attached verbatim as Attachment A and is hereby issued.

ORDERED:



D. Michael Chappell
Chief Administrative Law Judge

Date: October 22, 2013

ATTACHMENT A

For the purpose of protecting the interests of the parties and third parties in the above-captioned matter against improper use and disclosure of confidential information submitted or produced in connection with this matter:

IT IS HEREBY ORDERED THAT this Protective Order Governing Confidential Material (“Protective Order”) shall govern the handling of all Discovery Material, as hereafter defined.

1. As used in this Order, “confidential material” shall refer to any document or portion thereof that contains privileged, competitively sensitive information, or sensitive personal information. “Sensitive personal information” shall refer to, but shall not be limited to, an individual’s Social Security number, taxpayer identification number, financial account number, credit card or debit card number, driver’s license number, state-issued identification number, passport number, date of birth (other than year), and any sensitive health information identifiable by individual, such as an individual’s medical records. “Document” shall refer to any discoverable writing, recording, transcript of oral testimony, or electronically stored information in the possession of a party or a third party. “Commission” shall refer to the Federal Trade Commission (“FTC”), or any of its employees, agents, attorneys, and all other persons acting on its behalf, excluding persons retained as consultants or experts for purposes of this proceeding.
2. Any document or portion thereof submitted by a respondent or a third party during a Federal Trade Commission investigation or during the course of this proceeding that is entitled to confidentiality under the Federal Trade Commission Act, or any regulation, interpretation, or precedent concerning documents in the possession of the Commission, as well as any information taken from any portion of such document, shall be treated as confidential material for purposes of this Order. The identity of a third party submitting such confidential material shall also be treated as confidential material for the purposes of this Order where the submitter has requested such confidential treatment.
3. The parties and any third parties, in complying with informal discovery requests, disclosure requirements, or discovery demands in this proceeding may designate any responsive document or portion thereof as confidential material, including documents obtained by them from third parties pursuant to discovery or as otherwise obtained.
4. The parties, in conducting discovery from third parties, shall provide to each third party a copy of this Order so as to inform each such third party of his, her, or its rights herein.
5. A designation of confidentiality shall constitute a representation in good faith and after careful determination that the material is not reasonably believed to be already in the public domain and that counsel believes the material so designated constitutes confidential material as defined in Paragraph 1 of this Order.

6. Material may be designated as confidential by placing on or affixing to the document containing such material (in such manner as will not interfere with the legibility thereof), or if an entire folder or box of documents is confidential by placing or affixing to that folder or box, the designation “CONFIDENTIAL – FTC Docket No. 9358” or any other appropriate notice that identifies this proceeding, together with an indication of the portion or portions of the document considered to be confidential material. Confidential information contained in electronic documents may also be designated as confidential by placing the designation “CONFIDENTIAL – FTC Docket No. 9358” or any other appropriate notice that identifies this proceeding, on the face of the CD or DVD or other medium on which the document is produced. Masked or otherwise redacted copies of documents may be produced where the portions deleted contain privileged matter, provided that the copy produced shall indicate at the appropriate point that portions have been deleted and the reasons therefor.

7. Confidential material shall be disclosed only to: (a) the Administrative Law Judge presiding over this proceeding, personnel assisting the Administrative Law Judge, the Commission and its employees, and personnel retained by the Commission as experts or consultants for this proceeding; (b) judges and other court personnel of any court having jurisdiction over any appellate proceedings involving this matter; (c) outside counsel of record for any respondent, their associated attorneys and other employees of their law firm(s), provided they are not employees of a respondent; (d) anyone retained to assist outside counsel in the preparation or hearing of this proceeding including consultants, provided they are not affiliated in any way with a respondent and have signed an agreement to abide by the terms of the protective order; and (e) any witness or deponent who may have authored or received the information in question.

8. Disclosure of confidential material to any person described in Paragraph 7 of this Order shall be only for the purposes of the preparation and hearing of this proceeding, or any appeal therefrom, and for no other purpose whatsoever, provided, however, that the Commission may, subject to taking appropriate steps to preserve the confidentiality of such material, use or disclose confidential material as provided by its Rules of Practice; sections 6(f) and 21 of the Federal Trade Commission Act; or any other legal obligation imposed upon the Commission.

9. In the event that any confidential material is contained in any pleading, motion, exhibit or other paper filed or to be filed with the Secretary of the Commission, the Secretary shall be so informed by the Party filing such papers, and such papers shall be filed *in camera*. To the extent that such material was originally submitted by a third party, the party including the materials in its papers shall immediately notify the submitter of such inclusion. Confidential material contained in the papers shall continue to have *in camera* treatment until further order of the Administrative Law Judge, provided, however, that such papers may be furnished to persons or entities who may receive confidential material pursuant to Paragraphs 7 or 8. Upon or after filing any paper containing confidential material, the filing party shall file on the public record a duplicate copy of the paper that does not reveal confidential material. Further, if the protection for any such material expires, a party may file on the public record a duplicate copy which also contains the formerly protected material.

10. If counsel plans to introduce into evidence at the hearing any document or transcript containing confidential material produced by another party or by a third party, they shall provide advance notice to the other party or third party for purposes of allowing that party to seek an order that the document or transcript be granted *in camera* treatment. If that party wishes *in camera* treatment for the document or transcript, the party shall file an appropriate motion with the Administrative Law Judge within 5 days after it receives such notice. Except where such an order is granted, all documents and transcripts shall be part of the public record. Where *in camera* treatment is granted, a duplicate copy of such document or transcript with the confidential material deleted therefrom may be placed on the public record.

11. If any party receives a discovery request in any investigation or in any other proceeding or matter that may require the disclosure of confidential material submitted by another party or third party, the recipient of the discovery request shall promptly notify the submitter of receipt of such request. Unless a shorter time is mandated by an order of a court, such notification shall be in writing and be received by the submitter at least 10 business days before production, and shall include a copy of this Protective Order and a cover letter that will apprise the submitter of its rights hereunder. Nothing herein shall be construed as requiring the recipient of the discovery request or anyone else covered by this Order to challenge or appeal any order requiring production of confidential material, to subject itself to any penalties for non-compliance with any such order, or to seek any relief from the Administrative Law Judge or the Commission. The recipient shall not oppose the submitter's efforts to challenge the disclosure of confidential material. In addition, nothing herein shall limit the applicability of Rule 4.11(e) of the Commission's Rules of Practice, 16 CFR 4.11(e), to discovery requests in another proceeding that are directed to the Commission.

12. At the time that any consultant or other person retained to assist counsel in the preparation of this action concludes participation in the action, such person shall return to counsel all copies of documents or portions thereof designated confidential that are in the possession of such person, together with all notes, memoranda or other papers containing confidential information. At the conclusion of this proceeding, including the exhaustion of judicial review, the parties shall return documents obtained in this action to their submitters, provided, however, that the Commission's obligation to return documents shall be governed by the provisions of Rule 4.12 of the Rules of Practice, 16 CFR 4.12.

13. The provisions of this Protective Order, insofar as they restrict the communication and use of confidential discovery material, shall, without written permission of the submitter or further order of the Commission, continue to be binding after the conclusion of this proceeding.

RESPONDENT
EXHIBIT
RX-A-2



A Professional Corporation

WASHINGTON | VIRGINIA | PHOENIX

11808 WOLF RUN LANE
CLIFTON, VA 20124

3210 S. GILBERT ROAD
SUITE 4
CHANDLER, AZ 85286
(602) 388-8899 | FAX (602) 393-4361

1050 SEVENTEENTH STREET, N.W.
SUITE 600
WASHINGTON, D.C. 20036
(202) 466-6937 | FAX (202) 466-6938

April 7, 2014

Lou F. Caputo, Esq.
602.388.8901
lcaputo@emord.com

VIA UPS

Dr. Thabet Tolaymet PhD
Environmental Protection Agency
26 Martin Luther King Drive
Cincinnati, OH 45268

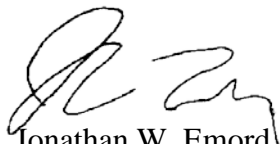
Re: In the Matter of ECM BioFilms, Inc., Docket No. 9358

Dear Dr. Tolaymet:

Pursuant to the Federal Trade Commission's Rules of Practice, please find enclosed Respondent ECM BioFilms, Inc.'s subpoena *duces tecum*. This subpoena requests that you produce documents and other materials. Included with the subpoena is Schedule A, which describes the instructions and specific requests of Respondent and a copy of the Protective Order issued in this matter.

Please provide all requested documents no later than April 25, 2014. We welcome you to contact us with questions.

Sincerely,



Jonathan W. Emord
Peter A. Arhangelsky
Lou F. Caputo



SUBPOENA DUCES TECUM

Provided by the Secretary of the Federal Trade Commission, and
Issued Pursuant to Commission Rule 3.34(b), 16 C.F.R. § 3.34(b)(2010)

<p>1. TO Dr. Thabet Tolaymet Environmental Protection Agency 26 Martin Luther King Drive Cincinnati, OH 45268</p>	<p>2. FROM UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION</p>
---	--

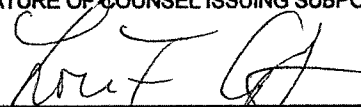
This subpoena requires you to produce and permit inspection and copying of designated books, documents (as defined in Rule 3.34(b)), or tangible things, at the date and time specified in Item 5, and at the request of Counsel listed in Item 9, in the proceeding described in Item 6.

<p>3. PLACE OF PRODUCTION Emord & Associates, P.C. 3210 South Gilbert Road, Suite 4 Chandler, AZ 85286</p>	<p>4. MATERIAL WILL BE PRODUCED TO Peter Arhangelsky</p> <hr/> <p>5. DATE AND TIME OF PRODUCTION April 25, 2014, 5:00 PM EST</p>
---	--

6. SUBJECT OF PROCEEDING
In the matter of ECM BioFilms, Inc., Docket No. 9358

7. MATERIAL TO BE PRODUCED
See Attached Schedule A for description of all documents and materials.

<p>8. ADMINISTRATIVE LAW JUDGE Chief Administrative Law Judge D. Michael Chappell Federal Trade Commission Washington, D.C. 20580</p>	<p>9. COUNSEL AND PARTY ISSUING SUBPOENA Jonathan W. Emord, Peter Arhangelsky, Lou Caputo Emord & Associates, P.C. for Respondent, ECM BioFilms, Inc.</p>
---	---

<p>DATE SIGNED April 7, 2014</p>	<p>SIGNATURE OF COUNSEL ISSUING SUBPOENA </p>
--------------------------------------	--

GENERAL INSTRUCTIONS

APPEARANCE

The delivery of this subpoena to you by any method prescribed by the Commission's Rules of Practice is legal service and may subject you to a penalty imposed by law for failure to comply.

MOTION TO LIMIT OR QUASH

The Commission's Rules of Practice require that any motion to limit or quash this subpoena must comply with Commission Rule 3.34(c), 16 C.F.R. § 3.34(c), and in particular must be filed within the earlier of 10 days after service or the time for compliance. The original and ten copies of the petition must be filed before the Administrative Law Judge and with the Secretary of the Commission, accompanied by an affidavit of service of the document upon counsel listed in Item 9, and upon all other parties prescribed by the Rules of Practice.

TRAVEL EXPENSES

The Commission's Rules of Practice require that fees and mileage be paid by the party that requested your appearance. You should present your claim to counsel listed in Item 9 for payment. If you are permanently or temporarily living somewhere other than the address on this subpoena and it would require excessive travel for you to appear, you must get prior approval from counsel listed in Item 9.

A copy of the Commission's Rules of Practice is available online at <http://bit.ly/FTCRulesofPractice>. Paper copies are available upon request.

This subpoena does not require approval by OMB under the Paperwork Reduction Act of 1980.

SCHEDULE "A" TO SUBPOENA DUCES TECUM DIRECTED TO

DR. THABET TOLAYMET

INSTRUCTIONS

- A. Unless otherwise specified, the time period covered by a numbered request shall be limited to the time period extending from January 1, 2007 until the present date, unless differently stated therein.
- B. Documents must be delivered to Counsel for Respondent at the following address:

Emord & Associates, P.C.,
3210 South Gilbert Road, Suite 4
Chandler, AZ 85286
- C. A complete copy of each document should be submitted even if only a portion of the document is within the terms of the numbered request. The document shall not be edited, cut or expunged and shall include all covering letters and memoranda, transmittal slips, appendices, tables or other attachments.
- D. All information submitted shall be clearly and precisely identified as to the numbered request(s) to which it is responsive. Pages in the submission should be numbered consecutively, and each page should be marked with a unique "Bates" document tracking number.
- E. Documents covered by these numbered requests are those which are in your possession or under your actual or constructive custody or control, whether or not such documents were received from or disseminated to any other person or entity, including attorneys, accountants, directors, officers and employees.
- F. Documents that may be responsive to more than one numbered request need not be submitted more than once. However, your response should indicate, for each document submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- G. Documents that were responsive to, and produced in accordance with, the original subpoena *duces tecum* sent to you on February 13, 2014 need not be submitted again. However, your supplemental response should indicate, for each document s previously submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- H. If any of the documentary materials requested in these numbered requests are available in machine-readable form (such as floppy or hard disks, drums, core storage, magnetic tapes or punch cards), state the form in which it is available and describe the type of computer or other machinery required to read the documents involved. If the information requested is stored in a computer or a file or record generated by a computer, indicate whether you have

an existing program that will print the information in readable form and state the name, title, business address and telephone number of each person who is familiar with the program.

- I. All objections to these numbered requests, or to any individual request, must be raised in the initial response or otherwise waived.
- J. The Federal Trade Commission's Rules of Practice describes withholding requested material responsive to a subpoena under Rule 3.38A. For your convenience, Rule 3.38A states:

(a) Any person withholding material responsive to a subpoena issued pursuant to §3.34 or §3.36, written interrogatories requested pursuant to §3.35, a request for production or access pursuant to §3.37, or any other request for the production of materials under this part, shall assert a claim of privilege or any similar claim not later than the date set for production of the material. Such person shall, if so directed in the subpoena or other request for production, submit, together with such claim, a schedule which describes the nature of the documents, communications, or tangible things not produced or disclosed - and does so in a manner that, without revealing information itself privileged or protected, will enable other parties to assess the claim. The schedule need not describe any material outside the scope of the duty to search set forth in §3.31(c)(2) except to the extent that the Administrative Law Judge has authorized additional discovery as provided in that paragraph.

(b) A person withholding material for reasons described in §3.38A(a) shall comply with the requirements of that subsection in lieu of filing a motion to limit or quash compulsory process.

- K. The Federal Trade Commission's Rules of Practice describes motions to quash and/or limit subpoenas under Rule 3.34(c). For your convenience, Rule 3.34 states in relevant part:

(c) *Motions to quash; limitation on subpoenas.* Any motion by the subject of a subpoena to limit or quash the subpoena shall be filed within the earlier of 10 days after service thereof or the time for compliance therewith. Such motions shall set forth all assertions of privilege or other factual and legal objections to the subpoena, including all appropriate arguments, affidavits and other supporting documentation, and shall include the statement required by §3.22(g). Nothing in paragraphs (a) and (b) of this section authorizes the issuance of subpoenas except in accordance with §§3.31(c)(2) and 3.36.

- L. Some documents that you are requested to provide may be confidential. In the Protective Order dated October 22, 2013, Chief Administrative Law Judge D. Michael Chappell ordered that a party conducting discovery from third parties shall provide such third parties a copy of the Protective Order so as to inform third parties of his, her, or its rights. See ALJ Protective Order at 2, ¶4. Accordingly, a copy of the Protective Order is attached with this subpoena.

M. If any requested material is withheld based on a claim of privilege, submit together with such claim a schedule of the items withheld. For each item withheld, the schedule should state: (a) the item's type, title, specific subject matter and date; (b) the names, addresses, positions and organizations of all authors or recipients of the item; and (c) the specific grounds for claiming that the item is privileged. If only part of a responsive document is privileged, all non-privileged portions of the document must be submitted.

DESCRIPTION OF DOCUMENTS REQUESTED

Please produce the original or copies of the following documents (the term "documents" shall include all records, books of account, worksheets, checks, instructions, specifications, manuals, reports, books, periodicals, pamphlets, publications, raw and refined data, memoranda, graphs, drawings, notes, lab books, advertisements, list studies, meeting minutes, working papers, transcripts, magnetic tapes or discs, punch cards, computer printouts, letters, correspondence¹, agreements, drafts of agreements, telegrams, email, drafts, proposals, employee records, customer records, log files recommendations, and any other data recorded in readable and/or retrievable form, whether typed, handwritten, reproduced, magnetically recorded, coded, or in any other way made readable or retrievable):

1. All documents that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.
2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case.
3. All correspondence with any employee and/or consultant of the Biodegradable Products Institute ("BPI").

¹ The term "correspondence" is intended, used, and defined in its broadest sense allowable under the FTC Rules of Practice. Such term includes, but is not limited to embrace emails, documents appended to emails, reports and any other written or electronic document of any kind that is communicated from the subpoena recipient or its agents to any and all other persons and entities.

4. All correspondence with Dr. Ramani Narayan.
5. All correspondence with any employee or contracting employee of O.W.S., Inc.
6. All correspondence between you and any member, employee, representative, or officer of the United States Federal Trade Commission.
7. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case.
8. All documents revealing shares of stock or ownership interests held by you in any company.
9. Regardless of the date, copies of all papers, articles, and publications authored or co-authored by you that concern municipal solid waste landfills, bioreactor landfills, waste containment performance, construction and demolition waste landfills, transport of environmental pollutants, and biodegradable products, and/or that may help form your opinions and conclusions in this case.
10. Regardless of the date, all correspondence between you and Dr. Morton Barlaz.
11. Regardless of the date, all conflict of interest forms or agreements signed by you.
12. Regardless of the date, if you have ever been a defendant or a plaintiff in a legal proceeding, copies of all complaints, answers, motions, and deposition, hearing and trial transcripts involving you from that proceeding along with all orders issued by the courts in those proceedings.
13. Regardless of the date, if you have ever served as an expert in any other proceeding, copies of all expert reports and testimony given by you in those proceedings.

INSTRUCTIONS FOR COMPLIANCE BY DELIVERY OF DOCUMENTS

If documents are delivered by hand, overnight delivery service, certified mail, or any other means your response shall be accompanied by an affidavit, executed by you that provides:

The names, addresses, positions, and organizations of all persons whose files were searched and all persons who participated in or supervised the collection of the documents², and a brief description of the nature of the work that each person performed in connection with the collecting the documents.

A statement that the search was complete and that responsive documents are being produced.

A statement as to whether the documents were made at or near the time of the occurrence of the matters set forth in such documents, kept in the course of your regularly conducted business, whether it was your regular practice to make and keep such documents, and the custodian of records and/or other executive(s) and/or employees of the Environmental Protection Agency who have knowledge of such matters, can authenticate the documents and materials produced, and who can testify to such matters.

A statement as to whether any document called for by the subpoena has been misplaced, lost or destroyed. If any document has been misplaced, lost, or destroyed, identify: type of documents the date (or approximate date) of the documents, subject matter of the documents, all persons to whom it was addressed, circulated, or shown; its date of destruction, or when it was lost or misplaced; the reason it was destroyed, lost or misplaced; and the custodian of the documents on the date of its destruction, loss, or misplacement.

A declaration that states:

I declare (or certify, verify, or state) under penalty of perjury that the forgoing is true and correct.

Executed on [date].

[Signature of party executing the declaration]

Respectfully submitted,

² “Document” and “documents” as used in this Attachment are defined in this subpoena’s “Description of Documents Requested” section.

/s/ Jonathan W. Emord

Jonathan W. Emord, Esq.
EMORD & ASSOCIATES, P.C.
11808 Wolf Rune Lane
Clifton, VA 20124
Ph: 202-466-6937
Fx: 202-466-6938
Em: jemord@emord.com
Counsel to ECM BioFilms, Inc.

UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES

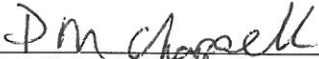
In the Matter of)
)
)
ECM BioFilms, Inc.,)
 a corporation, also d/b/a)
)
Enviroplastics International,)
 Respondent.)
_____)

DOCKET NO. 9358

PROTECTIVE ORDER GOVERNING DISCOVERY MATERIAL

Commission Rule 3.31(d) states: "In order to protect the parties and third parties against improper use and disclosure of confidential information, the Administrative Law Judge shall issue a protective order as set forth in the appendix to this section." 16 C.F.R. § 3.31(d). Pursuant to Commission Rule 3.31(d), the protective order set forth in the appendix to that section is attached verbatim as Attachment A and is hereby issued.

ORDERED:



D. Michael Chappell
Chief Administrative Law Judge

Date: October 22, 2013

ATTACHMENT A

For the purpose of protecting the interests of the parties and third parties in the above-captioned matter against improper use and disclosure of confidential information submitted or produced in connection with this matter:

IT IS HEREBY ORDERED THAT this Protective Order Governing Confidential Material (“Protective Order”) shall govern the handling of all Discovery Material, as hereafter defined.

1. As used in this Order, “confidential material” shall refer to any document or portion thereof that contains privileged, competitively sensitive information, or sensitive personal information. “Sensitive personal information” shall refer to, but shall not be limited to, an individual’s Social Security number, taxpayer identification number, financial account number, credit card or debit card number, driver’s license number, state-issued identification number, passport number, date of birth (other than year), and any sensitive health information identifiable by individual, such as an individual’s medical records. “Document” shall refer to any discoverable writing, recording, transcript of oral testimony, or electronically stored information in the possession of a party or a third party. “Commission” shall refer to the Federal Trade Commission (“FTC”), or any of its employees, agents, attorneys, and all other persons acting on its behalf, excluding persons retained as consultants or experts for purposes of this proceeding.
2. Any document or portion thereof submitted by a respondent or a third party during a Federal Trade Commission investigation or during the course of this proceeding that is entitled to confidentiality under the Federal Trade Commission Act, or any regulation, interpretation, or precedent concerning documents in the possession of the Commission, as well as any information taken from any portion of such document, shall be treated as confidential material for purposes of this Order. The identity of a third party submitting such confidential material shall also be treated as confidential material for the purposes of this Order where the submitter has requested such confidential treatment.
3. The parties and any third parties, in complying with informal discovery requests, disclosure requirements, or discovery demands in this proceeding may designate any responsive document or portion thereof as confidential material, including documents obtained by them from third parties pursuant to discovery or as otherwise obtained.
4. The parties, in conducting discovery from third parties, shall provide to each third party a copy of this Order so as to inform each such third party of his, her, or its rights herein.
5. A designation of confidentiality shall constitute a representation in good faith and after careful determination that the material is not reasonably believed to be already in the public domain and that counsel believes the material so designated constitutes confidential material as defined in Paragraph 1 of this Order.

6. Material may be designated as confidential by placing on or affixing to the document containing such material (in such manner as will not interfere with the legibility thereof), or if an entire folder or box of documents is confidential by placing or affixing to that folder or box, the designation “CONFIDENTIAL – FTC Docket No. 9358” or any other appropriate notice that identifies this proceeding, together with an indication of the portion or portions of the document considered to be confidential material. Confidential information contained in electronic documents may also be designated as confidential by placing the designation “CONFIDENTIAL – FTC Docket No. 9358” or any other appropriate notice that identifies this proceeding, on the face of the CD or DVD or other medium on which the document is produced. Masked or otherwise redacted copies of documents may be produced where the portions deleted contain privileged matter, provided that the copy produced shall indicate at the appropriate point that portions have been deleted and the reasons therefor.

7. Confidential material shall be disclosed only to: (a) the Administrative Law Judge presiding over this proceeding, personnel assisting the Administrative Law Judge, the Commission and its employees, and personnel retained by the Commission as experts or consultants for this proceeding; (b) judges and other court personnel of any court having jurisdiction over any appellate proceedings involving this matter; (c) outside counsel of record for any respondent, their associated attorneys and other employees of their law firm(s), provided they are not employees of a respondent; (d) anyone retained to assist outside counsel in the preparation or hearing of this proceeding including consultants, provided they are not affiliated in any way with a respondent and have signed an agreement to abide by the terms of the protective order; and (e) any witness or deponent who may have authored or received the information in question.

8. Disclosure of confidential material to any person described in Paragraph 7 of this Order shall be only for the purposes of the preparation and hearing of this proceeding, or any appeal therefrom, and for no other purpose whatsoever, provided, however, that the Commission may, subject to taking appropriate steps to preserve the confidentiality of such material, use or disclose confidential material as provided by its Rules of Practice; sections 6(f) and 21 of the Federal Trade Commission Act; or any other legal obligation imposed upon the Commission.

9. In the event that any confidential material is contained in any pleading, motion, exhibit or other paper filed or to be filed with the Secretary of the Commission, the Secretary shall be so informed by the Party filing such papers, and such papers shall be filed *in camera*. To the extent that such material was originally submitted by a third party, the party including the materials in its papers shall immediately notify the submitter of such inclusion. Confidential material contained in the papers shall continue to have *in camera* treatment until further order of the Administrative Law Judge, provided, however, that such papers may be furnished to persons or entities who may receive confidential material pursuant to Paragraphs 7 or 8. Upon or after filing any paper containing confidential material, the filing party shall file on the public record a duplicate copy of the paper that does not reveal confidential material. Further, if the protection for any such material expires, a party may file on the public record a duplicate copy which also contains the formerly protected material.

10. If counsel plans to introduce into evidence at the hearing any document or transcript containing confidential material produced by another party or by a third party, they shall provide advance notice to the other party or third party for purposes of allowing that party to seek an order that the document or transcript be granted *in camera* treatment. If that party wishes *in camera* treatment for the document or transcript, the party shall file an appropriate motion with the Administrative Law Judge within 5 days after it receives such notice. Except where such an order is granted, all documents and transcripts shall be part of the public record. Where *in camera* treatment is granted, a duplicate copy of such document or transcript with the confidential material deleted therefrom may be placed on the public record.

11. If any party receives a discovery request in any investigation or in any other proceeding or matter that may require the disclosure of confidential material submitted by another party or third party, the recipient of the discovery request shall promptly notify the submitter of receipt of such request. Unless a shorter time is mandated by an order of a court, such notification shall be in writing and be received by the submitter at least 10 business days before production, and shall include a copy of this Protective Order and a cover letter that will apprise the submitter of its rights hereunder. Nothing herein shall be construed as requiring the recipient of the discovery request or anyone else covered by this Order to challenge or appeal any order requiring production of confidential material, to subject itself to any penalties for non-compliance with any such order, or to seek any relief from the Administrative Law Judge or the Commission. The recipient shall not oppose the submitter's efforts to challenge the disclosure of confidential material. In addition, nothing herein shall limit the applicability of Rule 4.11(e) of the Commission's Rules of Practice, 16 CFR 4.11(e), to discovery requests in another proceeding that are directed to the Commission.

12. At the time that any consultant or other person retained to assist counsel in the preparation of this action concludes participation in the action, such person shall return to counsel all copies of documents or portions thereof designated confidential that are in the possession of such person, together with all notes, memoranda or other papers containing confidential information. At the conclusion of this proceeding, including the exhaustion of judicial review, the parties shall return documents obtained in this action to their submitters, provided, however, that the Commission's obligation to return documents shall be governed by the provisions of Rule 4.12 of the Rules of Practice, 16 CFR 4.12.

13. The provisions of this Protective Order, insofar as they restrict the communication and use of confidential discovery material, shall, without written permission of the submitter or further order of the Commission, continue to be binding after the conclusion of this proceeding.

RESPONDENT
EXHIBIT
RX-A-3



A Professional Corporation

WASHINGTON | VIRGINIA | PHOENIX

11808 WOLF RUN LANE
CLIFTON, VA 20124

3210 S. GILBERT ROAD
SUITE 4
CHANDLER, AZ 85286
(602) 388-8899 | FAX (602) 393-4361

1050 SEVENTEENTH STREET, N.W.
SUITE 600
WASHINGTON, D.C. 20036
(202) 466-6937 | FAX (202) 466-6938

April 7, 2014

Lou F. Caputo, Esq.
602.388.8901
lcaputo@emord.com

VIA UPS

Dr. Shane Frederick, PhD
Yale University
Yale School of Management
52 Hillhouse Ave, Room 116
New Haven, CT 06511

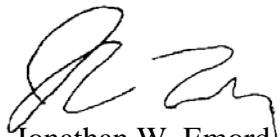
Re: In the Matter of ECM BioFilms, Inc., Docket No. 9358

Dear Dr. Frederick:

Pursuant to the Federal Trade Commission's Rules of Practice, please find enclosed Respondent ECM BioFilms, Inc.'s subpoena *duces tecum*. This subpoena requests that you produce documents and other materials. Included with the subpoena is Schedule A, which describes the instructions and specific requests of Respondent and a copy of the Protective Order issued in this matter.

Please provide all requested documents no later than April 25, 2014. We welcome you to contact us with questions.

Sincerely,



Jonathan W. Emord
Peter A. Arhangelsky
Lou F. Caputo



SUBPOENA DUCES TECUM

Provided by the Secretary of the Federal Trade Commission, and
Issued Pursuant to Commission Rule 3.34(b), 16 C.F.R. § 3.34(b)(2010)

<p>1. TO Dr. Shane Frederick Yale University Yale School of Management 52 Hillhouse Ave, Room 116 New Haven, CT 06511</p>	<p>2. FROM UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION</p>
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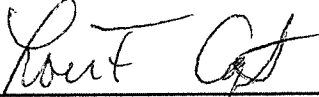
This subpoena requires you to produce and permit inspection and copying of designated books, documents (as defined in Rule 3.34(b)), or tangible things, at the date and time specified in Item 5, and at the request of Counsel listed in Item 9, in the proceeding described in Item 6.

<p>3. PLACE OF PRODUCTION Emord & Associates, P.C. 3210 South Gilbert Road, Suite 4 Chandler, AZ 85286</p>	<p>4. MATERIAL WILL BE PRODUCED TO Peter Arhangelsky</p> <hr/> <p>5. DATE AND TIME OF PRODUCTION April 25, 2014, 5:00 PM EST</p>
---	--

6. SUBJECT OF PROCEEDING
In the matter of ECM BioFilms, Inc., Docket No. 9358

7. MATERIAL TO BE PRODUCED
See Attached Schedule A for description of all documents and materials.

<p>8. ADMINISTRATIVE LAW JUDGE Chief Administrative Law Judge D. Michael Chappell Federal Trade Commission Washington, D.C. 20580</p>	<p>9. COUNSEL AND PARTY ISSUING SUBPOENA Jonathan W. Emord, Peter Arhangelsky, Lou Caputo Emord & Associates, P.C. for Respondent, ECM BioFilms, Inc.</p>
---	---

<p>DATE SIGNED April 7, 2014</p>	<p>SIGNATURE OF COUNSEL ISSUING SUBPOENA </p>
--------------------------------------	--

GENERAL INSTRUCTIONS

APPEARANCE

The delivery of this subpoena to you by any method prescribed by the Commission's Rules of Practice is legal service and may subject you to a penalty imposed by law for failure to comply.

MOTION TO LIMIT OR QUASH

The Commission's Rules of Practice require that any motion to limit or quash this subpoena must comply with Commission Rule 3.34(c), 16 C.F.R. § 3.34(c), and in particular must be filed within the earlier of 10 days after service or the time for compliance. The original and ten copies of the petition must be filed before the Administrative Law Judge and with the Secretary of the Commission, accompanied by an affidavit of service of the document upon counsel listed in Item 9, and upon all other parties prescribed by the Rules of Practice.

TRAVEL EXPENSES

The Commission's Rules of Practice require that fees and mileage be paid by the party that requested your appearance. You should present your claim to counsel listed in Item 9 for payment. If you are permanently or temporarily living somewhere other than the address on this subpoena and it would require excessive travel for you to appear, you must get prior approval from counsel listed in Item 9.

A copy of the Commission's Rules of Practice is available online at <http://bit.ly/FTCRulesofPractice>. Paper copies are available upon request.

This subpoena does not require approval by OMB under the Paperwork Reduction Act of 1980.

SCHEDULE "A" TO SUBPOENA DUCES TECUM DIRECTED TO

DR. SHANE FREDERICK

INSTRUCTIONS

- A. Unless otherwise specified, the time period covered by a numbered request shall be limited to the time period extending from January 1, 2007 until the present date, unless differently stated therein.
- B. Documents must be delivered to Counsel for Respondent at the following address:

Emord & Associates, P.C.,
3210 South Gilbert Road, Suite 4
Chandler, AZ 85286
- C. A complete copy of each document should be submitted even if only a portion of the document is within the terms of the numbered request. The document shall not be edited, cut or expunged and shall include all covering letters and memoranda, transmittal slips, appendices, tables or other attachments.
- D. All information submitted shall be clearly and precisely identified as to the numbered request(s) to which it is responsive. Pages in the submission should be numbered consecutively, and each page should be marked with a unique "Bates" document tracking number.
- E. Documents covered by these numbered requests are those which are in your possession or under your actual or constructive custody or control, whether or not such documents were received from or disseminated to any other person or entity, including attorneys, accountants, directors, officers and employees.
- F. Documents that may be responsive to more than one numbered request need not be submitted more than once. However, your response should indicate, for each document submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- G. Documents that were responsive to, and produced in accordance with, the original subpoena *duces tecum* sent to you on February 13, 2014 need not be submitted again. However, your supplemental response should indicate, for each document s previously submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- H. If any of the documentary materials requested in these numbered requests are available in machine-readable form (such as floppy or hard disks, drums, core storage, magnetic tapes or punch cards), state the form in which it is available and describe the type of computer or other machinery required to read the documents involved. If the information requested is stored in a computer or a file or record generated by a computer, indicate whether you have

an existing program that will print the information in readable form and state the name, title, business address and telephone number of each person who is familiar with the program.

- I. All objections to these numbered requests, or to any individual request, must be raised in the initial response or otherwise waived.
- J. The Federal Trade Commission's Rules of Practice describes withholding requested material responsive to a subpoena under Rule 3.38A. For your convenience, Rule 3.38A states:

(a) Any person withholding material responsive to a subpoena issued pursuant to §3.34 or §3.36, written interrogatories requested pursuant to §3.35, a request for production or access pursuant to §3.37, or any other request for the production of materials under this part, shall assert a claim of privilege or any similar claim not later than the date set for production of the material. Such person shall, if so directed in the subpoena or other request for production, submit, together with such claim, a schedule which describes the nature of the documents, communications, or tangible things not produced or disclosed - and does so in a manner that, without revealing information itself privileged or protected, will enable other parties to assess the claim. The schedule need not describe any material outside the scope of the duty to search set forth in §3.31(c)(2) except to the extent that the Administrative Law Judge has authorized additional discovery as provided in that paragraph.

(b) A person withholding material for reasons described in §3.38A(a) shall comply with the requirements of that subsection in lieu of filing a motion to limit or quash compulsory process.

- K. The Federal Trade Commission's Rules of Practice describes motions to quash and/or limit subpoenas under Rule 3.34(c). For your convenience, Rule 3.34 states in relevant part:

(c) *Motions to quash; limitation on subpoenas.* Any motion by the subject of a subpoena to limit or quash the subpoena shall be filed within the earlier of 10 days after service thereof or the time for compliance therewith. Such motions shall set forth all assertions of privilege or other factual and legal objections to the subpoena, including all appropriate arguments, affidavits and other supporting documentation, and shall include the statement required by §3.22(g). Nothing in paragraphs (a) and (b) of this section authorizes the issuance of subpoenas except in accordance with §§3.31(c)(2) and 3.36.

- L. Some documents that you are requested to provide may be confidential. In the Protective Order dated October 22, 2013, Chief Administrative Law Judge D. Michael Chappell ordered that a party conducting discovery from third parties shall provide such third parties a copy of the Protective Order so as to inform third parties of his, her, or its rights. See ALJ Protective Order at 2, ¶4. Accordingly, a copy of the Protective Order is attached with this subpoena.

M. If any requested material is withheld based on a claim of privilege, submit together with such claim a schedule of the items withheld. For each item withheld, the schedule should state: (a) the item's type, title, specific subject matter and date; (b) the names, addresses, positions and organizations of all authors or recipients of the item; and (c) the specific grounds for claiming that the item is privileged. If only part of a responsive document is privileged, all non-privileged portions of the document must be submitted.

DESCRIPTION OF DOCUMENTS REQUESTED

Please produce the original or copies of the following documents (the term "documents" shall include all records, books of account, worksheets, checks, instructions, specifications, manuals, reports, books, periodicals, pamphlets, publications, raw and refined data, memoranda, graphs, drawings, notes, lab books, advertisements, list studies, meeting minutes, working papers, transcripts, magnetic tapes or discs, punch cards, computer printouts, letters, correspondence¹, agreements, drafts of agreements, telegrams, email, drafts, proposals, employee records, customer records, log files recommendations, and any other data recorded in readable and/or retrievable form, whether typed, handwritten, reproduced, magnetically recorded, coded, or in any other way made readable or retrievable):

1. All documents that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.
2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case.
3. Regardless of the date, all contracts, retainers, and/or agreements with Yale University.

¹ The term "correspondence" is intended, used, and defined in its broadest sense allowable under the FTC Rules of Practice. Such term includes, but is not limited to embrace emails, documents appended to emails, reports and any other written or electronic document of any kind that is communicated from the subpoena recipient or its agents to any and all other persons and entities.

4. All correspondence with any employee and/or consultant of the Biodegradable Products Institute (“BPI”).
5. All correspondence with Dr. Ramani Narayan.
6. All correspondence with any employee or contracting employee of O.W.S., Inc.
7. All correspondence with the American Chemistry Council.
8. All correspondence with APCO Insight.
9. All correspondence between you and any member, employee, representative, or officer of the United States Federal Trade Commission.
10. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case.
11. All documents revealing shares of stock or ownership interests held by you in any company.
12. All documents revealing consultant positions, executive or corporate positions, or financial arrangements between you and any company, university, or other financial institution concerning work or employment related to consumer perception.
13. Since January 1, 1999, copies of all papers, articles, dissertations, and publications authored by you that concern consumer perception and/or that may help form your opinions and conclusions in this case.
14. All conflict of interest forms or agreements signed by you.
15. Regardless of the date, if you have ever been a defendant or a plaintiff in a legal proceeding, copies of all complaints, answers, motions, and deposition, hearing and trial transcripts involving you from that proceeding along with all orders issued by the courts in those proceedings.

16. Regardless of the date, if you have ever served as an expert in any other proceeding, copies of all expert reports and testimony given by you in those proceedings.

INSTRUCTIONS FOR COMPLIANCE BY DELIVERY OF DOCUMENTS

If documents are delivered by hand, overnight delivery service, certified mail, or any other means your response shall be accompanied by an affidavit, executed by you that provides:

The names, addresses, positions, and organizations of all persons whose files were searched and all persons who participated in or supervised the collection of the documents², and a brief description of the nature of the work that each person performed in connection with the collecting the documents.

A statement that the search was complete and that responsive documents are being produced.

A statement as to whether the documents were made at or near the time of the occurrence of the matters set forth in such documents, kept in the course of your regularly conducted business, whether it was your regular practice to make and keep such documents, and the custodian of records and/or other executive(s) and/or employees of Yale University who have knowledge of such matters, can authenticate the documents and materials produced, and who can testify to such matters.

A statement as to whether any document called for by the subpoena has been misplaced, lost or destroyed. If any document has been misplaced, lost, or destroyed, identify: type of documents the date (or approximate date) of the documents, subject matter of the documents, all persons to whom it was addressed, circulated, or shown; its date of destruction, or when it was lost or misplaced; the reason it was destroyed, lost or misplaced; and the custodian of the documents on the date of its destruction, loss, or misplacement.

A declaration that states:

I declare (or certify, verify, or state) under penalty of perjury that the forgoing is true and correct.

Executed on [date].

² “Document” and “documents” as used in this Attachment are defined in this subpoena’s “Description of Documents Requested” section.

[Signature of party executing the declaration]

Respectfully submitted,

/s/ Jonathan W. Emord

Jonathan W. Emord, Esq.
EMORD & ASSOCIATES, P.C.
11808 Wolf Rune Lane
Clifton, VA 20124
Ph: 202-466-6937
Fx: 202-466-6938
Em: jemord@emord.com
Counsel to ECM BioFilms, Inc.

UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES

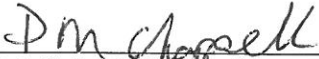
In the Matter of)
)
)
ECM BioFilms, Inc.,)
a corporation, also d/b/a)
)
Enviroplastics International,)
Respondent.)
_____)

DOCKET NO. 9358

PROTECTIVE ORDER GOVERNING DISCOVERY MATERIAL

Commission Rule 3.31(d) states: "In order to protect the parties and third parties against improper use and disclosure of confidential information, the Administrative Law Judge shall issue a protective order as set forth in the appendix to this section." 16 C.F.R. § 3.31(d). Pursuant to Commission Rule 3.31(d), the protective order set forth in the appendix to that section is attached verbatim as Attachment A and is hereby issued.

ORDERED:



D. Michael Chappell
Chief Administrative Law Judge

Date: October 22, 2013

ATTACHMENT A

For the purpose of protecting the interests of the parties and third parties in the above-captioned matter against improper use and disclosure of confidential information submitted or produced in connection with this matter:

IT IS HEREBY ORDERED THAT this Protective Order Governing Confidential Material (“Protective Order”) shall govern the handling of all Discovery Material, as hereafter defined.

1. As used in this Order, “confidential material” shall refer to any document or portion thereof that contains privileged, competitively sensitive information, or sensitive personal information. “Sensitive personal information” shall refer to, but shall not be limited to, an individual’s Social Security number, taxpayer identification number, financial account number, credit card or debit card number, driver’s license number, state-issued identification number, passport number, date of birth (other than year), and any sensitive health information identifiable by individual, such as an individual’s medical records. “Document” shall refer to any discoverable writing, recording, transcript of oral testimony, or electronically stored information in the possession of a party or a third party. “Commission” shall refer to the Federal Trade Commission (“FTC”), or any of its employees, agents, attorneys, and all other persons acting on its behalf, excluding persons retained as consultants or experts for purposes of this proceeding.
2. Any document or portion thereof submitted by a respondent or a third party during a Federal Trade Commission investigation or during the course of this proceeding that is entitled to confidentiality under the Federal Trade Commission Act, or any regulation, interpretation, or precedent concerning documents in the possession of the Commission, as well as any information taken from any portion of such document, shall be treated as confidential material for purposes of this Order. The identity of a third party submitting such confidential material shall also be treated as confidential material for the purposes of this Order where the submitter has requested such confidential treatment.
3. The parties and any third parties, in complying with informal discovery requests, disclosure requirements, or discovery demands in this proceeding may designate any responsive document or portion thereof as confidential material, including documents obtained by them from third parties pursuant to discovery or as otherwise obtained.
4. The parties, in conducting discovery from third parties, shall provide to each third party a copy of this Order so as to inform each such third party of his, her, or its rights herein.
5. A designation of confidentiality shall constitute a representation in good faith and after careful determination that the material is not reasonably believed to be already in the public domain and that counsel believes the material so designated constitutes confidential material as defined in Paragraph 1 of this Order.

6. Material may be designated as confidential by placing on or affixing to the document containing such material (in such manner as will not interfere with the legibility thereof), or if an entire folder or box of documents is confidential by placing or affixing to that folder or box, the designation “CONFIDENTIAL – FTC Docket No. 9358” or any other appropriate notice that identifies this proceeding, together with an indication of the portion or portions of the document considered to be confidential material. Confidential information contained in electronic documents may also be designated as confidential by placing the designation “CONFIDENTIAL – FTC Docket No. 9358” or any other appropriate notice that identifies this proceeding, on the face of the CD or DVD or other medium on which the document is produced. Masked or otherwise redacted copies of documents may be produced where the portions deleted contain privileged matter, provided that the copy produced shall indicate at the appropriate point that portions have been deleted and the reasons therefor.

7. Confidential material shall be disclosed only to: (a) the Administrative Law Judge presiding over this proceeding, personnel assisting the Administrative Law Judge, the Commission and its employees, and personnel retained by the Commission as experts or consultants for this proceeding; (b) judges and other court personnel of any court having jurisdiction over any appellate proceedings involving this matter; (c) outside counsel of record for any respondent, their associated attorneys and other employees of their law firm(s), provided they are not employees of a respondent; (d) anyone retained to assist outside counsel in the preparation or hearing of this proceeding including consultants, provided they are not affiliated in any way with a respondent and have signed an agreement to abide by the terms of the protective order; and (e) any witness or deponent who may have authored or received the information in question.

8. Disclosure of confidential material to any person described in Paragraph 7 of this Order shall be only for the purposes of the preparation and hearing of this proceeding, or any appeal therefrom, and for no other purpose whatsoever, provided, however, that the Commission may, subject to taking appropriate steps to preserve the confidentiality of such material, use or disclose confidential material as provided by its Rules of Practice; sections 6(f) and 21 of the Federal Trade Commission Act; or any other legal obligation imposed upon the Commission.

9. In the event that any confidential material is contained in any pleading, motion, exhibit or other paper filed or to be filed with the Secretary of the Commission, the Secretary shall be so informed by the Party filing such papers, and such papers shall be filed *in camera*. To the extent that such material was originally submitted by a third party, the party including the materials in its papers shall immediately notify the submitter of such inclusion. Confidential material contained in the papers shall continue to have *in camera* treatment until further order of the Administrative Law Judge, provided, however, that such papers may be furnished to persons or entities who may receive confidential material pursuant to Paragraphs 7 or 8. Upon or after filing any paper containing confidential material, the filing party shall file on the public record a duplicate copy of the paper that does not reveal confidential material. Further, if the protection for any such material expires, a party may file on the public record a duplicate copy which also contains the formerly protected material.

10. If counsel plans to introduce into evidence at the hearing any document or transcript containing confidential material produced by another party or by a third party, they shall provide advance notice to the other party or third party for purposes of allowing that party to seek an order that the document or transcript be granted *in camera* treatment. If that party wishes *in camera* treatment for the document or transcript, the party shall file an appropriate motion with the Administrative Law Judge within 5 days after it receives such notice. Except where such an order is granted, all documents and transcripts shall be part of the public record. Where *in camera* treatment is granted, a duplicate copy of such document or transcript with the confidential material deleted therefrom may be placed on the public record.

11. If any party receives a discovery request in any investigation or in any other proceeding or matter that may require the disclosure of confidential material submitted by another party or third party, the recipient of the discovery request shall promptly notify the submitter of receipt of such request. Unless a shorter time is mandated by an order of a court, such notification shall be in writing and be received by the submitter at least 10 business days before production, and shall include a copy of this Protective Order and a cover letter that will apprise the submitter of its rights hereunder. Nothing herein shall be construed as requiring the recipient of the discovery request or anyone else covered by this Order to challenge or appeal any order requiring production of confidential material, to subject itself to any penalties for non-compliance with any such order, or to seek any relief from the Administrative Law Judge or the Commission. The recipient shall not oppose the submitter's efforts to challenge the disclosure of confidential material. In addition, nothing herein shall limit the applicability of Rule 4.11(e) of the Commission's Rules of Practice, 16 CFR 4.11(e), to discovery requests in another proceeding that are directed to the Commission.

12. At the time that any consultant or other person retained to assist counsel in the preparation of this action concludes participation in the action, such person shall return to counsel all copies of documents or portions thereof designated confidential that are in the possession of such person, together with all notes, memoranda or other papers containing confidential information. At the conclusion of this proceeding, including the exhaustion of judicial review, the parties shall return documents obtained in this action to their submitters, provided, however, that the Commission's obligation to return documents shall be governed by the provisions of Rule 4.12 of the Rules of Practice, 16 CFR 4.12.

13. The provisions of this Protective Order, insofar as they restrict the communication and use of confidential discovery material, shall, without written permission of the submitter or further order of the Commission, continue to be binding after the conclusion of this proceeding.

**RESPONDENT
EXHIBIT
RX-B-1**

SCHEDULE "A" TO SUBPOENA DUCES TECUM DIRECTED TO

DR. STEPHEN MCCARTHY

INSTRUCTIONS

- A. Unless otherwise specified, the time period covered by a numbered request shall be limited to the time period extending from January 1, 2007 until the present date, unless differently stated therein.
- B. Documents must be delivered to Counsel for Respondent at the following address:

Emord & Associates, P.C.,
3210 South Gilbert Road, Suite 4
Chandler, AZ 85286
- C. A complete copy of each document should be submitted even if only a portion of the document is within the terms of the numbered request. The document shall not be edited, cut or expunged and shall include all covering letters and memoranda, transmittal slips, appendices, tables or other attachments.
- D. All information submitted shall be clearly and precisely identified as to the numbered request(s) to which it is responsive. Pages in the submission should be numbered consecutively, and each page should be marked with a unique "Bates" document tracking number.
- E. Documents covered by these numbered requests are those which are in your possession or under your actual or constructive custody or control, whether or not such documents were received from or disseminated to any other person or entity, including attorneys, accountants, directors, officers and employees.
- F. Documents that may be responsive to more than one numbered request need not be submitted more than once. However, your response should indicate, for each document submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- G. Documents that were responsive to, and produced in accordance with, the original subpoena *duces tecum* sent to you on February 13, 2014 need not be submitted again. However, your supplemental response should indicate, for each document s previously submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- H. If any of the documentary materials requested in these numbered requests are available in machine-readable form (such as floppy or hard disks, drums, core storage, magnetic tapes or punch cards), state the form in which it is available and describe the type of computer or other machinery required to read the documents involved. If the information requested is stored in a computer or a file or record generated by a computer, indicate whether you have

an existing program that will print the information in readable form and state the name, title, business address and telephone number of each person who is familiar with the program.

- I. All objections to these numbered requests, or to any individual request, must be raised in the initial response or otherwise waived.
- J. The Federal Trade Commission's Rules of Practice describes withholding requested material responsive to a subpoena under Rule 3.38A. For your convenience, Rule 3.38A states:

(a) Any person withholding material responsive to a subpoena issued pursuant to §3.34 or §3.36, written interrogatories requested pursuant to §3.35, a request for production or access pursuant to §3.37, or any other request for the production of materials under this part, shall assert a claim of privilege or any similar claim not later than the date set for production of the material. Such person shall, if so directed in the subpoena or other request for production, submit, together with such claim, a schedule which describes the nature of the documents, communications, or tangible things not produced or disclosed - and does so in a manner that, without revealing information itself privileged or protected, will enable other parties to assess the claim. The schedule need not describe any material outside the scope of the duty to search set forth in §3.31(c)(2) except to the extent that the Administrative Law Judge has authorized additional discovery as provided in that paragraph.

(b) A person withholding material for reasons described in §3.38A(a) shall comply with the requirements of that subsection in lieu of filing a motion to limit or quash compulsory process.

- K. The Federal Trade Commission's Rules of Practice describes motions to quash and/or limit subpoenas under Rule 3.34(c). For your convenience, Rule 3.34 states in relevant part:

(c) *Motions to quash; limitation on subpoenas.* Any motion by the subject of a subpoena to limit or quash the subpoena shall be filed within the earlier of 10 days after service thereof or the time for compliance therewith. Such motions shall set forth all assertions of privilege or other factual and legal objections to the subpoena, including all appropriate arguments, affidavits and other supporting documentation, and shall include the statement required by §3.22(g). Nothing in paragraphs (a) and (b) of this section authorizes the issuance of subpoenas except in accordance with §§3.31(c)(2) and 3.36.

- L. Some documents that you are requested to provide may be confidential. In the Protective Order dated October 22, 2013, Chief Administrative Law Judge D. Michael Chappell ordered that a party conducting discovery from third parties shall provide such third parties a copy of the Protective Order so as to inform third parties of his, her, or its rights. *See* ALJ Protective Order at 2, ¶4. Accordingly, a copy of the Protective Order is attached with this subpoena.

M. If any requested material is withheld based on a claim of privilege, submit together with such claim a schedule of the items withheld. For each item withheld, the schedule should state: (a) the item's type, title, specific subject matter and date; (b) the names, addresses, positions and organizations of all authors or recipients of the item; and (c) the specific grounds for claiming that the item is privileged. If only part of a responsive document is privileged, all non-privileged portions of the document must be submitted.

DESCRIPTION OF DOCUMENTS REQUESTED

Please produce the original or copies of the following documents (the term "documents" shall include all records, books of account, worksheets, checks, instructions, specifications, manuals, reports, books, periodicals, pamphlets, publications, raw and refined data, memoranda, graphs, drawings, notes, lab books, advertisements, list studies, meeting minutes, working papers, transcripts, magnetic tapes or discs, punch cards, computer printouts, letters, correspondence¹, agreements, drafts of agreements, telegrams, email, drafts, proposals, employee records, customer records, log files recommendations, and any other data recorded in readable and/or retrievable form, whether typed, handwritten, reproduced, magnetically recorded, coded, or in any other way made readable or retrievable):

1. All documents received or possessed before you were engaged as an expert (consulting or testifying) in FTC Docket No. 9358 that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.

2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case. Production of all

¹ The term "correspondence" is intended, used, and defined in its broadest sense allowable under the FTC Rules of Practice. Such term includes, but is not limited to, emails, documents appended to emails, reports and any other written or electronic document of any kind that is communicated from the subpoena recipient or its agents to any and all other persons and entities.

responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

3. All contracts, retainers, or engagement letters between you and any public or private firm that manufactures and/or produces biodegradable and/or compostable products.

4. All reports, analyses, assessments, tests, data, summaries, and conclusions issued to any public or private firm that manufactures and/or produces biodegradable and/or compostable products concerning the biodegradability of plastics manufactured by those companies.

5. All correspondence between you and any firm that manufactures and/or produces a product or substance in competition generally with other biodegradable plastic products (to wit, ECM's additive) concerning the biodegradability of plastics manufactured with plastic additives.

6. All correspondence and sections of contracts, retainers, and/or agreements with the University of Massachusetts, Lowell ("Umass") concerning funding (including research grants) of research related to biodegradable plastics or polymers.

7. All your pending or existing patents that involve or relate to plastics and or biodegradable and compostable substances, products, and technologies, including those patents for which you are the assignor.

8. All licensing or royalty agreements involving or concerning patents identified *supra* in response to Request 7, and all such agreements involving intellectual property related to biodegradable and compostable products.

9. Copies of all contracts, grant documents (including proposals) for the following research projects you were involved in:

- a. Metabolix, "Development of Novel of Biodegradable Materials, \$1,500,196

- b. NSF Center for Biodegradable Polymer Research, \$1,200,000 Industrial Members (8/93-present), Principal Investigator
 - c. Polymer Degradation Research Center, \$475,000, Industrial Members (8/89-8/93)
 - d. Digital, "Plastics Materials Research", \$458,706
 - e. Metabolix Inc., Performance of PHA Derived Chemicals and Polyols in Polyurethane, \$141,465
 - f. 3M, "Composting Research", \$155,000
 - g. Warner Lambert, "Biodegradable Polymer Research", \$116,591
 - h. National Science Foundation, "Biodegradable Polymer Research Center", \$110,000 (8/93-8/95)
 - i. Department of the Army, "Polymer Degradation Research", \$104,000
 - j. Institute for Plastics Innovation, "Injection Molding Research", \$75,000
 - k. Massachusetts Centers of Excellence, "Institute for Plastics Innovation", \$75,000
 - l. Metabolix Inc., Performance of Polyhydroxyalkanote Derived Chemicals and Polyols in Polyurethane, \$71,465
 - m. Battelle, "Biodegradable Packaging Development", \$59,865
 - n. DuPont Corian, \$50,000
 - o. Invista, "Evaluation of Plasticizers", \$ 28,000
 - p. Massachusetts Centers of Excellence, "Polymer Degradation Research", \$25,000
10. All documents concerning any testing or product evaluations involving biodegradable and/or compostable plastics in which you participated on behalf of, or as a member of, the BioEnvironmental Polymer Society and/or the Society of Plastics Engineers.

11. All correspondence between you and any employee and/or consultant of the Biodegradable Products Institute (“BPI”).
12. All correspondence with Dr. Ramani Narayan.
13. All correspondence with any employee or contracting employee of O.W.S., Inc. related to biodegradable plastics.
14. All correspondence (not subject to attorney client or work-product privilege and received before engagement as an expert in FTC Docket No. 9358) with any employee and/or representative of the Federal Trade Commission concerning biodegradable plastics.
15. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case. Production of all responsive materials should be submitted in accordance with the Commission’s Rules of Practice and the ALJ’s Scheduling Order in this matter.
16. All documents revealing shares of stock or ownership interests held by you in any company that sells, manufactures, or markets plastics, biodegradable technologies, and/or compostable technologies.
17. A listing of all consultant, executive, or corporate positions you held concerning work or employment related to the biodegradability of plastics over the past ten years.
18. All documents and correspondence between you and the authors of the article Gómez, EF, Michel Jr., FC. “Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation” Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591.

19. Copies of all scientific publications, papers, or presentations that you authored concerning the rate or extent of biodegradable (including compostable) polymers when measured in a laboratory environment or *in situ*.

20. All conflict of interest forms or agreements completed or signed by you in association with your work at the Umass, or as a testifying witness in this case.

21. All documents concerning ASTM, including correspondence, in which you presented a proposal, voted on a proposal, or opposed a proposal concerning biodegradable plastics standards or test methods.

22. If you have ever served as an expert in any other proceeding involving the Federal Trade Commission, copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

23. If you have ever served as an expert in any other legal proceeding involving plastics technologies, produce copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

INSTRUCTIONS FOR COMPLIANCE BY DELIVERY OF DOCUMENTS

If documents are delivered by hand, overnight delivery service, certified mail, or any other means your response shall be accompanied by an affidavit, executed by you that provides:

The names, addresses, positions, and organizations of all persons whose files were searched and all persons who participated in or supervised the collection of the documents², and a brief description of the nature of the work that each person performed in connection with the collecting the documents.

A statement that the search was complete and that responsive documents are being produced.

A statement as to whether the documents were made at or near the time of the occurrence of the matters set forth in such documents, kept in the course of your regularly conducted business, whether it was your regular practice to make and keep such documents, and the custodian of records and/or other executive(s) and/or employees of the University of Massachusetts, Lowell who have knowledge of such matters, can authenticate the documents and materials produced, and who can testify to such matters.

A statement as to whether any document called for by the subpoena has been misplaced, lost or destroyed. If any document has been misplaced, lost, or destroyed, identify: type of documents the date (or approximate date) of the documents, subject matter of the documents, all persons to whom it was addressed, circulated, or shown; its date of destruction, or when it was lost or misplaced; the reason it was destroyed, lost or misplaced; and the custodian of the documents on the date of its destruction, loss, or misplacement.

A declaration that states:

I declare (or certify, verify, or state) under penalty of perjury that the forgoing is true and correct.

Executed on [date].

[Signature of party executing the declaration]

Respectfully submitted,

² “Document” and “documents” as used in this Attachment are defined in this subpoena’s “Description of Documents Requested” section.

/s/ Jonathan W. Emord

Jonathan W. Emord, Esq.
EMORD & ASSOCIATES, P.C.
11808 Wolf Rune Lane
Clifton, VA 20124
Ph: 202-466-6937
Fx: 202-466-6938
Em: jemord@emord.com
Counsel to ECM BioFilms, Inc.

**RESPONDENT
EXHIBIT
RX-B-2**

SCHEDULE "A" TO SUBPOENA DUCES TECUM DIRECTED TO

DR. THABET TOLAYMET

INSTRUCTIONS

- A. Unless otherwise specified, the time period covered by a numbered request shall be limited to the time period extending from January 1, 2007 until the present date, unless differently stated therein.
- B. Documents must be delivered to Counsel for Respondent at the following address:

Emord & Associates, P.C.,
3210 South Gilbert Road, Suite 4
Chandler, AZ 85286
- C. A complete copy of each document should be submitted even if only a portion of the document is within the terms of the numbered request. The document shall not be edited, cut or expunged and shall include all covering letters and memoranda, transmittal slips, appendices, tables or other attachments.
- D. All information submitted shall be clearly and precisely identified as to the numbered request(s) to which it is responsive. Pages in the submission should be numbered consecutively, and each page should be marked with a unique "Bates" document tracking number.
- E. Documents covered by these numbered requests are those which are in your possession or under your actual or constructive custody or control, whether or not such documents were received from or disseminated to any other person or entity, including attorneys, accountants, directors, officers and employees.
- F. Documents that may be responsive to more than one numbered request need not be submitted more than once. However, your response should indicate, for each document submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- G. Documents that were responsive to, and produced in accordance with, the original subpoena *duces tecum* sent to you on February 13, 2014 need not be submitted again. However, your supplemental response should indicate, for each document s previously submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- H. If any of the documentary materials requested in these numbered requests are available in machine-readable form (such as floppy or hard disks, drums, core storage, magnetic tapes or punch cards), state the form in which it is available and describe the type of computer or other machinery required to read the documents involved. If the information requested is stored in a computer or a file or record generated by a computer, indicate whether you have

an existing program that will print the information in readable form and state the name, title, business address and telephone number of each person who is familiar with the program.

- I. All objections to these numbered requests, or to any individual request, must be raised in the initial response or otherwise waived.
- J. The Federal Trade Commission's Rules of Practice describes withholding requested material responsive to a subpoena under Rule 3.38A. For your convenience, Rule 3.38A states:

(a) Any person withholding material responsive to a subpoena issued pursuant to §3.34 or §3.36, written interrogatories requested pursuant to §3.35, a request for production or access pursuant to §3.37, or any other request for the production of materials under this part, shall assert a claim of privilege or any similar claim not later than the date set for production of the material. Such person shall, if so directed in the subpoena or other request for production, submit, together with such claim, a schedule which describes the nature of the documents, communications, or tangible things not produced or disclosed - and does so in a manner that, without revealing information itself privileged or protected, will enable other parties to assess the claim. The schedule need not describe any material outside the scope of the duty to search set forth in §3.31(c)(2) except to the extent that the Administrative Law Judge has authorized additional discovery as provided in that paragraph.

(b) A person withholding material for reasons described in §3.38A(a) shall comply with the requirements of that subsection in lieu of filing a motion to limit or quash compulsory process.

- K. The Federal Trade Commission's Rules of Practice describes motions to quash and/or limit subpoenas under Rule 3.34(c). For your convenience, Rule 3.34 states in relevant part:

(c) *Motions to quash; limitation on subpoenas.* Any motion by the subject of a subpoena to limit or quash the subpoena shall be filed within the earlier of 10 days after service thereof or the time for compliance therewith. Such motions shall set forth all assertions of privilege or other factual and legal objections to the subpoena, including all appropriate arguments, affidavits and other supporting documentation, and shall include the statement required by §3.22(g). Nothing in paragraphs (a) and (b) of this section authorizes the issuance of subpoenas except in accordance with §§3.31(c)(2) and 3.36.

- L. Some documents that you are requested to provide may be confidential. In the Protective Order dated October 22, 2013, Chief Administrative Law Judge D. Michael Chappell ordered that a party conducting discovery from third parties shall provide such third parties a copy of the Protective Order so as to inform third parties of his, her, or its rights. See ALJ Protective Order at 2, ¶4. Accordingly, a copy of the Protective Order is attached with this subpoena.

M. If any requested material is withheld based on a claim of privilege, submit together with such claim a schedule of the items withheld. For each item withheld, the schedule should state: (a) the item's type, title, specific subject matter and date; (b) the names, addresses, positions and organizations of all authors or recipients of the item; and (c) the specific grounds for claiming that the item is privileged. If only part of a responsive document is privileged, all non-privileged portions of the document must be submitted.

DESCRIPTION OF DOCUMENTS REQUESTED

Please produce the original or copies of the following documents (the term "documents" shall include all records, books of account, worksheets, checks, instructions, specifications, manuals, reports, books, periodicals, pamphlets, publications, raw and refined data, memoranda, graphs, drawings, notes, lab books, advertisements, list studies, meeting minutes, working papers, transcripts, magnetic tapes or discs, punch cards, computer printouts, letters, correspondence¹, agreements, drafts of agreements, telegrams, email, drafts, proposals, employee records, customer records, log files recommendations, and any other data recorded in readable and/or retrievable form, whether typed, handwritten, reproduced, magnetically recorded, coded, or in any other way made readable or retrievable):

1. All documents received or possessed before engagement as an expert (consulting or testifying) in FTC Docket No. 9358 that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.

2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case. Production of all

¹ The term "correspondence" is intended, used, and defined in its broadest sense allowable under the FTC Rules of Practice. Such term includes, but is not limited to embrace emails, documents appended to emails, reports and any other written or electronic document of any kind that is communicated from the subpoena recipient or its agents to any and all other persons and entities.

responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

3. All correspondence with any employee and/or consultant of the Biodegradable Products Institute ("BPI").

4. All correspondence with Dr. Ramani Narayan.

5. All correspondence with any employee or contracting employee of O.W.S., Inc. related to biodegradable plastics.

6. All correspondence (not subject to attorney client or work-product privilege and received before engagement as an expert in FTC Docket No. 9358) between you and any member, employee, representative, or officer of the United States Federal Trade Commission.

7. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

8. A listing of all shares of stock or ownership interests held by you in any company associated with plastics, biodegradable products or technologies, and/or compostable products or technologies.

9. Copies of all papers, articles, and publications that you authored or co-authored concerning the rates of biodegradation of landfilled waste, including municipal solid waste landfills, bioreactor landfills, and commercial composters.

10. Copies of all papers, articles, and publications that you authored or co-authored concerning the anaerobic or aerobic biodegradability of plastic polymers.

11. All correspondence between you and Dr. Morton Barlaz concerning rates of biodegradation in landfills.

12. All conflict of interest forms or agreements signed by you in association with your employment with the Environmental Protection Agency, or in association with this case.

13. If you have ever served as an expert in any other proceeding involving the Federal Trade Commission, copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

14. If you have ever served as an expert in any other legal proceeding involving environmental claims or technologies, produce copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

INSTRUCTIONS FOR COMPLIANCE BY DELIVERY OF DOCUMENTS

If documents are delivered by hand, overnight delivery service, certified mail, or any other means your response shall be accompanied by an affidavit, executed by you that provides:

The names, addresses, positions, and organizations of all persons whose files were searched and all persons who participated in or supervised the collection of the documents², and a brief description of the nature of the work that each person performed in connection with the collecting the documents.

A statement that the search was complete and that responsive documents are being produced.

A statement as to whether the documents were made at or near the time of the occurrence of the matters set forth in such documents, kept in the course of your regularly conducted business, whether it was your regular practice to make and keep such documents, and the custodian of records and/or other executive(s) and/or employees of the Environmental Protection Agency who have knowledge of such matters, can authenticate the documents and materials produced, and who can testify to such matters.

A statement as to whether any document called for by the subpoena has been misplaced, lost or destroyed. If any document has been misplaced, lost, or destroyed, identify: type of documents the date (or approximate date) of the documents, subject matter of the documents, all persons to whom it was addressed, circulated, or shown; its date of destruction, or when it was lost or misplaced; the reason it was destroyed, lost or misplaced; and the custodian of the documents on the date of its destruction, loss, or misplacement.

A declaration that states:

I declare (or certify, verify, or state) under penalty of perjury that the forgoing is true and correct.

Executed on [date].

[Signature of party executing the declaration]

² “Document” and “documents” as used in this Attachment are defined in this subpoena’s “Description of Documents Requested” section.

Respectfully submitted,

/s/ Jonathan W. Emord

Jonathan W. Emord, Esq.
EMORD & ASSOCIATES, P.C.
11808 Wolf Rune Lane
Clifton, VA 20124
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Fx: 202-466-6938
Em: jemord@emord.com
Counsel to ECM BioFilms, Inc.

**RESPONDENT
EXHIBIT
RX-B-3**

SCHEDULE "A" TO SUBPOENA DUCES TECUM DIRECTED TO

DR. SHANE FREDERICK

INSTRUCTIONS

- A. Unless otherwise specified, the time period covered by a numbered request shall be limited to the time period extending from January 1, 2007 until the present date, unless differently stated therein.
- B. Documents must be delivered to Counsel for Respondent at the following address:

Emord & Associates, P.C.,
3210 South Gilbert Road, Suite 4
Chandler, AZ 85286
- C. A complete copy of each document should be submitted even if only a portion of the document is within the terms of the numbered request. The document shall not be edited, cut or expunged and shall include all covering letters and memoranda, transmittal slips, appendices, tables or other attachments.
- D. All information submitted shall be clearly and precisely identified as to the numbered request(s) to which it is responsive. Pages in the submission should be numbered consecutively, and each page should be marked with a unique "Bates" document tracking number.
- E. Documents covered by these numbered requests are those which are in your possession or under your actual or constructive custody or control, whether or not such documents were received from or disseminated to any other person or entity, including attorneys, accountants, directors, officers and employees.
- F. Documents that may be responsive to more than one numbered request need not be submitted more than once. However, your response should indicate, for each document submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- G. Documents that were responsive to, and produced in accordance with, the original subpoena *duces tecum* sent to you on February 13, 2014 need not be submitted again. However, your supplemental response should indicate, for each document s previously submitted, each numbered request to which the document is responsive. Identification shall be by the Bates number if the documents(s) were so numbered when submitted or by author and subject matter if not so numbered.
- H. If any of the documentary materials requested in these numbered requests are available in machine-readable form (such as floppy or hard disks, drums, core storage, magnetic tapes or punch cards), state the form in which it is available and describe the type of computer or other machinery required to read the documents involved. If the information requested is stored in a computer or a file or record generated by a computer, indicate whether you have

an existing program that will print the information in readable form and state the name, title, business address and telephone number of each person who is familiar with the program.

- I. All objections to these numbered requests, or to any individual request, must be raised in the initial response or otherwise waived.
- J. The Federal Trade Commission's Rules of Practice describes withholding requested material responsive to a subpoena under Rule 3.38A. For your convenience, Rule 3.38A states:

(a) Any person withholding material responsive to a subpoena issued pursuant to §3.34 or §3.36, written interrogatories requested pursuant to §3.35, a request for production or access pursuant to §3.37, or any other request for the production of materials under this part, shall assert a claim of privilege or any similar claim not later than the date set for production of the material. Such person shall, if so directed in the subpoena or other request for production, submit, together with such claim, a schedule which describes the nature of the documents, communications, or tangible things not produced or disclosed - and does so in a manner that, without revealing information itself privileged or protected, will enable other parties to assess the claim. The schedule need not describe any material outside the scope of the duty to search set forth in §3.31(c)(2) except to the extent that the Administrative Law Judge has authorized additional discovery as provided in that paragraph.

(b) A person withholding material for reasons described in §3.38A(a) shall comply with the requirements of that subsection in lieu of filing a motion to limit or quash compulsory process.

- K. The Federal Trade Commission's Rules of Practice describes motions to quash and/or limit subpoenas under Rule 3.34(c). For your convenience, Rule 3.34 states in relevant part:

(c) *Motions to quash; limitation on subpoenas.* Any motion by the subject of a subpoena to limit or quash the subpoena shall be filed within the earlier of 10 days after service thereof or the time for compliance therewith. Such motions shall set forth all assertions of privilege or other factual and legal objections to the subpoena, including all appropriate arguments, affidavits and other supporting documentation, and shall include the statement required by §3.22(g). Nothing in paragraphs (a) and (b) of this section authorizes the issuance of subpoenas except in accordance with §§3.31(c)(2) and 3.36.

- L. Some documents that you are requested to provide may be confidential. In the Protective Order dated October 22, 2013, Chief Administrative Law Judge D. Michael Chappell ordered that a party conducting discovery from third parties shall provide such third parties a copy of the Protective Order so as to inform third parties of his, her, or its rights. See ALJ Protective Order at 2, ¶4. Accordingly, a copy of the Protective Order is attached with this subpoena.

M. If any requested material is withheld based on a claim of privilege, submit together with such claim a schedule of the items withheld. For each item withheld, the schedule should state: (a) the item's type, title, specific subject matter and date; (b) the names, addresses, positions and organizations of all authors or recipients of the item; and (c) the specific grounds for claiming that the item is privileged. If only part of a responsive document is privileged, all non-privileged portions of the document must be submitted.

DESCRIPTION OF DOCUMENTS REQUESTED

Please produce the original or copies of the following documents (the term "documents" shall include all records, books of account, worksheets, checks, instructions, specifications, manuals, reports, books, periodicals, pamphlets, publications, raw and refined data, memoranda, graphs, drawings, notes, lab books, advertisements, list studies, meeting minutes, working papers, transcripts, magnetic tapes or discs, punch cards, computer printouts, letters, correspondence¹, agreements, drafts of agreements, telegrams, email, drafts, proposals, employee records, customer records, log files recommendations, and any other data recorded in readable and/or retrievable form, whether typed, handwritten, reproduced, magnetically recorded, coded, or in any other way made readable or retrievable):

1. All documents received or possessed before engagement as an expert (consulting or testifying) in FTC Docket No. 9358 that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.

2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case. Production of all

¹ The term "correspondence" is intended, used, and defined in its broadest sense allowable under the FTC Rules of Practice. Such term includes, but is not limited to embrace emails, documents appended to emails, reports and any other written or electronic document of any kind that is communicated from the subpoena recipient or its agents to any and all other persons and entities.

responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

3. Regardless of the date, all sections of contracts, retainers, and/or agreements with Yale University concerning conflicts of interest and/or supplemental employment (such as consultation services in litigation).

4. All correspondence with any employee and/or consultant of the Biodegradable Products Institute ("BPI").

5. All correspondence with Dr. Ramani Narayan.

6. All correspondence (not subject to attorney client or work-product privilege and exchanged before engagement as an expert in FTC Docket No. 9358) between you and any member, employee, representative, or officer of the United States Federal Trade Commission.

7. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

8. A listing of all shares of stock or ownership interests held by you in any company associated with plastics, biodegradable products or technologies, and/or compostable products or technologies.

9. All documents, including papers, articles, dissertations, and publications that you authored, co-authored, or contributed to that concerned work related to marketing research (including consumer perception) of trade consumers, e.g., corporate entities, distributors, wholesalers, etc., as opposed to end-consumers.

10. Since January 1, 1999, copies of all papers, articles, dissertations, and publications authored by you that concern consumer perception that may help form your opinions and conclusions in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

11. All conflict of interest forms or agreements signed by you.

12. Regardless of the date, if you have ever been a defendant or a plaintiff in a legal proceeding, copies of all complaints, answers, motions, and transcripts (deposition, hearing and trial) involving you in your professional capacity, along with all orders issued by the courts in those proceedings.

13. If you have ever served as an expert in any other proceeding involving the Federal Trade Commission, copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

14. If you have ever served as an expert in any other legal proceeding involving environmental claims, produce copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

INSTRUCTIONS FOR COMPLIANCE BY DELIVERY OF DOCUMENTS

If documents are delivered by hand, overnight delivery service, certified mail, or any other means your response shall be accompanied by an affidavit, executed by you that provides:

The names, addresses, positions, and organizations of all persons whose files were searched and all persons who participated in or supervised the collection of the documents², and a brief description of the nature of the work that each person performed in connection with the collecting the documents.

A statement that the search was complete and that responsive documents are being produced.

A statement as to whether the documents were made at or near the time of the occurrence of the matters set forth in such documents, kept in the course of your regularly conducted business, whether it was your regular practice to make and keep such documents, and the custodian of records and/or other executive(s) and/or employees of Yale University who have knowledge of such matters, can authenticate the documents and materials produced, and who can testify to such matters.

A statement as to whether any document called for by the subpoena has been misplaced, lost or destroyed. If any document has been misplaced, lost, or destroyed, identify: type of documents the date (or approximate date) of the documents, subject matter of the documents, all persons to whom it was addressed, circulated, or shown; its date of destruction, or when it was lost or misplaced; the reason it was destroyed, lost or misplaced; and the custodian of the documents on the date of its destruction, loss, or misplacement.

A declaration that states:

I declare (or certify, verify, or state) under penalty of perjury that the forgoing is true and correct.

Executed on [date].

[Signature of party executing the declaration]

Respectfully submitted,

² “Document” and “documents” as used in this Attachment are defined in this subpoena’s “Description of Documents Requested” section.

/s/ Jonathan W. Emord

Jonathan W. Emord, Esq.
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11808 Wolf Rune Lane
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Ph: 202-466-6937
Fx: 202-466-6938
Em: jemord@emord.com
Counsel to ECM BioFilms, Inc.

RESPONDENT
EXHIBIT
RX-C

From: [Cohen, Jonathan](#)
To: [Lou Caputo](#); [Jonathan Emord](#); [Peter Arhangelsky](#)
Cc: [Jillson, Elisa](#); [Johnson, Katherine](#)
Subject: RE: Docket No. 9358, Subpoenas Duces Tecum
Date: Monday, April 07, 2014 4:48:25 PM

Lou,

Your prior email does not state that your “subpoenas are **to be dispatched** today.” Rather, you wrote: “Please find the attached subpoenas *duces tecum* dispatched today.” Obviously, we can’t accept service of subpoenas you already sent to our experts via Federal Express. If, in fact, the subpoenas were not “dispatched today,” but are merely scheduled to be dispatched, then yes, we will accept service on our experts’ behalf.

I note that this acceptance reserves all rights other than the right to object to the subpoenas based on their service.

We’ll give you a call tomorrow at 4:30 EST to discuss our objections.

Jonathan Cohen

Enforcement Division | Bureau of Consumer Protection | Federal Trade Commission
600 Pennsylvania Avenue, N.W., M-8102B Washington, D.C. 20580
(202) 326-2551 | jcohen2@ftc.gov

From: Lou Caputo [<mailto:LCaputo@emord.com>]
Sent: Monday, April 07, 2014 7:28 PM
To: Cohen, Jonathan; Jonathan Emord; Peter Arhangelsky
Cc: Jillson, Elisa; Johnson, Katherine
Subject: RE: Docket No. 9358, Subpoenas Duces Tecum

Jonathan,

We assume by your comments that Complaint Counsel will accept service on behalf of Drs. McCarthy, Tolaymet, and Frederick. Please confirm. **As previously stated, our subpoenas are to be dispatched today.** If you are stating that Complaint Counsel will not accept service of a subpoena on behalf of its own experts, please inform us of this immediately. Further, subpoenas to retained experts are permissible. *See All W. Pet Supply Co. v. Hill's Pet Products Div., Colgate-Palmolive Co.*, 152 F.R.D. 634, 639 (D. Kan. 1993) (“With regard to nonparties such as plaintiff's expert witness, a request for documents may be made by subpoena *duces tecum* pursuant to Rule 45”); *Expeditors Int'l of Washington, Inc. v. Vastera, Inc.*, 04 C 0321, 2004 WL 406999 (N.D. Ill. Feb. 26, 2004) (rejecting blanket prohibition of subpoenas to retained experts under *Marsh v. Jackson*).

Please confirm whether you will accept service. We are available for a call to hear more of your position tomorrow after 3:00 PM EST.

Thank you,

Lou

Lou Caputo | EMORD & ASSOCIATES, P.C. | 3210 S. Gilbert Rd., Ste 4 | Chandler, AZ 85286 Firm: (602) 388-8901 | Facsimile: (602) 393-4361 | www.emord.com

NOTICE: This is a confidential communication intended for the recipient listed above. The content of this communication is protected from disclosure by the attorney-client privilege and the work product doctrine. If you are not the intended recipient, you should treat this communication as strictly confidential and provide it to the person intended. Duplication or distribution of this communication is prohibited by the sender. If this communication has been sent to you in error, please notify the sender and then immediately destroy the document.

From: Cohen, Jonathan [<mailto:jcohen2@ftc.gov>]
Sent: Monday, April 07, 2014 3:00 PM
To: Lou Caputo; Jonathan Emord; Peter Arhangelsky
Cc: Jillson, Elisa; Johnson, Katherine
Subject: RE: Docket No. 9358, Subpoenas Duces Tecum

Counsel,

These subpoenas to our experts are grossly improper. Both the FRCP Commentary and case law make plain that you cannot subpoena experts directly, and nothing in FTC Rule 3.34 suggests otherwise. *See, e.g.*, FRCP 45, 1991 Amendment, Subsection (c) Advisory Committee Notes; *Marsh v. Jackson*, 141 F.R.D. 431, 432 (W.D. Va. 1992) (mag. op.).

Please withdraw these subpoenas and re-submit your proposed discovery as document requests directed to Complaint Counsel. We will then respond or object accordingly.

Alternatively, if you will not withdraw the subpoenas, please provide us with times tomorrow afternoon when you are available to meet and confer.

Jonathan Cohen

Enforcement Division | Bureau of Consumer Protection | Federal Trade Commission
600 Pennsylvania Avenue, N.W., M-8102B Washington, D.C. 20580
(202) 326-2551 | jcohen2@ftc.gov

From: Lou Caputo [<mailto:L.Caputo@emord.com>]
Sent: Monday, April 07, 2014 4:59 PM
To: Johnson, Katherine
Cc: Jillson, Elisa; Cohen, Jonathan; Jonathan Emord; Peter Arhangelsky
Subject: Docket No. 9358, Subpoenas Duces Tecum

Counsel,

Please find the attached subpoenas *duces tecum* dispatched today.

Thank you,

Lou Caputo | EMORD & ASSOCIATES, P.C. | 3210 S. Gilbert Rd., Ste 4 | Chandler, AZ 85286 Firm: (602) 388-8901 | Facsimile: (602) 393-4361 | www.emord.com

NOTICE: This is a confidential communication intended for the recipient listed above. The content of this communication is protected from disclosure by the attorney-client privilege and the work product doctrine. If you are not the intended recipient, you should treat this communication as strictly confidential and provide it to the person intended. Duplication or distribution of this communication is prohibited by the sender. If this communication has been sent to you in error, please notify the sender and then immediately destroy the document.

RESPONDENT
EXHIBIT
RX-D



FEDERAL TRADE COMMISSION

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April 11, 2014

VIA ELECTRONIC MAIL

Jonathan W. Emord
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11808 Wolf Run Lane
Clifton, VA 20124

Peter Arhangelsky
Lou Caputo
Bethany R. Kennedy
Emord & Associates, P.C.
3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286

RE: *In the Matter of ECM BioFilms, Inc., No. 9358*
Expert Discovery

Counsel,

We write on behalf of Complaint Counsel, as well as our three experts whom you attempted to serve with subpoenas (Dr. Shane Frederick, Dr. Steven McCarthy, and Dr. Thabet Tolaymet). We appreciate your willingness to allow Complaint Counsel to accept service on their behalf (although, as discussed below, the manner in which the attempted service developed raises questions).¹ We also appreciate your willingness to meet and confer regarding the issues the subpoenas raise. As we promised we would do, we outline herein what information we will provide, why, and under what circumstances. We failed to persuade you on Tuesday to commit to any sort of response; accordingly, you are not obligated to provide any basis for even the broadest of your requests, or to respond to this

¹ As we previously stated, other than the right to contest service, we reserve all other rights to object to these subpoenas. Reserved objections include, without limitation, the right to object on grounds that the subpoenas lack the Commission's seal.

letter otherwise. However, we genuinely hope that you will do so, as dialogue concerning these issues could help avoid litigating them.

To begin, the parties substantially disagree concerning the propriety of your attempt to subpoena our experts directly. Complaint Counsel engaged them and they serve as our agents for purposes of this litigation. From an agency law perspective, they are not materially distinct from part-time employees ECM might engage. We would not communicate with such employees directly even if we had an arguable ethical basis to do so, and we will treat ECM's other agents (including its experts) with the same courtesy.²

Furthermore, the parties substantially disagree concerning the propriety of your decision to issue third-party subpoenas seeking expert-related information rather than obtaining this information (1) through our mandatory expert disclosures; (2) by deposing our experts; or (3) through discovery issued to Complaint Counsel. As we discussed, there is conflicting case law,³ but the Court has adopted the majority view supporting our position.⁴

² Probably to our prejudice, we kept our promise to give ECM reasonable notice before serving any of its customers, so that ECM could communicate with those customers before they received our subpoenas. This type of courtesy should run in both directions.

³ Most courts hold that FRCP 26(b)(4) (analogous to FTC Rule 3.31A) limits parties' ability to issue subpoenas *duces tecum* to testifying experts. Compare *In re Fuller*, No. 2:13-mc-140, 2013 WL 5305317, *2 (D. Me. Sept. 8, 2013) ("The Rules Committee's comment to the 1991 amendment of Rule 45 states clearly that the rule 'does not apply to the expert retained by a party, whose information is subject to the provisions of Rule 26(b)(4).'""); *Ambrose v. Southworth Prods. Corp.*, No. 95-0048, 1997 WL 470359, *1 (W.D. Va. June 24, 1997) (quashing subpoena *duces tecum* issued to testifying expert); *Perry v. United States*, No. 96-CV-2038, 1997 WL 53136, *1 (N.D. Tex. Feb. 4, 1997) ("A party may not circumvent the limitations of Rule 26 and gain access to opposing expert evidence via a bare subpoena *duces tecum*."); *Greer v. Anglemeyer*, No. 3:93-CV-649, 1996 WL 56557, *2 (N.D. Ind. Jan. 5, 1996) ("Dr. Barclay may not use a Rule 45 subpoena to obtain Dr. Land's records because Rule 26(b)(4) limits his right of access to those records."); *Hartford Fire Ins. Co. v. Pure Air on the Lake Ltd. P'Ship*, 154 F.R.D. 202, 208 (N.D. Ind. 1993) ("Rule 45 of the Federal Rules of Civil Procedure cannot be utilized for obtaining an expert's files where Rule 26(b)(4) remains the limitation on discoverability.") (citation omitted); *Quaile v. Carol Cable Co.*, No. 90-7415, 1992 WL 277981, *2 (E.D. Pa. Oct. 5, 1992) ("It is also recognized that a subpoena under Fed. R. Civ. P. 45, with respect to experts expected to be called at trial, is limited by Fed. R. Civ. P. 26.") (citation omitted); *Marsh v. Jackson*, 141 F.R.D. 431, 432 (W.D. Va. 1992) ("[T]he court concludes that Rule 26(b)(4) remains a limitation on the right of access by an opposing party to the evidence of experts who have been retained to testify in the case, and that the discovery of the facts and opinions of those experts cannot obtain solely under Rule 45 where, as here, a bare subpoena *duces tecum* has issued for the experts' files."), with *Expeditors Int'l of Wash., Inc. v. Vastera, Inc.*, No. 04 C 0321, 2004 WL 406999 (N.D. Ill. 2004), *Western Resources, Inc. v. Union Pac. R. Co.*, No. 00-2043, 2002 WL 1822428, *3 (D. Kan. July 23, 2002) (mag. op.). Although the leading case, *Marsh v. Jackson*, was decided in 1992, "*Marsh* continues to be good law." *Schwarz & Schwarz of Virginia, L.L.C. v. Certain Underwriters at Lloyd's London*, No. 6:07cv00042, 2009 WL 1043929, 5 n.13 (W.D. Va. Apr. 17, 2009); see also *Newcomb v. Principal Mut. Life Ins. Co.*, No. 07-cv-345, 2008 WL 3539520, 3 (W.D.N.C. Aug. 11, 2008) (finding *Marsh* "highly persuasive").

Specifically, discovery from testifying experts “beyond that permitted by the [FTC] Rules, the Scheduling Order, and the *Dura Lube* case”⁵ is not permitted unless ECM “demonstrate[s] a need” for that discovery.⁶ Rule 3.31A, the Scheduling Order, and *Dura Lube* authorize the following discovery from testifying experts:

- (1) “[A]ll documents reviewed, consulted, or examined by the expert in connection with forming his or her opinion on the subject on which he or she is expected to testify, regardless of the source of the document or whether a document was originally generated in another investigation or litigation against another [party]”;⁷
- (2) “While reports and testimony, including deposition testimony, from prior investigations or litigation must be produced, the documents underlying such reports or testimony are not discoverable . . . unless such documents were also relied upon or reviewed by a testifying expert in formulating an opinion in this case”;⁸
- (3) Communications “[r]elated to compensation for the expert’s study or testimony”;⁹
- (4) Communications that “[i]dentify facts or data that the other party’s attorney provided and that the expert considered in forming the opinions to be expressed”;¹⁰ and
- (5) Communications that “[i]dentify assumptions that the other party’s attorney provided and that the expert relied on in forming the opinions to be expressed.”¹¹

⁴ See *In the Matter of Basic Research*, No. 9318, 2004 FTC LEXIS 237, *9 (F.T.C. Dec. 9, 2004) (granting motion for protective order after respondent subpoenaed two of complaint counsel’s experts when that discovery exceeded that permitted by the FTC’s Rules, the applicable scheduling order, and *In re Dura Lube*, No. 9292, 1999 FTC LEXIS 254 (F.T.C. Dec. 15, 1999)). Although the FTC amended its rules concerning expert discovery after *Dura Lube* and *Basic Research*, No. 9318, 2004 FTC LEXIS 237 (F.T.C. Dec. 9, 2004), those amendments largely codified *Dura Lube* and *Basic Research*, at least with respect to testifying experts such as those at issue here.

⁵ See *Dura Lube*, 1999 FTC LEXIS 254.

⁶ See *Basic Research*, 2004 FTC LEXIS at *9.

⁷ *Id.* at *7 (citing *Dura Lube*, 1999 FTC LEXIS 254, at *6-*7).

⁸ *Id.* at *8 (citing *Dura Lube*, 1999 FTC LEXIS 254, at *9).

⁹ Rule 3.31A(e)(i).

¹⁰ *Id.* at (e)(ii).

ECM has not “demonstrated a need”¹² for anything beyond these five categories of information.

That said, we will adopt the following approach. First, we commit to provide you the information Rule 3.31A, *Dura Lube*, and the Scheduling Order requires that we disclose. We will make those disclosures either when the Scheduling Order requires or at a mutually-agreed earlier time. Second, we previously discussed our request for information regarding Dr. David Stewart, whom ECM apparently engaged. Specifically, we agreed to provide you with the best list we can reasonably create of those prior FTC cases in which Dr. Stewart served as an expert, and you agreed that you would provide us with a list of those prior FTC cases in which Dr. Stewart recalls working as an expert. We will give you our list no later than next Friday, and we hope that you will give us yours either next Friday or within a reasonable time thereafter. We view this compromise as satisfying the first RFPD we issued on March 21.

Third, our April 7 RFPD (No. 6) asked for information concerning Dr. Morton Barlaz’s role as a fact witness. Specifically, we asked for documents within Dr. Barlaz’s control regarding ECM Plastic or the ECM Additive, including Documents “prepared for, authored by [or] sent to or from” Dr. Barlaz, and “all studies, reports or analyses of ECM Plastic and/or the ECM Additive conducted or prepared” by Dr. Barlaz. If you produce responsive information along with Dr. Barlaz’s expert report, then we will agree to produce the same information with respect to Dr. Tolaymet.¹³

Fourth, assuming that you agree to produce the same information regarding each of your experts along with their reports, we will respond to the following additional requests in your subpoenas when our experts’ reports are due:

- Request No. 1:
(To all three experts) “All documents that concern ECM Biofilms, Inc., and any past and present employee or principal of ECM, and/or the ECM Additive.”
- Request No. 2:
(To all three experts) “All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case.”

¹¹ *Id.* at (e)(iii). To the extent Scheduling Order § 19 is narrower than these provisions, we would agree to produce the material ((1)-(5) above) subject to ECM’s agreement to do the same.

¹² See *Basic Research*, 2004 FTC LEXIS at *9.

¹³ Or, if you agree to produce responsive information with respect to all three of your scientific experts (Drs. Barlaz, Ranajit Sahu, and Ryan Burnette), then we will agree to produce responsive information with respect to both of our scientific experts (Drs. Tolaymet and McCarthy).

- Request No. 10:
 (To all three experts) “All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case.”¹⁴
- Request No. 16:
 (To all three experts) “Regardless of the date, if you have ever served as an expert in any other proceeding, copies of all expert reports and testimony given by you in those proceedings.”¹⁵
- Request No. 23:
 (To Dr. McCarthy) “All documents and correspondence between you and the authors of the article Gómes, EF, Michel Jr., FC. “Biodegradability of Conventional and bio-based plastics and natural fiber composites during compositing, anaerobic digesting and long-term soil incubation.” *Polymer Degradation and Stability*. Vol. 92 (December 2013): 2583-2591.

As the above proposals indicate, we are prepared to exchange quite a bit of information regarding the parties’ experts, including information specific to ECM Plastic and information about their role in prior cases. However, we draw the line at the many other irrelevant, overbroad, and intrusive requests ECM issued. Although we are reluctant to characterize them as intended solely to harass, many are hard to understand otherwise:

- Request No. 29 to Dr. McCarthy covers papers filed in divorce proceedings and child custody disputes;¹⁶
- Request No. 3 to Dr. Frederick seeks the agreements with Yale University (his employer) governing his tenure, teaching obligations, and research requirements, and other agreements concerning his duties and benefits as a professor;¹⁷
- Request No. 8 to Dr. Tolaymet seeks information regarding his 401k, other retirement funds, and other personal financial interests Dr. Tolaymat may hold in mutual or index funds;¹⁸

¹⁴ This appears as Request No. 7 to Dr. Thabet and Request No. 19 to Dr. McCarthy.

¹⁵ This appears as Request No. 13 to Dr. Thabet and Request No. 30 to Dr. McCarthy. Notably, including subparts, ECM issued forty-five requests to Dr. McCarthy. Even if he did no further work on this case other than respond to ECM’s requests, it would take him weeks (if not months) to respond fully.

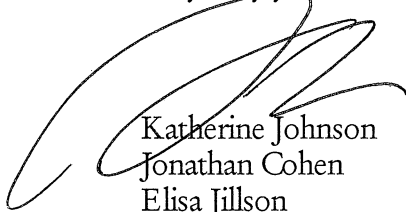
¹⁶ The request provides: “Regardless of the date, if you have ever been a defendant or a plaintiff in a legal proceeding, [produce] copies of all complaints, answers, motions, and deposition, hearing and trial transcripts involving you from that proceeding along with all orders issued by the courts in those proceedings.”

¹⁷ The request provides: “[r]egardless of date, all contracts, retainers, and/or agreements with Yale University.”

¹⁸ Specifically, the request seeks “[a]ll documents revealing shares of stock or ownership interests held by you in any company.”

Unfortunately, these are only examples. Although requests like these suggest that compromise is unlikely, we want to avoid litigating these issues if we can. Accordingly, please consider the alternative to motions practice we propose herein.

Very truly yours,



Katherine Johnson
Jonathan Cohen
Elisa Jillson

RESPONDENT
EXHIBIT
RX-E



A Professional Corporation

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April 15, 2014

Jonathan W. Emord, Esq.
702.755.8202
jemord@emord.com**VIA EMAIL:**Katherine Johnson (kjohnson3@ftc.gov)
Jonathan Cohen (jcohen2@ftc.gov)
Elisa Jillson (ejillson@ftc.gov)
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580*Re: In re ECM BioFilms, Inc., No. 9358; Expert Discovery*

Counsel,

We respond here to your letter of April 11, 2014 concerning ECM's subpoenas *duces tecum* served on April 7, 2014 for Drs. Frederick, McCarthy, and Tolaymet. You object to those subpoenas because they seek information beyond that required to be disclosed under Rule 3.31A. You argue that, rather than serving subpoenas, we are limited to "deposing [your] experts" or obtaining information "through discovery issued to Complaint Counsel." You explained in our April 8, 2014 phone call that the Commission's strict limit on expert subpoenas is necessary to help Complaint Counsel secure future experts by protecting them from detailed inquiries. You also argue that serving your experts directly would have been in error because your experts "serve as [your] agents for purposes of this litigation."¹ We disagree on all points, and we find precedential support for the use of expert subpoenas, which includes cases you misrepresent to be supportive of your position. We therefore insist on full compliance with our subpoenas. Your compensated experts should not be entitled to greater protections than the fact witnesses in this

¹ Per your request, we served you directly rather than issue subpoenas directly to your experts. However, because you contest our ability to reach expert materials through subpoenas *duces tecum*, and because your agency theory is expressly rejected by relevant case law, we may be obliged to serve your experts directly.

In re ECM BioFilms

April 15, 2014

Page 2 of 5

case, and you should not be entitled to rest on speculative assertions of inconvenience to experts as an excuse for denying the Respondent a full and fair opportunity to defend itself.²

At the outset, your experts are not your agents for purposes of litigation. An expert witness “is not the sponsoring party’s agent merely because he is retained as its expert witness.” *Glendale Fed. Bank, F.S.B. v. U.S.*, 39 Fed. Cl. 422, 424 (1997). The reason for this well accepted premise is clear: “Despite the fact that one party retained and paid for the services of an expert witness, expert witnesses are supposed to testify impartially in the sphere of their expertise.” *Kirk v. Raymark Indus., Inc.*, 61 F.3d 147, 164 (3d Cir. 1995) (concluding that “[s]ince an expert witness is not subject to the control of the party opponent with respect to consultation and testimony he or she is hired to give, the expert witness cannot be deemed an agent”). We therefore reject your opening point, finding it contrary to law. Moreover, if principals of agency did apply, they still would not constrain our ability to seek evidence from your experts directly.

Next, ECM can issue subpoenas *duces tecum* to experts for the purpose of investigating relevant areas beyond the Rule 3.31A(c) categories. The documents discoverable from expert witnesses, who are compensated for their time, are not limited to the information they relied on when forming opinions in a case. Those experts subject themselves to this process voluntarily, unlike the more than fifty ECM customers served with Complaint Counsel subpoenas. Personal conflicts and biases influence the credibility of testimony, and the rules permit subpoenas *duces tecum* to reach that critical information.³

You listed Dr. Steven McCarthy as an expert witness in this case. You plan to have Dr. McCarthy testify concerning the biodegradation of plastic polymers, ASTM tests and standards, and ECM’s biodegradability claims. However, Dr. McCarthy has conflicts of interest that compromise his independence, including professional and private interests and ties with companies that compete directly with ECM in the market. He stands to benefit from the FTC’s prosecution of ECM and, so, lacks requisite impartiality. Information related to his personal and financial connections would not be discoverable under the limited disclosures listed in Rule 3.31A(c). ECM cannot be so limited in its ability to defend this case, and we do not agree that Rule 3.31A(c) was intended as an exclusive list of discovery information (nor does the rule so state). To the extent you rely on experts who are beholden to ECM competitors, ECM has a right to explore those facts.

² Complaint Counsel has served over 50 third party subpoenas on ECM customers. You have taken fact depositions of witnesses (e.g., Dr. Timothy Barber) that included substantive discussion more appropriate for expert testimony. We therefore find Complaint Counsel’s sudden (and legally unfounded) insistence on strict discovery limits unfounded.

³ Because your experts are not “agents” as you suggested, we doubt that the information we need would be within Complaint Counsel’s custody, control, or possession. Document production requests are therefore inappropriate because they seek production of information from “another party” that is within the other party’s “possession, custody, or control...” See Rule 3.37(a). Rather, the information we need is within your expert’s control, making a subpoena the most appropriate discovery mechanism.

In re ECM BioFilms

April 15, 2014

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Contrary to your representations, the caselaw is not conflicting but consistent. No rules (or interpretations thereof) exempt experts from subpoenas *duces tecum*. A subpoena *duces tecum* “is an appropriate discovery mechanism against nonparties such as a party's expert witness.” *Expeditors Int'l of Washington, Inc. v. Vastera, Inc.*, 04 C 0321, 2004 WL 406999 (N.D. Ill. Feb. 26, 2004). Although you reference Federal Rule 26, that rule directly contemplates the use of standard discovery methods for expert materials:

[t]he enumeration in Rule 26(a) of items to be disclosed does not prevent a court from requiring by order or local rule that the parties disclose additional information without a discovery request. *Nor are parties precluded from using traditional discovery methods to obtain further information regarding these matters, as for example asking an expert during a deposition about testimony given in other litigation beyond the four-year period specified in Rule 26(a)(2)(B).*

Advisory Comm. Notes for 1993 Amends, to Fed.R.Civ.P. 26(a) (emphasis added); *United States v. Bazaarvoice, Inc.*, C 13-00133 WHO (LB), 2013 WL 3784240 (N.D. Cal. July 18, 2013) (“Rule 26(a)(2)(B) governs only disclosure in expert reports, however, and it does not preclude parties from obtaining further information through ordinary discovery tools”).

Each case you cited, including *Marsh*, involved subpoenas that sought information relating to the expert files developed for the *specific case* at issue. *See Thomas v. Marina Assocs.*, 202 F.R.D. 433, 434 (E.D. Pa. 2001) (noting that “the information sought pertained directly to one of the parties in the case”); *see e.g., In re Fuller*, 2013 WL 5305317, at *1–3 (D. Me. Sept. 18, 2013) (denying motion to compel compliance with a subpoena that requested documents in the “expert’s files”—namely, documents relating directly to one of the defendants); *Ambrose v. Southworth Prod. Corp.*, 1997 WL 470359, at *1 (W.D. Va. June 24, 1997) (quashing subpoena served on an expert witness that requested documents that were “pertaining to [an intervenor-plaintiff] or [the defendant]”); *Perry v. U.S.*, 1997 WL 53136, at *1 (N.D. Tex. Feb. 4, 1997) (stating that a party may not use a subpoena in order to “gain access to opposing expert evidence” supporting his or her opinions); *Greer v. Anglemeyer*, 1996 WL 56557, at *2 (N.D. Ind. Jan. 5, 1996) (quashing subpoena served on an expert witness because Rule 26(b)(4) limits an opposing party’s “right of access to the evidence of experts”); *Hartford Fire Ins. Co. v. Pure Air on the Lake Ltd. P’ship*, 145 F.R.D. 202, 208 (N.D. Ind. 1993) (quashing subpoena served on an alleged consulting expert which sought “facts, data, and information obtained and known” by the consulting expert); *Quaile v. Carol Cable Co.*, 1992 WL 277981, at *2 (E.D. Pa. Oct. 5, 1992) (holding that a subpoena served on an expert witness is valid if it seeks information for impeachment and ordering the expert to respond to seven of eight requests in the subpoena); *Marsh v. Jackson*, 141 F.R.D. 431 (W.D. Va. 1992) (quashing subpoenas served on expert witnesses where the subpoenas sought production of the experts’ “entire files related to the plaintiff”). In sum, the Courts that denied access did so because the requester tried to circumvent privilege and discovery rules, including the work product privilege.

In re ECM BioFilms

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ECM currently does not seek information about Drs. McCarthy's, Frederick's and Tolaymet's expert opinion in our matter *sub judice*, work-product communications, or attorney-client privileged materials. To the extent that any request of ECM seeks such information that it is entitled to under the Commission's Rules and Judge Chappell's Scheduling Order, those authorities govern the breadth and timing of disclosure.⁴ ECM seeks material necessary to investigate relevant aspects of the case, including, but not limited to, bias and conflicts of interest. Evidence of an expert witness's bias is relevant and discoverable. *See Behler v. Hanlon*, 199 F.R.D. 553, 557 (D. Md. 2001) (citing *United States v. Abel*, 469 U.S. 45, 49–52 (1984)) (other citations omitted) (noting that “[T]he importance of credibility of witnesses to the trial of cases cannot be overstated, and *this is especially true with respect to expert witnesses*”) (emphasis added). ECM is accorded “very considerable latitude” into the bias of your experts. *LNC Investments, Inc. v. First Fid. Bank*, 92CIV.7584(CSH), 2000 WL 1182772 (S.D.N.Y. Aug. 21, 2000) (Memorandum Op.). ECM's requests of Drs. McCarthy, Frederick and Tolaymet investigate precisely such issues. We ask for materials and correspondence with non-parties that reveal their clear bias against ECM and its additive technology, that they have performed work relied on by the FTC for use in creating controversial sections of the Green Guides, and have worked for private groups that lobbied against ECM's technology for financial gain. Additionally, we seek specific facts surrounding Dr. McCarthy's patents and grants. *See, e.g.*, U.S. Patent No. 5,883,199 (issued Mar. 16, 1999); Patent No. 5,439,985 (issued Aug. 8, 1995).

In the administrative decisions you cited, the Commission neither adopted a “majority view,” nor suggested that ECM cannot serve expert subpoenas. *See, e.g., In the Matter of Basic Research*, No. 9318, 2004 FTC LEXIS 237, *9 (F.T.C. Dec. 9, 2004) (discussing the scope of the respondent's subpoenas, not the ability to serve them). The decision in *Basic Research* supports the use of subpoenas *duces tecum*, particularly to the extent those subpoenas seek information within the scope of discovery per Rule 3.31(c)(1). *Id.* (denying discovery under the Rule 3.31(c) standard and to the extent that “Respondents have not demonstrated that [the] discovery is reasonably expected to yield information relevant to the allegations of the complaint, to the proposed relief, or to the defenses of the respondent...”). Notably, Complaint Counsel in the *Basic Research* case did not contest the use of subpoenas with experts, but only parts of those subpoenas. Your position is thus contrary to your own precedent.

We reserve all rights. Your experts are obliged to produce information in response to our subpoenas under Rule 3.34. You are delaying production and must either answer the subpoenas or move for relief from them. You cannot sit idly because you are under subpoena obligations to produce. In the interests of cooperation, we have revised our subpoenas to further limit the information we seek. Our revisions should address those of your concerns that are legitimate;

⁴ When ECM originally issued its expert subpoenas, the timing for production would have occurred after Complaint Counsel's experts reports were due under the then-operative Scheduling Order. Now, following the Second Revised Scheduling Order, to the extent ECM's subpoenas overlap or seek information included within Rule 3.31A(c), that information should be provided under the Scheduling Order and not ECM's subpoena. The subpoena response date was April 25, 2014, although we are willing to negotiate an extension given the Court's recent changes to the scheduling order.

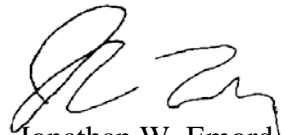
In re ECM BioFilms

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and the enclosed files, modified to account for the aforementioned legitimate objections, supersede our earlier requests.⁵

Sincerely,



Jonathan W. Emord
Peter A. Arhangelsky
Lou F. Caputo

Enclosures: (3)

⁵ We offer the revised subpoenas solely as an accommodation intended to narrow issues in dispute.

RESPONDENT
EXHIBIT
RX-F-1

**UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION**

)	
In the Matter of)	
)	
ECM BioFilms, Inc.,)	Docket No. 9358
a corporation, also d/b/a)	
Envioplastics International)	
)	

**COMPLAINT COUNSEL’S OBJECTIONS AND RESPONSES TO THE SUBPOENA
DUCEUS TECUM TO DR. STEPHEN MCCARTHY**

Pursuant to Rules 3.34 and 3.38A of the Federal Trade Commission’s Rules of Practice for Adjudicative Proceedings, Complaint Counsel hereby submits the following objections and responses to Respondent’s Subpoena *Duces Tecum* (“Subpoena”) to Dr. Stephen McCarthy (“Expert”).

GENERAL OBJECTIONS

1. Complaint Counsel objects to the Subpoena to the extent that it is invalid and unenforceable for lack of Commission Seal.
2. Complaint Counsel objects to the Subpoena to the extent that it is invalid and unenforceable because it is issued directly to Complaint Counsel’s expert and not to Complaint Counsel.
3. Complaint Counsel objects to the Subpoena to the extent that it calls for the discovery of information beyond the scope of § 3.31A of the Commission’s Rules of Practice and the ALJ’s Scheduling Order in this case. *See also In the Matter of Basic Research*, No. 9318, 2004 FTC LEXIS 237, *9 (F.T.C. Dec. 9, 2004); *In re Dura Lube*, No. 9292, 1999 FTC LEXIS 254 (F.T.C. Dec. 15, 1999).

4. Complaint Counsel objects to the Subpoena to the extent that it seeks information before expert disclosures are required in accordance with § 3.31A of the Commission's Rules of Practice and the ALJ's Scheduling Order in this case.

5. Complaint Counsel objects to the Subpoena to the extent that it seeks information that is not relevant to the subject matter of the litigation and/or not reasonably calculated to lead to the discovery of information relevant to the allegations of the complaint, to the proposed relief, or to Respondent's defenses.

6. Complaint Counsel objects to the Subpoena to the extent that it is overly broad, unduly burdensome, vague or ambiguous.

7. Complaint Counsel objects to the Subpoena to the extent that it is unreasonably cumulative or duplicative, or is obtainable from some other source that is more convenient, less burdensome, or less expensive.

8. Complaint Counsel objects to the Subpoena because the burden and expense of the proposed discovery outweigh its likely benefit.

9. Complaint Counsel objects to the Subpoena to the extent it seeks information that is subject to the attorney-client privilege, the attorney work-product privilege, the investigative privilege, the non-testifying expert privilege, the deliberative privilege, the law enforcement privilege, the informant privilege, and the joint prosecution privilege, that is exempt from disclosure pursuant to confidentiality provisions set forth in the FTC Act, that is protected from disclosure by the privilege for information given to the FTC on a Pledge of Confidentiality, that is protected from disclosure under principles of financial privacy, that is subject to a protective order from another litigation, or that is subject to other applicable legal protection or privilege.

10. Complaint Counsel objects to the Subpoena to the extent that it calls for materials outside the scope of discovery pursuant to Rule 3.31(c)(2).

11. By providing information in response to the Subpoena, Complaint Counsel does not concede that the Subpoena is valid, appropriate, or that such information is relevant, material, or admissible in evidence.

12. Complaint Counsel's objections and responses to the Subpoena are based on information now known to Counsel. Complaint Counsel has not yet completed its discovery of the facts in this case or prepared for trial and therefore reserves its rights under the Commission's Rules of Practice to amend, modify, or supplement its objections and responses if it learns of new information.

13. Complaint Counsel will not produce information responsive to any request that Respondent previously has produced to Complaint Counsel at any point during the investigation or prosecution of this matter.

14. Complaint Counsel will not produce information responsive to any request that has been provided to Respondent previously at any point during the investigation or prosecution of this matter.

15. Each of the foregoing General Objections is incorporated in each of the Responses hereinafter set forth. Subject to and without waiving these objections, Complaint Counsel provides the following responses.

OBJECTIONS AND RESPONSES TO SUBPOENA SPECIFICATIONS

1. All documents received or possessed before you were engaged as an expert (consulting or testifying) in FTC Docket No. 9358 that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii).

Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

3. All contracts, retainers, or engagement letters between you and any public or private firm that manufactures and/or produces biodegradable and/or compostable products.

RESPONSE: Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel further objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii).

4. All reports, analyses, assessments, tests, data, summaries, and conclusions issued to any public or private firm that manufactures and/or produces biodegradable and/or compostable products concerning the biodegradability of plastics manufactured by those companies.

RESPONSE: Complaint Counsel hereby incorporates by reference each General Objection as if set forth here in full. Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

5. All correspondence between you and any firm that manufactures and/or produces a product or substance in competition generally with other biodegradable plastic products

(to wit, ECM's additive) concerning the biodegradability of plastics manufactured with plastic additives.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

6. All correspondence and sections of contracts, retainers, and/or agreements with the University of Massachusetts, Lowell ("Umass") concerning funding (including research grants) of research related to biodegradable plastics or polymers.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

7. All your pending or existing patents that involve or relate to plastics and or biodegradable and compostable substances, products, and technologies, including those patents for which you are the assignor.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Subject to and without waiving the foregoing General and specific objections, Dr. McCarthy has disclosed his complete Curriculum Vitae, which includes a list of all his patents. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

8. All licensing or royalty agreements involving or concerning patents identified *supra* in response to Request 7, and all such agreements involving intellectual property related to biodegradable and compostable products.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Subject to and without waiving the foregoing General and specific objections, Dr. McCarthy has disclosed his complete Curriculum Vitae, which includes a list of all his patents.

9. Copies of all contracts, grant documents (including proposals) for the following research projects you were involved in:
- a. Metabolix, “Development of Novel of Biodegradable Materials, \$1,500,196
 - b. NSF Center for Biodegradable Polymer Research, \$1,200,000 Industrial Members (8/93-present), Principal Investigator
 - c. Polymer Degradation Research Center, \$475,000, Industrial Members (8/89-8/93)
 - d. Digital, “Plastics Materials Research”, \$458,706
 - e. Metabolix Inc., Performance of PHA Derived Chemicals and Polyols in Polyurethane, \$141,465
 - f. 3M, “Composting Research”, \$155,000
 - g. Warner Lambert, “Biodegradable Polymer Research”, \$116,591
 - h. National Science Foundation, “Biodegradable Polymer Research Center”, \$110,000 (8/93-8/95)
 - i. Department of the Army, “Polymer Degradation Research”, \$104,000
 - j. Institute for Plastics Innovation, “Injection Molding Research”, \$75,000
 - k. Massachusetts Centers of Excellence, “Institute for Plastics Innovation”, \$75,000
 - l. Metabolix Inc., Performance of Polyhydroxyalkanote Derived Chemicals and Polyols in Polyurethane, \$71,465
 - m. Battelle, “Biodegradable Packaging Development”, \$59,865
 - n. DuPont Corian, \$50,000
 - o. Invista, “Evaluation of Plasticizers”, \$ 28,000
 - p. Massachusetts Centers of Excellence, “Polymer Degradation Research”, \$25,000

RESPONSE: Complaint Counsel hereby incorporates by reference each General Objection as if set forth here in full. Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court’s Scheduling Order.

10. All documents concerning any testing or product evaluations involving biodegradable and/or compostable plastics in which you participated on behalf of, or as a member of, the BioEnvironmental Polymer Society and/or the Society of Plastics Engineers.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

11. All correspondence between you and any employee and/or consultant of the Biodegradable Products Institute ("BPI").

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

12. All correspondence with Dr. Ramani Narayan.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

13. All correspondence with any employee or contracting employee of O.W.S., Inc. related to biodegradable plastics.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

14. All correspondence (not subject to attorney client or work-product privilege and received before engagement as an expert in FTC Docket No. 9358) with any employee and/or representative of the Federal Trade Commission concerning biodegradable plastics.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

15. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

16. All documents revealing shares of stock or ownership interests held by you in any company that sells, manufactures, or markets plastics, biodegradable technologies, and/or compostable technologies.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

17. A listing of all consultant, executive, or corporate positions you held concerning work or employment related to the biodegradability of plastics over the past ten years.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Subject to and without waiving the foregoing General and specific objections, Dr. McCarthy has disclosed his complete Curriculum Vitae, which includes a list of all his positions related to biodegradability of plastics over the past ten years.

18. All documents and correspondence between you and the authors of the article Gómez, EF, Michel Jr., FC. “Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation” *Polymer Degradation and Stability*, Vol. 98 (December 2013): 2583-2591.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Subject to and without waiving the foregoing General and specific objections, Dr. McCarthy has disclosed his complete Curriculum Vitae, which includes a list of all his scientific publications, papers, or presentations. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

19. Copies of all scientific publications, papers, or presentations that you authored concerning the rate or extent of biodegradable (including compostable) polymers when measured in a laboratory environment or in situ.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Subject to and without waiving the foregoing General and specific objections, Dr. McCarthy has disclosed his complete Curriculum Vitae, which includes a list of all his scientific publications, papers, or presentations. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

20. All conflict of interest forms or agreements completed or signed by you in association with your work at the Umass, or as a testifying witness in this case.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court’s Scheduling Order.

21. All documents concerning ASTM, including correspondence, in which you presented a proposal, voted on a proposal, or opposed a proposal concerning biodegradable plastics standards or test methods.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope

of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

22. If you have ever served as an expert in any other proceeding involving the Federal Trade Commission, copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Dr. McCarthy has disclosed all prior cases in which the Expert has testified or has been deposed within the preceding four years. Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

23. If you have ever served as an expert in any other legal proceeding involving plastics technologies, produce copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Dr. McCarthy has disclosed all prior cases in which the Expert has testified or has been deposed within the preceding four years. Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

Dated: April 25, 2014

Respectfully submitted,

/s/ Katherine Johnson

Katherine Johnson (202) 326-2185

Jonathan Cohen (202) 326-2551

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Division of Enforcement

Bureau of Consumer Protection

Federal Trade Commission

600 Pennsylvania Avenue, NW

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CERTIFICATE OF SERVICE

I hereby certify that on April 25, 2014, I caused a true and correct copy of the paper original of the foregoing document to be served as follows:

One electronic copy to **Counsel for the Respondent:**

Jonathan W. Emord
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I further certify that I possess a paper copy of the signed original of the foregoing document that is available for review by the parties and the adjudicator.

April 25, 2014

/s/ Katherine Johnson
Katherine Johnson

RESPONDENT
EXHIBIT
RX-F-2

**UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION**

)	
In the Matter of)	
)	
ECM BioFilms, Inc.,)	Docket No. 9358
a corporation, also d/b/a)	
Envioplastics International)	
)	

**COMPLAINT COUNSEL’S OBJECTIONS AND RESPONSES TO THE SUBPOENA
DUCEUS TECUM TO DR. THABET TOLAYMAT**

Pursuant to Rules 3.34 and 3.38A of the Federal Trade Commission’s Rules of Practice for Adjudicative Proceedings, Complaint Counsel hereby submits the following objections and responses to Respondent’s Subpoena *Duces Tecum* (“Subpoena”) to Dr. Thabet Tolaymat (“Expert”).

GENERAL OBJECTIONS

1. Complaint Counsel objects to the Subpoena to the extent that it is invalid and unenforceable for lack of Commission Seal.
2. Complaint Counsel objects to the Subpoena to the extent that it is invalid and unenforceable because it is issued directly to Complaint Counsel’s expert and not to Complaint Counsel.
3. Complaint Counsel objects to the Subpoena to the extent that it calls for the discovery of information beyond the scope of § 3.31A of the Commission’s Rules of Practice and the ALJ’s Scheduling Order in this case. *See also In the Matter of Basic Research*, No. 9318, 2004 FTC LEXIS 237, *9 (F.T.C. Dec. 9, 2004); *In re Dura Lube*, No. 9292, 1999 FTC LEXIS 254 (F.T.C. Dec. 15, 1999).

4. Complaint Counsel objects to the Subpoena to the extent that it seeks information before expert disclosures are required in accordance with § 3.31A of the Commission's Rules of Practice and the ALJ's Scheduling Order in this case.

5. Complaint Counsel objects to the Subpoena to the extent that it seeks information that is not relevant to the subject matter of the litigation and/or not reasonably calculated to lead to the discovery of information relevant to the allegations of the complaint, to the proposed relief, or to Respondent's defenses.

6. Complaint Counsel objects to the Subpoena to the extent that it is overly broad, unduly burdensome, vague or ambiguous.

7. Complaint Counsel objects to the Subpoena to the extent that it is unreasonably cumulative or duplicative, or is obtainable from some other source that is more convenient, less burdensome, or less expensive.

8. Complaint Counsel objects to the Subpoena because the burden and expense of the proposed discovery outweigh its likely benefit.

9. Complaint Counsel objects to the Subpoena to the extent it seeks information that is subject to the attorney-client privilege, the attorney work-product privilege, the investigative privilege, the non-testifying expert privilege, the deliberative privilege, the law enforcement privilege, the informant privilege, and the joint prosecution privilege, that is exempt from disclosure pursuant to confidentiality provisions set forth in the FTC Act, that is protected from disclosure by the privilege for information given to the FTC on a Pledge of Confidentiality, that is protected from disclosure under principles of financial privacy, that is subject to a protective order from another litigation, or that is subject to other applicable legal protection or privilege.

10. Complaint Counsel objects to the Subpoena to the extent that it calls for materials outside the scope of discovery pursuant to Rule 3.31(c)(2).

11. By providing information in response to the Subpoena, Complaint Counsel does not concede that the Subpoena is valid, appropriate, or that such information is relevant, material, or admissible in evidence.

12. Complaint Counsel's objections and responses to the Subpoena are based on information now known to Counsel. Complaint Counsel has not yet completed its discovery of the facts in this case or prepared for trial and therefore reserves its rights under the Commission's Rules of Practice to amend, modify, or supplement its objections and responses if it learns of new information.

13. Complaint Counsel will not produce information responsive to any request that Respondent previously has produced to Complaint Counsel at any point during the investigation or prosecution of this matter.

14. Complaint Counsel will not produce information responsive to any request that has been provided to Respondent previously at any point during the investigation or prosecution of this matter.

15. Each of the foregoing General Objections is incorporated in each of the Responses hereinafter set forth. Subject to and without waiving these objections, Complaint Counsel provides the following responses.

OBJECTIONS AND RESPONSES TO SUBPOENA SPECIFICATIONS

1. All documents received or possessed before engagement as an expert (consulting or testifying) in FTC Docket No. 9358 that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii).

Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

3. All correspondence between you and any employee and/or consultant of the Biodegradable Products Institute ("BPI").

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

4. All correspondence with Dr. Ramani Narayan.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

5. All correspondence with any employee or contracting employee of O.W.S., Inc. related to biodegradable plastics.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope

of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

6. All correspondence (not subject to attorney client or work-product privilege and received before engagement as an expert in FTC Docket No. 9358) with any employee and/or representative of the Federal Trade Commission concerning biodegradable plastics.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

7. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rule 3.31 in the custody, possession, or control of Complaint Counsel in accordance with the Scheduling Order and the Commission Rules.

8. A listing of all shares of stock or ownership interests held by you in any company associated with plastics, biodegradable products or technologies, and/or compostable products or technologies

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

9. Copies of all papers, articles, and presentations that you authored concerning the rates of biodegradation of landfilled waste, including municipal solid waste landfills, bioreactor landfills, and commercial composters.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii).

Subject to and without waiving the foregoing General and specific objections, attached hereto as Attachment A is a true and correct copy of Dr. Tolaymat's Curriculum Vitae, which includes a list of all his scientific publications, papers, or presentations, and Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

10. Copies of all papers, articles, and publications that you authored or co-authored concerning the anaerobic or aerobic biodegradability of plastic polymers.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Subject to and without waiving the foregoing General and specific objections, attached hereto as Attachment A is a true and correct copy of Dr. Tolaymat's Curriculum Vitae, which includes a list of all his scientific publications, papers, or presentations. Complaint Counsel has produced all responsive, non-privileged documents within the scope of Rule 3.31 in the custody, possession, or control of Complaint Counsel.

11. All correspondence between you and Dr. Morton Barlaz concerning rates of biodegradation in landfills.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

12. All conflict of interest forms or agreements signed by you in association with your employment with the Environmental Protection Agency, or in association with this case.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

13. If you have ever served as an expert in any other proceeding involving the Federal Trade Commission, copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope

of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Dr. Tolaymat has disclosed all prior cases in which the Expert has testified or has been deposed within the preceding four years. Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

14. If you have ever served as an expert in any other legal proceeding involving plastics technologies, produce copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Dr. Tolaymat has disclosed all prior cases in which the Expert has testified or has been deposed within the preceding four years. Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

Dated: April 25, 2014

Respectfully submitted,

/s/ Katherine Johnson

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Email: parhangelsky@emord.com

Lou Caputo
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3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286
Email: lcaputo@emord.com

I further certify that I possess a paper copy of the signed original of the foregoing document that is available for review by the parties and the adjudicator.

April 25, 2014

/s/ Katherine Johnson
Katherine Johnson

Thabet M. Tolaymat Ph.D.**Tolaymat.thabet@epa.gov**
26 West Martin Luther King Drive
Cincinnati Ohio, 45230
513-457-2860**EDUCATION*****Doctorate of Philosophy in Environmental Engineering Sciences***

University of Florida Gainesville, FL 2003

Masters of Engineering in Environmental Engineering Sciences

University of Florida Gainesville, FL 1997

Bachelor of Science in Environmental Engineering

University of Florida Gainesville, FL 1995

EMPLOYMENT***Interim Associate National Program Director***

USEPA/ORD Cincinnati, OH 2012- October 2013

- Assist the national program director in the areas of emerging materials (e.g., nanomaterials) and sustainability. Responsible for setting research priority and providing resources to complete the research.

Environmental Engineer

USEPA/ORD Cincinnati, OH September 2004-Present

- Project Lead for Solid Waste Management Systems Research
- Project Lead for Nanomaterials Research
- ORD Project Lead under Safe and Healthy Community Strategic Research Plan for Energy from Solid Wastes and Construction and Demolition Debris. Work in the Solid Waste Branch and conduct research in the area of solid waste and nanomaterials and assisting EPA HQ and Regional offices in the following areas:
 - Performance of Solid Waste Containment Units (municipal solid waste, hazardous waste and ash mono-fill landfills)
 - Bioreactor Landfills. New landfill design that promotes the degradation and subsequent removal of degradable fraction of solid waste as well as organic pollutants.
 - Subtitle D “dry tomb” lined landfill
 - Remediation of contaminated landfill at superfund sites
 - Co-disposal of solid waste and hazardous waste
 - Construction and demolition waste
 - Metal release, mobility from contaminated wastes
- ORD Project Lead under Chemical Safety and Sustainability Strategic Research Plan for Nanomaterials. Leading EPA’s Office of Research and Development National Risk Management Research Laboratory in the area of silver nanoparticles.
 - Evaluation of the impacts of nanoparticles on human health and the environments.
 - The evaluation of the impact of environmental conditions on the fate and transport of silver nanoparticles.
 - The evaluation of the impact of silver nanoparticles use on waste management systems

Research Scientist (Federal Post-Doc)

USEPA/ORD Cincinnati, OH December 2003-September 2004

- Conduct Research on bioreactor technology. Research includes gathering, assimilating and assessing data gathered at the Outer Loop landfill. Coordinate EPA/ORD efforts with the Solid Waste Association of North America (SWANA) and Interstate Technology Regulatory Transfer (ITRC) to develop and distribute bioreactor landfill guidance document. Conduct research to examine the effectiveness of TCLP to simulate metal mobility in bioreactor landfills.

Graduate Research Assistant (Ph.D. Candidate)

University of Florida Gainesville, FL August 1997-December 2003

- Designed and conducted a battery of tests to evaluate risk associated with the land application of solid wastes. The research shed light on the appropriate use of dilution attenuation factors when assessing risk

from ground water contamination. Carried out technical advisory group meetings with regulators (USEPA and FDEP), industry, and the general public. These meetings were designed to increase the understanding between these interested groups and direct the research to benefit the general public.

- Assisted in the design, permitting, and construction of the Polk County Bioreactor Landfill. Coordinated work between the Polk County landfill engineers, landfill operators, the Florida Department of Environmental Protection (FDEP) and fellow graduate students. Addressed design concerns that were raised by FDEP.
- Organized and assisted in evaluating risk from the use and reuse of chromated copper arsenate (CCA) treated wood. Wrote final reports and recommendations for FDEP.

Research Assistant

Applied Environmental Consulting

Gainesville, FL

May 1996 - August 1997

- Coordinated and carried out experiments to evaluate risk associated with the exposure to naturally occurring radioactive material (NORM). Conducted interviews with phosphate workers to evaluate radiation exposure time. Assisted with drafting the final report that was submitted to the Florida Institute of Phosphate.

JOURNAL PUBLICATIONS

1. Jain, P., Powell, J., Smith, J., Townsend, T., **Tolaymat, T.**, (2014) "Life-Cycle Inventory and Impact Evaluation of Mining Municipal Solid Waste Landfills" *Environmental Science & Technology* 48 (5), 2920-2927
2. Huang, X., El Badawy, A., Arambewela, M., Ford, R., Barlaz, M., **Tolaymat, T.**, (2014) "Characterization of Salt Cake from Secondary Aluminum Production" *Journal of Hazardous Materials* (273):192-199
3. Ivask, A., El Badawy, A., Kaweeteerawat, C., Boren, D., Fischer, H., Ji, Z., Chang, C., Liu, R., **Tolaymat, T.**, Telesca, D., Zink, J., Cohen, Y., Holden, P., Godwin, H., (2014) "Toxicity Mechanisms in Escherichia coli Vary for Silver Nanoparticles and Differ from Ionic Silver" *ACS Nano* 8 (1), 374-386
4. Silva, T., Pokhrel, L., Dubey, B., **Tolaymat, T.**, Maier, K., Liu, X., (2014) "Particle Size, Surface Charge and Concentration Dependent Ecotoxicity of Three Organo-Coated Silver Nanoparticles: Comparison Between General Linear Model-Predicted and Observed Toxicity" *Science of The Total Environment*, (468) 15:968-976,
5. Gitipour, A., El Badawy, A., Arambewela, M., Miller, B., Scheckel, K., Elk, M., Ryu, R., Gomez-Alvarez, V., Santo Domingo, J., Thiel, S., Tolaymat, T. (2013) "The Impact of Silver Nanoparticles on the Composting of Municipal Solid Waste" *Environmental Science & Technology* 47 (24): 14385-14393
6. Nel etl. al., (2013) "A Multi-Stakeholder Perspective on the Use of Alternative Test Strategies for Nanomaterial Safety Assessment" *ACS Nano*, (7)8:6422-6433.
7. Xu, Q., Powell, J., **Tolaymat, T.**, Townsend, T. (2013). "Seepage Control Strategies at Bioreactor Landfills." *J. Hazard. Toxic Radioact. Waste*, 17(4), 342–350.
8. **Tolaymat, T.**, Kim, H., Jain, P., Powell, J., and Townsend, T. (2013). "Moisture Addition Requirements for Bioreactor Landfills." *J. Hazard. Toxic Radioact. Waste*, 17(4), 360–364.
9. El Badawy, A.; Schekel, K.; Suidan, M.; **Tolaymat, T.** (2013) "Key Factors Controlling the Transport of Silver Nanoparticles in Porous Media" *Environmental Science and Technology*, 2013, 47 (9), 4039–4045.
10. Mwilu, S. K.; El Badawy, A.; Bradham, K.; Thomas, D.; Scheckel, K. G.; **Tolaymat, T. M.**; Ma, L.; Rogers, K. (2013) "Changes in Silver Nanoparticles Exposed to Human Synthetic Stomach Fluid: Effects of Particle Size and Surface Chemistry" *Science of the Total Environment*, (447): 90-98.
11. **Tolaymat, T.**; El Badawy, A.; Carson, D. (2013) "Estimate of the Decay Rate Constant of Hydrogen Sulfide from Drywall in a Simulated Bench-Scale Study. *J. Environ. Eng.* (139): 538-544.
12. Kim R. Rogers, K., Bradham, K., **Tolaymat, T.**, Thomas, D., Hartmann, T., Ma, L., Williams, A. (2012) "Alterations in Physical State of Silver Nanoparticles Exposed to Synthetic Human Stomach Fluid" *Science of the Total Environment*. (420):334-339.
13. Pokhrel, L., Silva, T., Dubey, B., Elbadawy, A., **Tolaymat, T.** (2012) "Rapid Screening of Aquatic Toxicity of Metal-Based Nanoparticles Using the MetPLATE Assay" *Science of the Total Environment*. (426):414-422.

14. El Badawy, A., Scheckel, K., Suidan, M., **Tolaymat, T.** (2012) "The Impact of Stabilization Mechanism on the Aggregation Kinetics of Silver Nanoparticles" *Science of the Total Environment*. (429):325-331.
15. El Badawy, A., Scheckel, K., Suidan, M., **Tolaymat, T.** (2011) "Surface Charge-Dependent Toxicity of Silver Nanoparticles" *Environmental Science and Technology* (45)1:283-287.
16. Costanza, J., El Badawy, A., **Tolaymat, T.** (2011) "Comment on 120 Years of Nanosilver History: Implications for Policy Makers" *Environmental Science and Technology*. (45)17:7591-7592
17. Jain, P., Townsend, T., **Tolaymat T.**, (2010) "Steady-State Design of Vertical Wells for Liquids Addition at Bioreactor Landfills" *Waste Management*. (30)11:2022-2029.
18. Jain, P., Townsend, T., **Tolaymat T.**, (2010) "Steady-State Design of Horizontal Wells for Liquids Addition at Bioreactor Landfills" *Waste Management*. (30)12:2560-2569.
19. Bareither, C., Benson, C., Barlaz, M., Edil, T., **Tolaymat, T.** (2010) "Performance of North American Bioreactor Landfills. I: Leachate Hydrology and Waste Settlement" *J. Environmental Engineering-ASCE*. (136)8:824-838
20. Barlaz, M., Bareither, C., Hossain, A., Saquing, J., Mezzari, I., Benson, C., **Tolaymat, T.**, Yazdani, R. (2010) "Performance of North American Bioreactor Landfills. II: Chemical and Biological Characteristics" *J. Environmental Engineering-ASCE*. (136)8:839-853
21. Genaidy, A., Sequeira, R., **Tolaymat, T.**, Kohler, J., Wallace, S., Rinder, M. (2010) "Integrating Science and Business Models of Sustainability for Environmentally-Challenging Industries such as Secondary Lead Smelters: A Systematic Review and Analysis of Findings". *J. Environmental Management*. (91)9:1872-1882
22. Musson, S., Campo, P., **Tolaymat, T.**, Suidan, S., Townsend, T., (2010) "Assessment of the Anaerobic Degradation of Six Active Pharmaceutical Ingredients" *Science of The Total Environment*, (38)9: 2068-2074
23. Jang, Y., Jain, P., **Tolaymat, T.**, Dubey, B., Singh, S., Townsend, T. (2010) "Characterization of Roadway Stormwater System Residuals for Reuse and Disposal Options" *Science of the Total Environment*. (407)12:3686-3701
24. **Tolaymat, T.**, Green, R., Hater, G., Barlaz, M., Black, P., Bronson, D., Powell, J. (2010) "Evaluation of Landfill Gas Decay Constant for Municipal Solid Waste Landfills Operated as Bioreactors" *J. Air & Waste Management Association*. (60)1:91-97
25. **Tolaymat, T.**, El Badawy, A., Genaidy, A., Scheckel, K., Luxton, T., Suidan, M. (2010) "An Evidence-Based Environmental Perspective of Manufactured Silver Nanoparticle in Syntheses and Applications: A Systematic Review and Critical Appraisal of Peer-Reviewed Scientific Papers" *Science of the Total Environment*. (408)5:999-1006
26. Scheckel, K., Luxton, T., El Badawy, A., Impellitteri, C., **Tolaymat, T.** (2010) "Synchrotron Speciation of Silver and Zinc Oxide Nanoparticles Aged in a Kaolin Suspension" *Environmental Science and Technology*. (44)4:1307-1312
27. El Badawy, A. Luxton, T., Silva, R., Scheckel, K., Suidan, M., **Tolaymat, T.** (2010) "Impact of Environmental Conditions (pH, Ionic Strength, and Electrolyte Type) on the Surface Charge and Aggregation of Silver Nanoparticles Suspensions" *Environmental Science and Technology*. (44)4:1260-1266
28. **Tolaymat, T.**, Al-Abed, S., Jegadeesan, G. (2009) "Impact of Bioreactor Landfill Leachate Quality on As, Cd, Pb and Zn Leaching from Mine Residues" *J Residuals Science & Technology* (6)2: 89-96
29. Impellitteri, C., **Tolaymat, T.**, Scheckel, K., (2009) "The Speciation of Silver Nanoparticles in Antimicrobial Fabric before and after Exposure to a Hypochlorite/Detergent Solution" *J. Environmental Quality*. (38) 4:1528-1530
30. Genaidy, A., **Tolaymat, T.**, Sequeira, R. (2009) "Health Effects of Exposure to Carbon Nanofibers: Systematic Review, Critical Appraisal, Meta Analysis and Research to Practice Perspectives" *Science of the Total Environment*. (407) 12:3686-3701

31. Genaidy, A., Sequeira, R., **Tolaymat, T.**, Kohler, J., Rinder, M. (2009) "Evidence-Based Integrated Environmental Solutions for Secondary Lead Smelters: Pollution Prevention and Waste Minimization Technologies and Practices" *Science of the Total Environment*. (407)10:3239-3268
32. Jang, Y., Jain, P., **Tolaymat, T.**, Dubey, B., Townsend, T. (2009) "Characterization of Pollutants in Florida Street Sweepings for Management and Reuse" *J. Environmental Management*. (91)2:320-327
33. **Tolaymat, T.**, Dubey, B., Townsend, T. (2008) "Assessing risk posed by land application of ash from the combustion of wood and tires" *J. Residuals Science & Technology*. (5) 2:61-75.
34. Jjemba, P., Morris, B., **Tolaymat, T.** (2008) "Specific Energy Output from Urban Residues Degraded with Leachate and an Off-Specification Industrial Carbonated Beverage as Moisture Sources" *Biomass and Bioenergy* (32)1:51-59
35. Genaidy, A., Sequeira, R., **Tolaymat, T.**, Kohler, J., Rinder, M.(2008) "An Exploratory Study of Lead Recovery in Lead-Acid Battery Lifecycle in US Market: An Evidence-Based Approach" *Science of the Total Environment* (407)1:7-22
36. Al-Abed, S., Jegadeesan, G., Scheckel, K., **Tolaymat, T.** (2008) "Speciation, Characterization, and Mobility of As, Se, And Hg in Flue Gas Desulphurization Residues" *Environmental Science & Technology*. (42)5: 1693-1698
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2. Meer, S., Benson, C., **Tolaymat, T.**, Carson, D. In-Service Hydraulic Conductivity Of GCLs In Landfill Covers - Laboratory And Field Studies. U.S. Environmental Protection Agency, National Risk Management Research Laboratory. Cincinnati, OH, EPA/600/R-05/148, 2005.
3. **Tolaymat, T.** Landfill Bioreactor Performance, Second Interim Report. U.S. Environmental Protection Agency, National Risk Management Research Laboratory. Cincinnati, OH, EPA/600/R-07/060, 2007.
4. Peggs, I., **Tolaymat, T.** Non-Destructive Evaluation of Geomembrane Seam Bond Strength. U.S. Environmental Protection Agency, National Risk Management Research Laboratory. Cincinnati, OH, EPA/600/R-09/070, 2009.
5. Benson, C., Barlaz, M., **Tolaymat, T.** Bioreactor Landfills State-Of-The Practice Review. U.S. Environmental Protection Agency, National Risk Management Research Laboratory. Cincinnati, OH, EPA/600/R-09/071, 2009.

ADJUNCT APPOINTMENTS/CONSULTANCY

- Adjunct professor at East Tennessee State University
- Executive board member at the Florida Center for Solid and Hazardous Waste Management
- Solid waste expert witness for Ohio EPA, 2006
- Solid waste consultant to the World Bank
- Solid waste consultant to USAID

AWARDS

- U.S. **EPA Science Achievement Award** in 2010 for service at the Salt River Regional Landfill awarded by EPA
- U.S. EPA **Bronze Medal** for Commendable Service in 2007 for service after hurricane Katrina awarded by EPA
- U.S. EPA **Bronze Medal** for Commendable Service in 2010 for service at the Fort DeVeins Superfund Site awarded by ORD
- U.S. EPA **Bronze Medal** for Commendable Service in 2010 for service at the County Wide Landfill awarded by Region 5
- Level III Scientific and Technological Achievement Award 2007
- U.S. EPA/ORD **Superior Accomplishment** award every year between 2004 and 2010

INVITED PRESENTATION AND WORKSHOPS

- Developed and taught the Interstate Technology Regulatory Council (ITRC) bioreactor landfill internet training course in 2006
- Develop web content about bioreactor landfills in 2007 with the Hinkley Center for Solid and Hazardous Waste Management and the University of Florida (see <http://www.bioreactor.org>)
- Develop 2-day workshops on bioreactor landfills to for EPA Regions 5, 6, and 7 between 2005 and 2006
- Develop and coordinate bioreactor landfill section of Solid Waste Association of North America (SWANA) symposium in 2007.
- Developed a bioreactor landfill workshop for the World Bank October, 2007.
- Invited by Taiwan Environmental Protection Agency to organize and host an international workshop in 2005 and 2008.
- Environmental Factors and Surface Properties of Nanoparticles Governing Their Fate, Reactivity, and Mobility. Presented at 10th International Conference on the Biogeochemistry of Trace Elements, Chihuahua, MEXICO, July 13 - 18, 2009
- Monitoring Guidance for Bioreactor Landfills. Presented at SWANA Bioreactor Meeting, San Antonio, TX, March 22 - 25, 2005.
- Mercury Speciation In FGD: Assessing Transport And Bioavailability Risk. Presented at Research and Demonstration of Agricultural Uses of Gypsum and Other FGD Materials Workshop, St. Louis, MO, September 12 - 14, 2006.
- Metal Speciation in Soil, Sediment, and Water Systems Via Synchrotron Radiation Research. Presented at EPA Science Forum, Washington, DC, May 16 - 18, 2005.

- Bioreactor Landfill Design. Presented at EPA Region 5 Bioreactor Landfill Workshop, Chicago, IL, September 27, 2005.
- Monitoring Approaches for Bioreactor Landfills. Presented at EPA Region 5 Bioreactor Landfill Workshop, Chicago, IL, September 27, 2005.
- Bioreactor Landfills, Theoretical Advantages And Research Challenges. Presented at EPA Region 5 Bioreactor Landfill Workshop, Chicago, IL, September 27, 2005.
- Waste Stabilization Fundamentals For Bioreactor Landfills. Presented at EPA Region 5 Bioreactor Landfill Workshop, Chicago, IL, September 27, 2005.

EXTERNAL RESEARCH GRANTS

- Waste Management Inc. (WM) bioreactor landfill \$200K in-kind per year (2001-present)
- EPA's Office of Solid Waste (OSW) "Fee for Service" \$150K (2005)
- ORD's national nanomaterials research initiative \$480K (2007)
- Environmental Education and Research Foundation bioreactor landfill research \$40K (2007)
- Environmental Education and Research Foundation bioreactor landfill research \$40K (2007)
- Regional Applied Research Effort (RARE) R5 \$50k per year for two years (2008-2009)
- Regional Applied Research Effort (RARE) R10 \$110k (2008)
- Environmental Research and Education Foundation secondary aluminum processing waste research \$186K (2009)
- Aluminum Association secondary aluminum processing waste research \$186 (2009)
- U.S. AID/Jordan the remediation of a phosphate mining site in Amman, Jordan \$5,000K (2010)

RESPONDENT
EXHIBIT
RX-F-3

**UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION**

)	
In the Matter of)	
)	
ECM BioFilms, Inc.,)	Docket No. 9358
a corporation, also d/b/a)	
Envioplastics International)	
)	

**COMPLAINT COUNSEL’S OBJECTIONS AND RESPONSES TO THE SUBPOENA
DUCEUS TECUM TO DR. SHANE FREDERICK**

Pursuant to Rules 3.34 and 3.38A of the Federal Trade Commission’s Rules of Practice for Adjudicative Proceedings, Complaint Counsel hereby submits the following objections and responses to Respondent’s Subpoena *Duces Tecum* (“Subpoena”) to Dr. Shane Frederick (“Expert”).

GENERAL OBJECTIONS

1. Complaint Counsel objects to the Subpoena to the extent that it is invalid and unenforceable for lack of Commission Seal.
2. Complaint Counsel objects to the Subpoena to the extent that it is invalid and unenforceable because it is issued directly to Complaint Counsel’s expert and not to Complaint Counsel.
3. Complaint Counsel objects to the Subpoena to the extent that it calls for the discovery of information beyond the scope of § 3.31A of the Commission’s Rules of Practice and the ALJ’s Scheduling Order in this case. *See also In the Matter of Basic Research*, No. 9318, 2004 FTC LEXIS 237, *9 (F.T.C. Dec. 9, 2004); *In re Dura Lube*, No. 9292, 1999 FTC LEXIS 254 (F.T.C. Dec. 15, 1999).

4. Complaint Counsel objects to the Subpoena to the extent that it seeks information before expert disclosures are required in accordance with § 3.31A of the Commission's Rules of Practice and the ALJ's Scheduling Order in this case.

5. Complaint Counsel objects to the Subpoena to the extent that it seeks information that is not relevant to the subject matter of the litigation and/or not reasonably calculated to lead to the discovery of information relevant to the allegations of the complaint, to the proposed relief, or to Respondent's defenses.

6. Complaint Counsel objects to the Subpoena to the extent that it is overly broad, unduly burdensome, vague or ambiguous.

7. Complaint Counsel objects to the Subpoena to the extent that it is unreasonably cumulative or duplicative, or is obtainable from some other source that is more convenient, less burdensome, or less expensive.

8. Complaint Counsel objects to the Subpoena because the burden and expense of the proposed discovery outweigh its likely benefit.

9. Complaint Counsel objects to the Subpoena to the extent it seeks information that is subject to the attorney-client privilege, the attorney work-product privilege, the investigative privilege, the non-testifying expert privilege, the deliberative privilege, the law enforcement privilege, the informant privilege, and the joint prosecution privilege, that is exempt from disclosure pursuant to confidentiality provisions set forth in the FTC Act, that is protected from disclosure by the privilege for information given to the FTC on a Pledge of Confidentiality, that is protected from disclosure under principles of financial privacy, that is subject to a protective order from another litigation, or that is subject to other applicable legal protection or privilege.

10. Complaint Counsel objects to the Subpoena to the extent that it calls for materials outside the scope of discovery pursuant to Rule 3.31(c)(2).

11. By providing information in response to the Subpoena, Complaint Counsel does not concede that the Subpoena is valid, appropriate, or that such information is relevant, material, or admissible in evidence.

12. Complaint Counsel's objections and responses to the Subpoena are based on information now known to Counsel. Complaint Counsel has not yet completed its discovery of the facts in this case or prepared for trial and therefore reserves its rights under the Commission's Rules of Practice to amend, modify, or supplement its objections and responses if it learns of new information.

13. Complaint Counsel will not produce information responsive to any request that Respondent previously has produced to Complaint Counsel at any point during the investigation or prosecution of this matter.

14. Complaint Counsel will not produce information responsive to any request that has been provided to Respondent previously at any point during the investigation or prosecution of this matter.

15. Each of the foregoing General Objections is incorporated in each of the Responses hereinafter set forth. Subject to and without waiving these objections, Complaint Counsel provides the following responses.

OBJECTIONS AND RESPONSES TO SUBPOENA SPECIFICATIONS

1. All documents received or possessed before engagement as an expert (consulting or testifying) in FTC Docket No. 9358 that concern ECM BioFilms, Inc., any past and present employee or principal of ECM, and/or the ECM additive.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii).

Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

2. All documents, materials, correspondence, forms, marketing material, and testing used or referenced to form any and all opinions you may offer in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

3. Regardless of the date, all sections of contracts, retainers, and/or agreements with Yale University concerning conflicts of interest and/or supplemental employment (such as consultation services in litigation).

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

4. All correspondence between you and any employee and/or consultant of the Biodegradable Products Institute ("BPI").

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

5. All correspondence with Dr. Ramani Narayan.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii).

Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

6. All correspondence (not subject to attorney client or work-product privilege and received before engagement as an expert in FTC Docket No. 9358) with any employee and/or representative of the Federal Trade Commission concerning biodegradable plastics.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

7. All correspondence with any witness, person, and/or consultant used to help form any opinion you have in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

8. A listing of all shares of stock or ownership interests held by you in any company associated with plastics, biodegradable products or technologies, and/or compostable products or technologies

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

9. All documents, including papers, articles, dissertations, and publications that you authored, co-authored, or contributed to or that concerned work related to marketing research (including consumer perception) of trade consumers, *e.g.*, corporate entities, distributors, wholesalers, etc., as opposed to end-consumers.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this

unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Subject to and without waiving the foregoing General and specific objections, Dr. Frederick has disclosed his Curriculum Vitae, which includes a list of all his scientific publications, papers, or presentations. Subject to and without waiving the foregoing General and specific objections, Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

10. Since January 1, 1999, copies of all papers, articles, dissertations, and publications authored by you that concern consumer perception that may help form your opinions and conclusions in this case. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Dr. Frederick has disclosed his Curriculum Vitae, which includes a list of all his scientific publications, papers, or presentations and Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

11. Regardless of the date, if you have ever been a defendant or a plaintiff in a legal proceeding, copies of all complaints, answers, motions, and transcripts (deposition, hearing and trial) involving you in your professional capacity, along with all orders issued by the courts in those proceedings.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

12. All conflict of interest forms or agreements signed by you.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope

of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order.

13. If you have ever served as an expert in any other proceeding involving the Federal Trade Commission, copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

RESPONSE: Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Dr. Frederick has disclosed all prior cases in which the Expert has testified or has been deposed within the preceding four years. Complaint Counsel will produce all responsive, non-privileged documents within the scope of Rules 3.31 and 3.31A, and in accordance with the Scheduling Order and the Commission Rules.

14. If you have ever served as an expert in any other legal proceeding involving plastics technologies, produce copies of all expert reports and testimony given by you in those proceedings. Production of all responsive materials should be submitted in accordance with the Commission's Rules of Practice and the ALJ's Scheduling Order in this matter.

15. **RESPONSE:** Complaint Counsel hereby objects to this Request to the extent that it seeks information not likely to lead to relevant evidence, and to the extent that this unlimited request is overbroad and burdensome under 16 CFR § 3.31(c)(2)(i)-(iii). Complaint Counsel objects to this Request because it seeks information beyond the scope of information to be produced under Rule 3.31A and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel objects to this Request because it seeks information required to be produced under Rule 3.31A(c) and Paragraph 19 of the Court's Scheduling Order. Complaint Counsel therefore objects to this Request because it unilaterally changes the scheduling order and advances Complaint Counsel's deadline for production of Rule 3.31A(c) expert information by two months. The Scheduling Order dictates the time and manner of production for information covered by this Request. Subject to and without waiving the foregoing General and specific objections, Dr. Frederick has disclosed all prior cases in which the Expert has testified or has been deposed within the preceding four years. Expert has not previously served as an expert.

Dated: April 25, 2014

Respectfully submitted,

/s/ Katherine Johnson

Katherine Johnson (202) 326-2185

Jonathan Cohen (202) 326-2551

Elisa K. Jillson (202) 326-3001

Division of Enforcement

Bureau of Consumer Protection

Federal Trade Commission

600 Pennsylvania Avenue, NW

Mailstop M-8102B

Washington, DC 20580

CERTIFICATE OF SERVICE

I hereby certify that on April 25, 2014, I caused a true and correct copy of the paper original of the foregoing document to be served as follows:

One electronic copy to **Counsel for the Respondent:**

Jonathan W. Emord
Emord & Associates, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Email: jemord@emord.com

Peter Arhangelsky
Emord & Associates, P.C.
3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286
Email: parhangelsky@emord.com

Lou Caputo
Emord & Associates, P.C.
3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286
Email: lcaputo@emord.com

I further certify that I possess a paper copy of the signed original of the foregoing document that is available for review by the parties and the adjudicator.

April 25, 2014

/s/ Katherine Johnson
Katherine Johnson

RESPONDENT
EXHIBIT
RX-G

United States Patent [19]
McCarthy et al.

[11] Patent Number: 5,883,199
[45] Date of Patent: Mar. 16, 1999

[54] POLYLACTIC ACID-BASED BLENDS

[75] Inventors: Stephen P. McCarthy, Tyngsboro;
Richard A. Gross, Chelmsford;
Wenguang Ma, Lowell, all of Mass.
[73] Assignee: University of Massachusetts, Boston,
Mass.

[21] Appl. No.: 825,810

[22] Filed: Apr. 3, 1997

[51] Int. Cl.⁶ C08F 20/00; B29D 22/00

[52] U.S. Cl. 525/437; 525/450; 604/212;
604/370; 604/403; 604/408; 428/35.2; 428/35.7;
428/36.92

[58] Field of Search 525/437, 450;
604/403, 212, 358, 370, 408; 428/34.1,
35.2, 35.7, 36.92

[56] References Cited

U.S. PATENT DOCUMENTS

4,095,600	6/1978	Casey et al.	525/437
5,216,050	6/1993	Sinclair	524/108
5,252,642	10/1993	Sinclair et al.	524/108
5,685,540	11/1997	Kakizawa	525/444

FOREIGN PATENT DOCUMENTS

96-231837 2/1995 Japan .

OTHER PUBLICATIONS

Cai et al., "Effects of Physical Aging, Crystallinity, and Orientation on the Enzymatic Degradation of Poly(Lactic acid)", *J. Polymer Science*, 34:2701-2708 (1996).

Gajria et al., "Miscibility and biodegradability of blends of poly(lactic acid) and poly(vinyl acetate)", *Polymer*, 37:437-444 (1996).

Sheth et al., "Biodegradable Polymer Blends of Polylactic Acid (PLA) and Polyethylene Glycol (PEG)", *ANTEC '95*, 1829-1833 (1995).

Younes et al., Phase Separation in Poly(Ethylene Glycol)/Poly(Lactic Acid) Blends, *Polym. J.*, 24(8):765-773 (1988).

Primary Examiner—Nathan M. Nutter
Attorney, Agent, or Firm—Fish & Richardson P.C.

[57] ABSTRACT

Biodegradable blends including a first, polylactic acid-based polymer or copolymer, and a second polymer or copolymer including one or more polyesters, e.g., an aliphatic polyester or a polyester of one aliphatic C₂ to C₂₀ diacid or of a combination of two more different aliphatic C₂ to C₂₀ diacids, wherein the first and second polymers are present in a ratio of 9:1 to 1:9, are described.

25 Claims, 7 Drawing Sheets

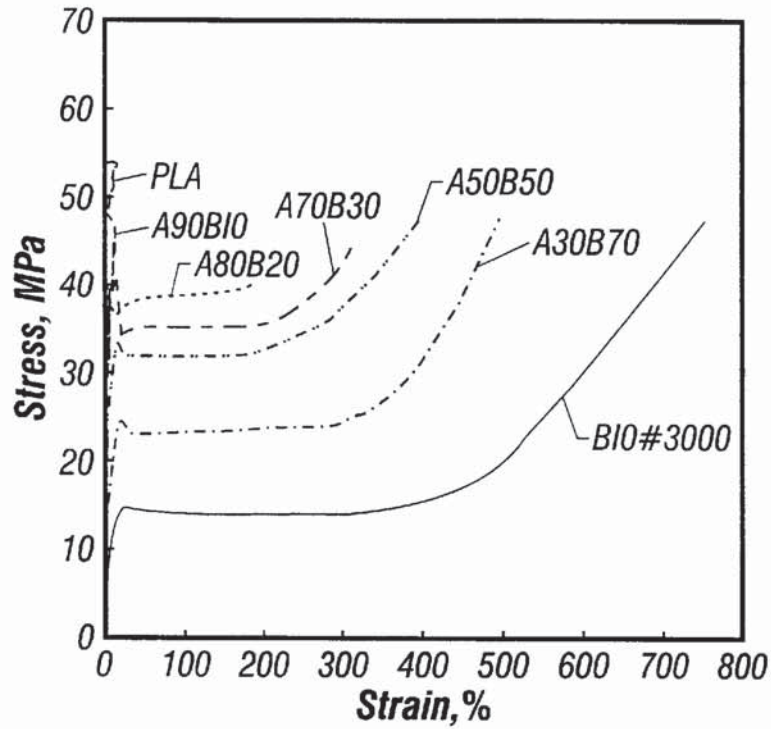


FIG. 1

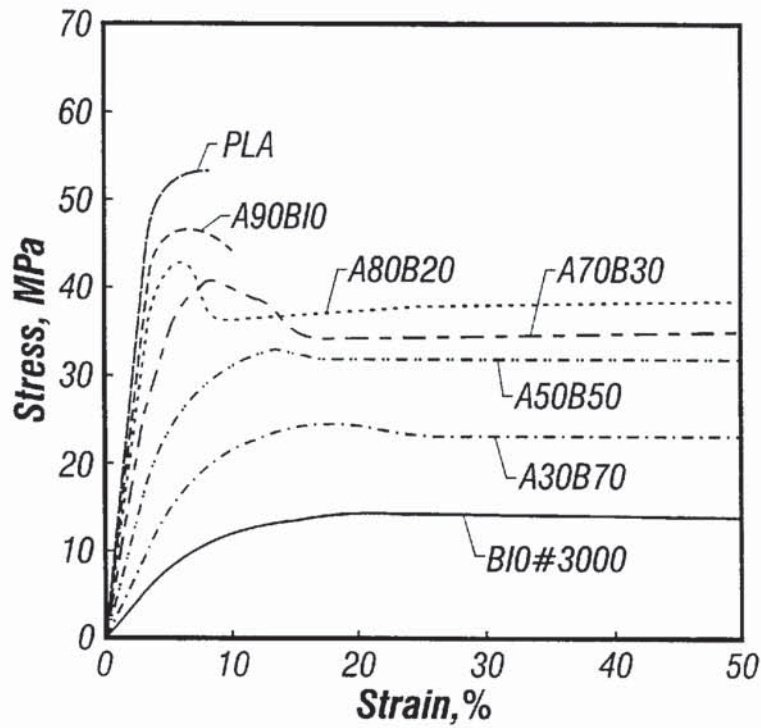


FIG. 2

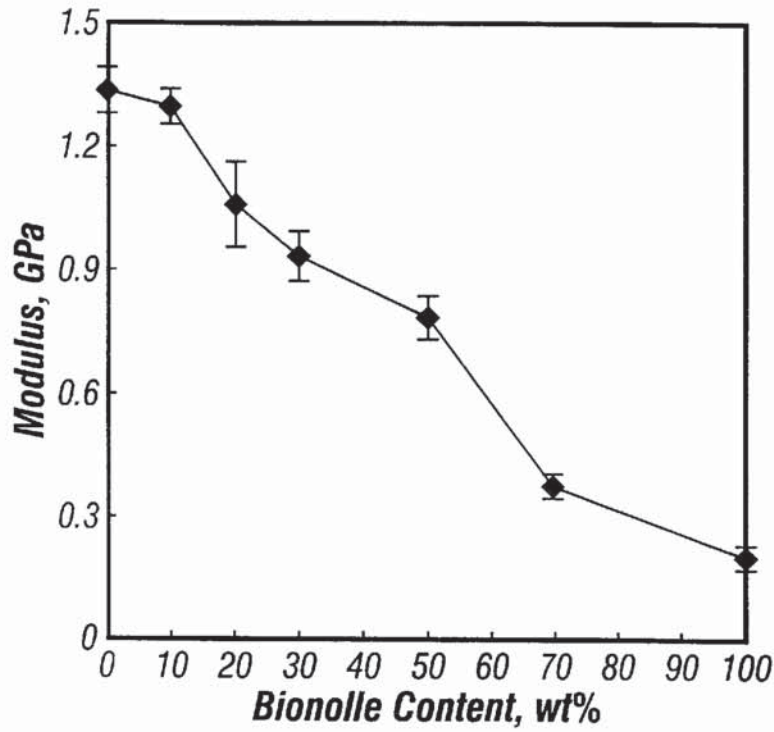


FIG. 3

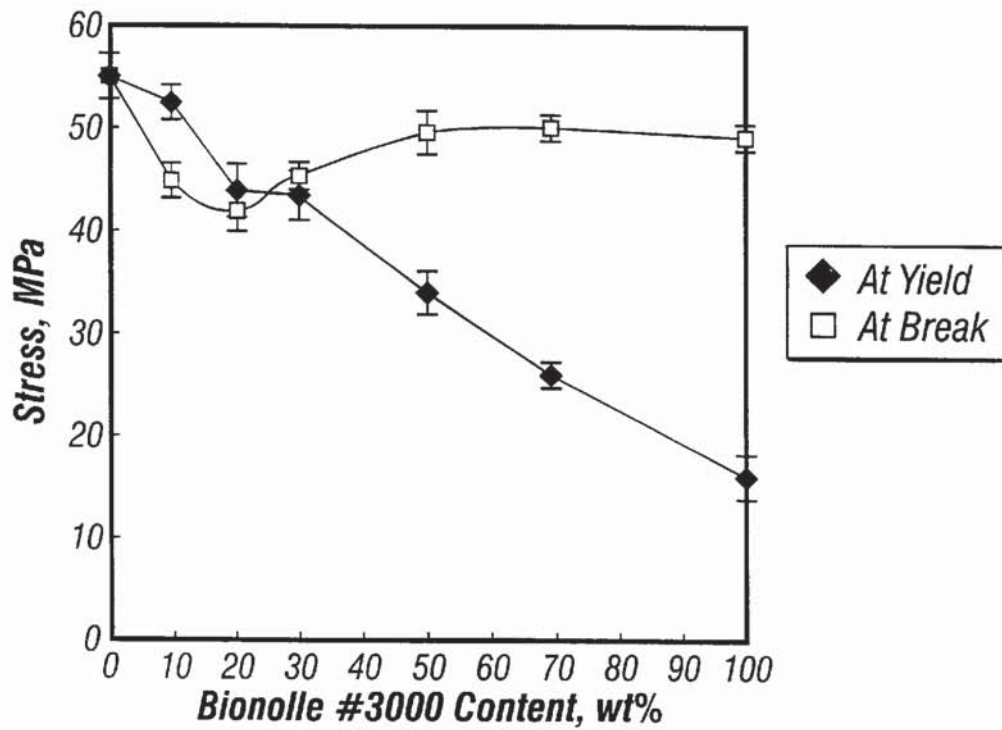


FIG. 4

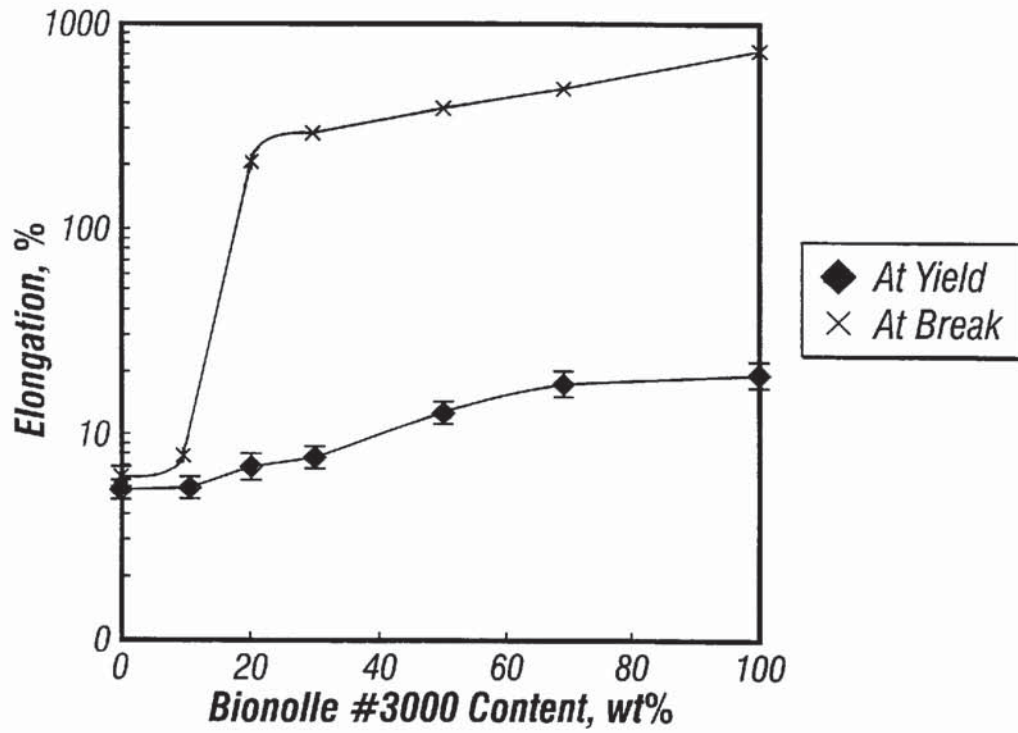


FIG. 5

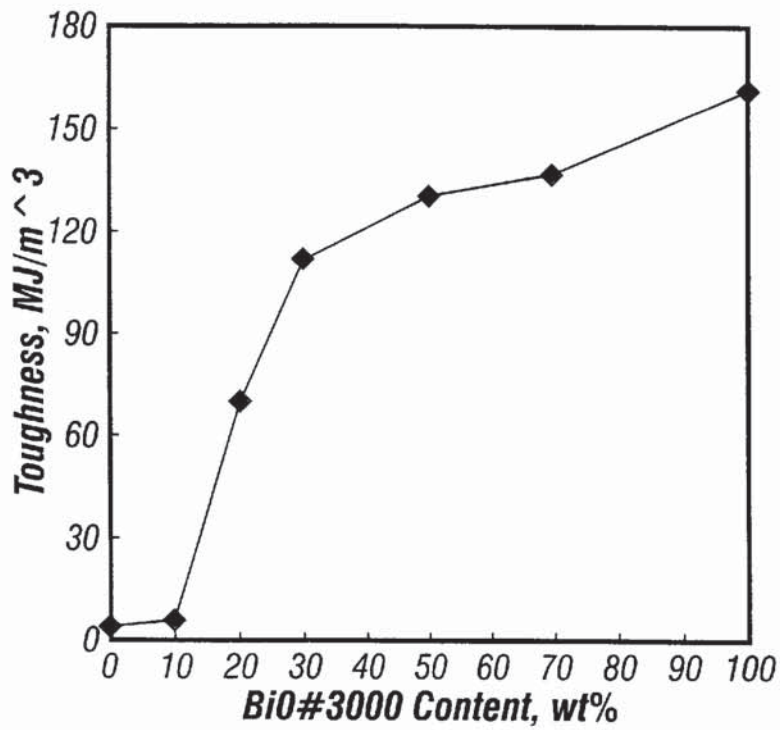


FIG. 6

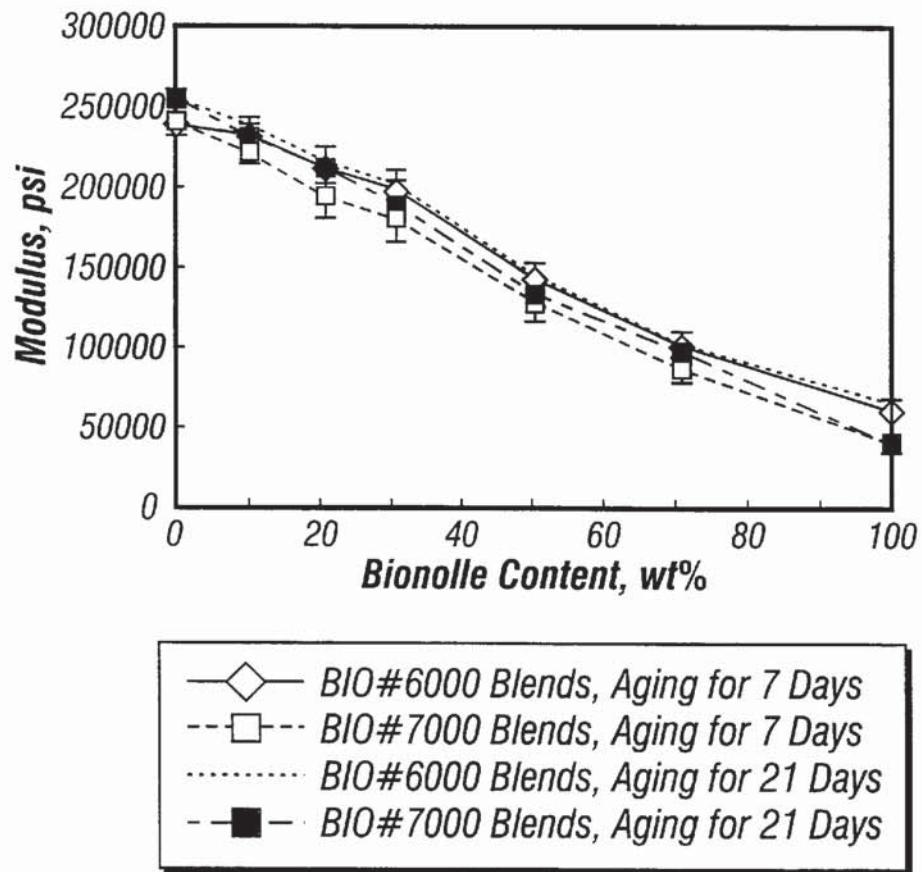


FIG. 7

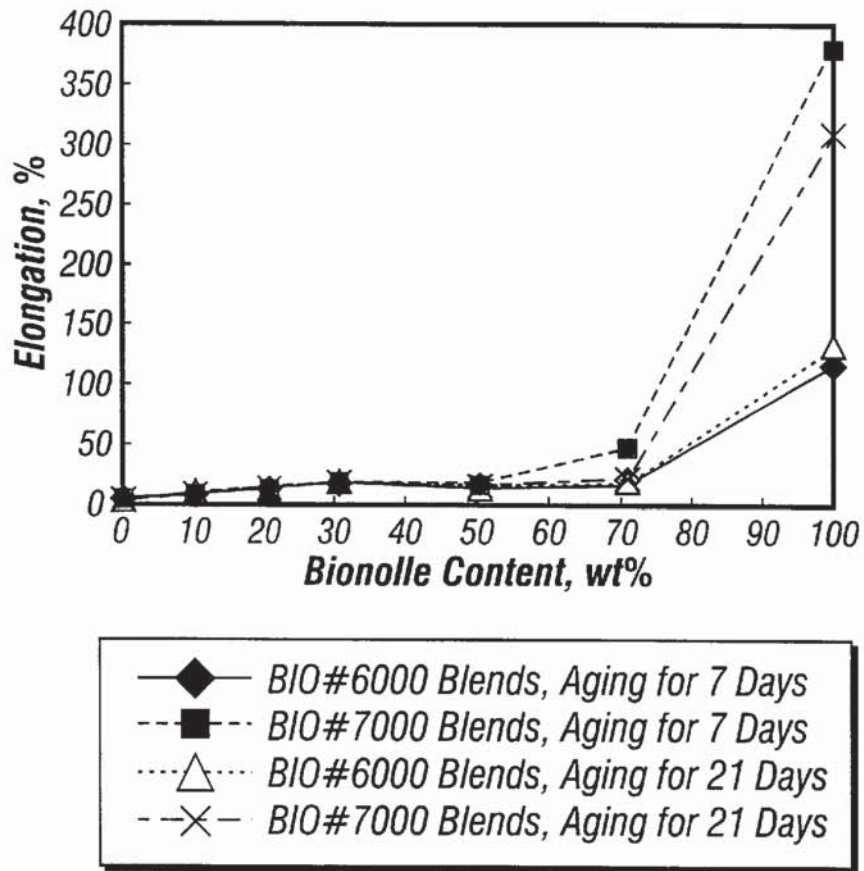


FIG. 8

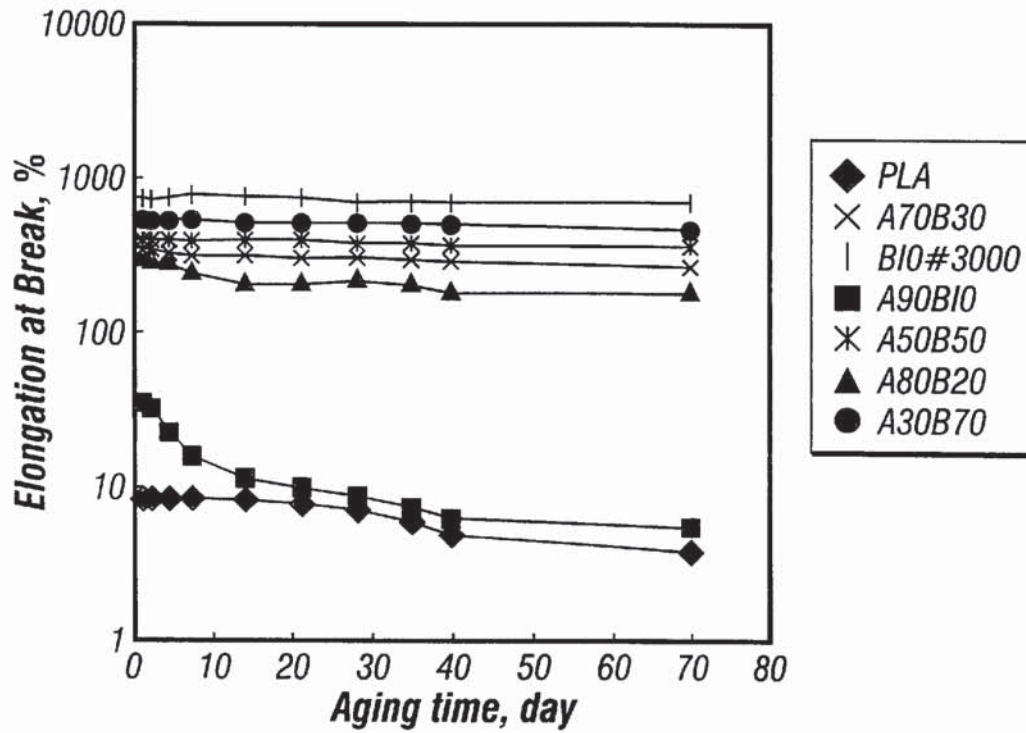


FIG. 9

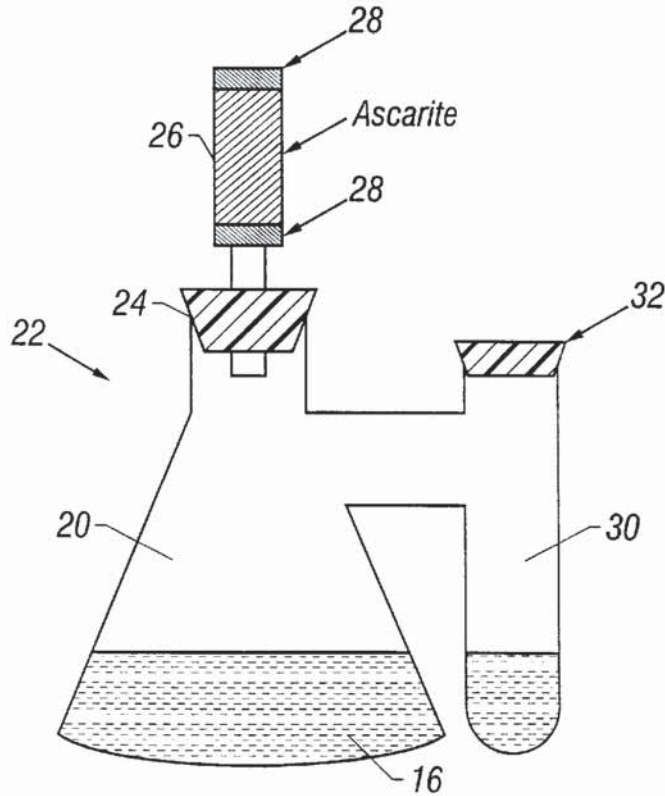


FIG. 10

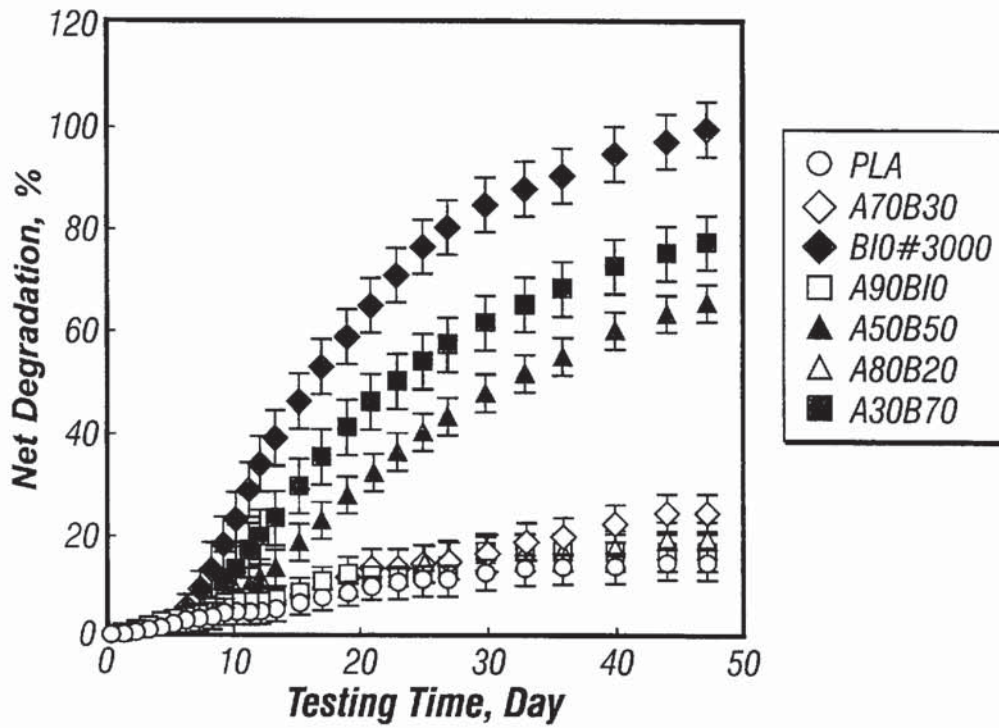


FIG. 11

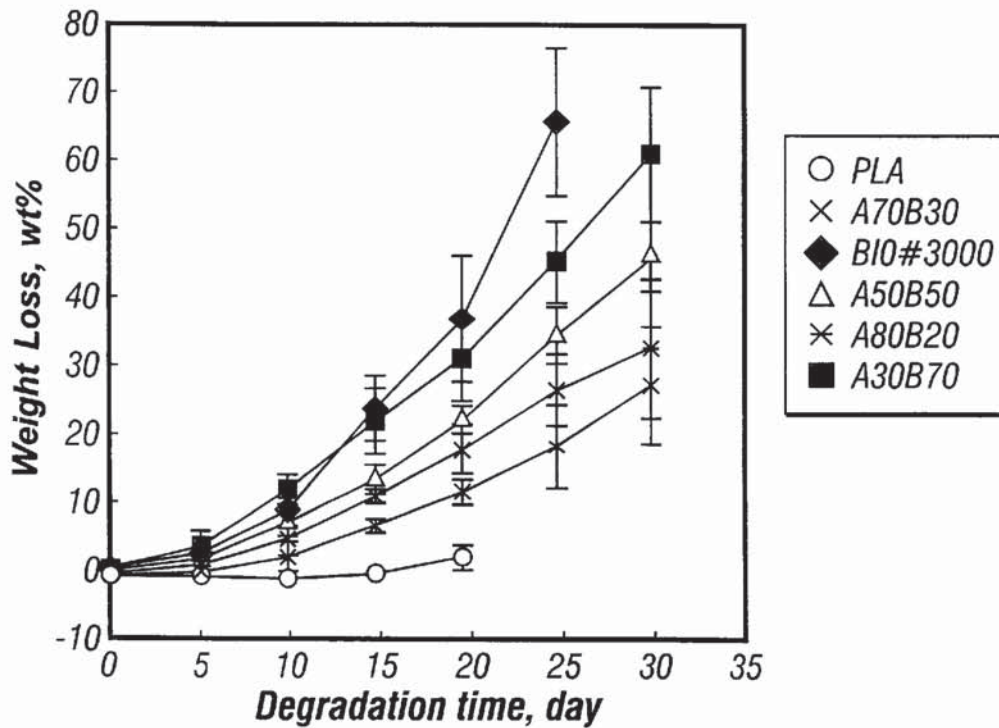


FIG. 12

5,883,199

1

POLYLACTIC ACID-BASED BLENDS

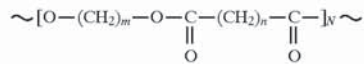
STATEMENT AS TO FEDERALLY SPONSORED RESEARCH

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BACKGROUND OF THE INVENTION

The invention relates to polylactic acid-based blends.

Succinic acid and diols can form biodegradable aliphatic polyesters and copolyesters through coupling and polycondensation reactions. The main unit structure resulting from these reactions is:



Examples of biodegradable aliphatic polyesters and copolyesters having the unit structure shown above are polybutylene succinate (PBSU), where m is 4 and n is 2, polyethylene succinate (PESU), where m is 2 and n is 2, a random copolymer of polybutylene succinate adipate (PBSU-AD) where m is 4 and n is 2 or 4, and polyethylene succinate adipate (PESU-AD) where m is 2 and n is 2 or 4.

These polyesters and copolyesters have interesting properties including biodegradability, melt processability, and thermal and chemical resistance. One of these, BIONOLLE®, a commercially available aliphatic succinate-adipate polyester, has excellent physical properties. For example, the thermal resistance of BIONOLLE is equivalent to that of polyethylene, but the yield strength is higher than polyethylene. The stiffness of BIONOLLE is between high density and low density polyethylene (LDPE). Particularly for BIONOLLE #3000, its impact strength is equivalent to that of LDPE, while its elongation at break is higher than that of LDPE.

Polylactic acid can be made from lactic acid (lactate). Lactic acid is a natural molecule that is widely employed in foods as a preservative and a flavoring agent. It is the main building block in the chemical synthesis of the polylactide family of polymers. Although it can be synthesized chemically, lactic acid is procured principally by microbial fermentation of sugars such as glucose or hexose. These sugar feed stocks can be derived from potato skins, corn, and dairy wastes. The lactic acid monomers produced by fermentation are then used to prepare polylactide polymers.

Lactic acid exists essentially in two stereoisomeric forms, which give rise to several morphologically distinct polymers: D-polylactic acid, L-polylactic acid, D,L-polylactic acid, meso-polylactic acids and any combinations thereof. D-polylactic acid and L-polylactic acid are stereoregular polymers. D,L-polylactic acid is a racemic polymer obtained from a mixture of D- and L-lactic acid, and meso-polylactic acid can be obtained from D,L-lactide. The polymers obtained from the optically active D and L monomers are semicrystalline materials, but the optically inactive D,L-polylactic acid is amorphous.

Lactic acid has a hydroxyl group as well as a carboxylic group, and hence can be easily converted into a polyester. These polyesters have some potential advantages when compared to other biodegradable polymers such as polyhydroxybutyrate and polycaprolactone, as to their strength, thermoplastic behavior, biocompatibility, and availability

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from renewable sources, and have been classified as "water sensitive," because they degrade slowly compared with "water soluble" or "water swollen" polymers. However, while polylactic acid is a biodegradable polymer with generally good processability, it is brittle, and the brittleness increases with time due to physical aging, i.e., densification of the polymer at a molecular level.

SUMMARY OF THE INVENTION

The invention is based on the discovery that polylactic acid (PLA)-based polymers or copolymers and polymers or copolymers of polyesters, e.g., polybutylenesuccinate, polybutylene succinate-adipate or polybutylene succinate-terephthalate (wherein the diacids of the polyester would be, for example, succinic acid, adipic acid, terephthalic acid, or any combinations thereof), can be used to make new biodegradable blends that, compared to PLA, have superior tensile and mechanical properties such as stiffness, toughness, and elongation to break, as well as excellent biodegradability and aging properties.

In general, the invention features a biodegradable blend including a first, polylactic acid-based polymer or copolymer, and a second polymer or copolymer including one or more polyesters, e.g., an aliphatic polyester or a polyester of one aliphatic C_2 to C_{20} diacid or of a combination of two more different aliphatic C_2 to C_{20} diacids, wherein the first and second polymers are present in a ratio of 9:1 to 1:9, by weight, e.g., 5:1 to 1:5, or 2:1 to 1:2, or 1:1. For example, the first polymer can be a homopolymer of polylactic acid, e.g., D-polylactic acid, L-polylactic acid, D,L-polylactic acid, meso-polylactic acid, and any combination of D-polylactic acid, L-polylactic acid, D,L-polylactic acid and meso-polylactic acid. In addition, the first polymer can be a copolymer having at least 50, 60, 70, or more, up to 100 percent, by weight, of polylactic acid.

The second polymer or copolymer can be, for example, a polybutylenesuccinate homopolymer, polybutyleneadipate homopolymer, polybutylenesuccinate-adipate copolymer, polyethylenesuccinate homopolymer, polyethyleneadipate homopolymer, or a polyethylenesuccinate-adipate copolymer, or a copolyester of an aliphatic polyester and up to 50 percent, by weight, of an aromatic polyester, such as terephthalate, as long as the overall copolyester (and second polymer) is biodegradable.

The blend can further include a compatibilizer including one or more polyesters, polyethers, or polyvinyl alcohols.

The new biodegradable blends have an elongation at break of at least 10 percent, for example, at least 50, 100, 200, 300, 400, and up to 500 percent or more. The blends also have an elongation at break of at least 10 percent, e.g., 50, 100, 200, 300, 400, and up to 500 percent or more after 70 days of aging. In addition, the blends have a toughness of at least 10 MJ/m³, e.g., 20, 40, 60, and up to 120 MJ/m³ or more.

The second polymer can be present in the new biodegradable blends as a co-continuous phase with the first polymer, and at least the first or the second polymer or copolymer is present in a continuous phase in the blend.

The first, polylactic acid-based polymer or copolymer can be a homopolymer of lactic acid or a block, graft, or random copolymer of lactic acid having the general formula:



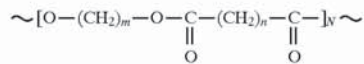
wherein R_1 is a lactic acid unit, R_2 is caprolactone, glycolide, trimethylene carbonate, dioxanone, butyryl

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lactone, or ethylene oxide, a is 10 to 10,000, e.g., 100 to 7,500, or 1000 to 5000, and b is 0 to 10,000, e.g., 100 to 7,500, or 1000 to 5000.

The polyester of the second polymer or copolymer can have the formula:



wherein m is 2 to 20, e.g., 4, 8, or 12; n is 2 to 20, e.g., 2 and 4, or 6, or 8; and N is 10 to 10,000, e.g., 500, 3,500, or 5000.

The new biodegradable blends can include the first, polylactic acid-based polymer or copolymer as a polylactic acid homopolymer, and the second polymer or copolymer as a polybutylenesuccinate homopolymer, polybutyleneadipate homopolymer, polybutylenesuccinate-adipate copolymer, polyethylenesuccinate homopolymer, polyethylenadipate homopolymer, or a polyethylenesuccinate-adipate copolymer.

In another embodiment, the invention features articles manufactured from the new biodegradable blends. For example, the invention features sheets or films, bags, containers, such as bottles and disposable cups, disposable diapers, and other items including the new blends.

A "polylactic acid-based polymer or copolymer" is a homopolymer or a copolymer having at least 50% by weight of polylactic acid. As used herein, the term "polylactic acid," without further designation, includes any one or more of four morphologically distinct polylactic acid polymers: D-polylactic acid, L-polylactic acid, D,L-polylactic acid, and meso-polylactic acid. "D-polylactic acid" and "L-polylactic acid" are dextro-polylactic acid and levo-polylactic acid, respectively, and both of them are optically active polymers that rotate a light vector when transmitted through the polymer. "D,L-polylactic acid" is a racemic polymer, i.e., a copolymer of D-polylactic acid and L-polylactic acid having a well-defined conformation of D- and L-polylactic acid units. "Meso-polylactic" is a random copolymer of D-polylactic and L-polylactic. An "aliphatic polyester of a diacid and a diol" is a polyester formed by the reaction of a diacid and a diol.

The invention provides several advantages. Polylactic acid by itself is a brittle material having poor toughness and low elongation to break, and these properties worsen with time due to its physical aging behavior. Furthermore, the biodegradability of polylactic acid is slow. The new blends overcome these deficiencies of polylactic acid. Moreover, the new blends are environmentally friendly and commercially attractive for making biodegradable plastic films, sheets, and other plastic products made by conventional processing methods such as blown film, extrusion, and injection molding. These plastic products can be used for food packaging, compost bags, and other disposable items. The new blends provide an entry for polylactic acid in the potentially large market of biodegradable polymers.

Unless otherwise defined, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. Although methods and materials similar or equivalent to those described herein can be used in the practice or testing of the present invention, suitable methods and materials are described below. All publications, patent applications, patents, and other references mentioned herein are incorporated by reference in their entirety. In case of conflict, the present specification, including definitions, will control. In addition, the materials, methods, and examples described herein are illustrative only and not intended to be limiting.

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Other features and advantages of the invention will be apparent from the following detailed description, and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a graph showing complete stress-strain curves of polylactic acid, BIONOLLE#3000, and their blends.

FIG. 2 is a graph showing stress-strain curves of polylactic acid, BIONOLLE#3000, and their blends in the strain range of 0 to 50%.

FIG. 3 is a graph showing stiffness (modulus) of polylactic acid, BIONOLLE#3000, and their blends.

FIG. 4 is a graph showing stress at yield and break of polylactic acid, BIONOLLE#3000, and their blends.

FIG. 5 is a graph showing percent elongation at yield and break of polylactic acid, BIONOLLE#3000, and their blends.

FIG. 6 is a graph showing toughness of polylactic acid, BIONOLLE#3000, and their blends.

FIG. 7 is a graph showing stiffness (modulus) of polylactic acid, BIONOLLE#6000, BIONOLLE#7000, and their blends.

FIG. 8 is a graph showing percent elongation at yield and break of polylactic acid, BIONOLLE#6000, BIONOLLE#7000, and their blends.

FIG. 9 is a graph showing percent elongation at break of polylactic acid, BIONOLLE#3000, and their blends as a function of aging.

FIG. 10 is a schematic of a biometer for soil biodegradation testing.

FIG. 11 is a graph showing net percent biodegradation of polylactic acid, BIONOLLE#3000, and their blends as a function of test time in soil.

FIG. 12 is a graph showing net percent weight loss due to biodegradation of polylactic acid, BIONOLLE#3000, and their blends as a function of test time in compost.

DETAILED DESCRIPTION

Polylactic acid-based polymers and polymers of polyesters, e.g., aliphatic polyesters of diols and diacids, can be used to make new blends that have surprisingly good mechanical and biodegradable properties compared to polylactic acid alone. The new blends provide tough, biodegradable plastics that can be used to make biodegradable plastic films, sheets, and other products made by conventional blown film, extrusion, and injection molding processing methods. These plastic products can be used for food packaging, compost bags, and other disposable items.

Compared to polylactic acid, the new blends provide a large increase in elongation (e.g., from 5% to 500%), toughness enhancement (from less than 10 MJ/m³ to more than 120 MJ/m³), and increased biodegradation rate. The modulus of these blends decreases with increasing amount of the aliphatic polyester, i.e., Bionolle#3000 (from 1.3 GPa of polylactic acid to 0.3 GPa of Bionolle#3000), and elongation to break increases with increasing amount of the aliphatic polyester (e.g., from 5% to 500%). The blends with more than 20% by weight of Bionolle#3000 possess toughness of more than 70 MJ/m³, more than 200% elongation at break and other excellent tensile properties, which are retained even after the blends have aged for 70 days in the temperature range of -15° to 60° C. Compared to polylactic acid, these blends also have a relatively high degradation rates in soil and composting environment.

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Materials

The main components needed to make the new blends are polylactic acid-based polymers and polyesters, e.g., aliphatic polyesters of diols and diacids. Optionally, a compatibilizer may be added to the blends.

The simplest polylactic acid-based polymer is polylactic acid, which can be obtained from, e.g., Cargill Inc. (EcoPla Division, Minnesota). The polylactic acid used for the experiments described herein had an 8% meso content (96% L) and a number average molecular weight of 70,100. Other polylactic-based polymers can also be used to make the new tough blends with aliphatic polyesters of diols and diacids.

For example, a polylactic-based polymers can be either a homopolymer of lactic acid or a block, graft, or random copolymer of lactic acid having the general formula:



wherein R_1 is a lactic acid unit and R_2 is caprolactone, glycolide, trimethylene carbonate, dioxanone, butyryl lactone, or ethylene oxide. When the polylactic acid-based polymer is a homopolymer, the b term is zero in the general formula.

Commercially available aliphatic polyesters of diols and diacids include the BIONOLLE family of polymers, e.g., BIONOLLE #1000, #2000, #3000, #6000, and #7000, which can be obtained from, e.g., Showa Highpolymer Co., Ltd, Japan. Bionolle #3000, #6000, and #7000, which have molecular weights (M_w) of 23,300, 250,000 and 270,000, respectively, and melting points of about 91°, 102°, and 89° C., respectively, were used to make the new blends which were tested as described below. Other aliphatic polyesters of diols and diacids can also be used.

Examples of diols in the aliphatic polyesters include any aliphatic diols including ethylene glycol and 1,4-butanediol. Examples of diacids in the aliphatic polyesters include any individual diacids or combinations of two or more aliphatic diacids, in the range of C_2 to C_{20} , in a weight percent from 0 to 100, e.g., oxalic acid, malonic acid, succinic acid, glutaric acid, adipic acid, n-butylmalonic acid, succinic acid, azelaic acid, sebacic acid, ethyl diethylmalonate and dibutyl succinate. Specific aliphatic polyesters include polybutylene succinate (PBSU), polyethylene succinate (PESU), random copolymers of polybutylene succinate adipate (PBSU-AD), and polyethylene succinate adipate (PESU-AD).

Among other features of the aliphatic polyesters used in the new blends are that these polyesters are biodegradable and that they impart ductility to polylactic acid-based polymers by forming a continuous or co-continuous phase in the morphology of the blends. The polylactic acid-based polymers and the aliphatic polyesters are immiscible, but synergistically compatible in the blends, i.e., the properties of the blends are greater than that of the mixtures of polylactic acid-based polymer and aliphatic polyester determined by the additive rule of mixture. The range of weight average molecular weights of the polylactic acid-based polymer and the aliphatic polyester that can be used is 5,000 to a million,

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for example 10,000 to 500,000 or 15,000 to 250,000. The range of melting points of the polylactic acid-based polymer and aliphatic polyester that can be used is 50° to 300° C., for example 60 to 200° C., e.g., 80° to 150° C.

Besides a purely aliphatic polyester of diols and diacids, a copolyester of an aliphatic polyester and an aromatic polyester can be used so long as the copolyester is biodegradable and imparts ductility to polylactic acid-based polymers. An example of an aromatic polyester that can be used (in up to 50 percent by weight) in the copolyester is polyethylene terephthalate. Other aromatic polyesters can be used.

Examples of compatibilizers include AB block or AB graft copolymers that consist of a polylactic acid-based polymer or a polymer which is miscible with the polylactic acid-based polymers, and an aliphatic copolyester of polymers based on diols and diacids or polymers which are miscible with these aliphatic copolyesters. These compatibilizers can be added to the blend in an amount ranging from, e.g., 0.1 to 10 percent, e.g., 2, 3, or 5 percent.

Preparing Polylactic-Based Polymer Blends

Standard melt processing equipment and processing conditions can be used to prepare the new blends. Examples of polymer melt processing equipment that can be used to make the new blends include melt mixers (Banbury mixer), blenders, extruders for sheet, film, profile and blown-film extrusion, vulcanizers, calenders, and spinnerets for fiber spinning, molding, and foaming.

The polylactic acid-based polymers and the polymers or copolymers of polyesters were carefully dried at 40° C. under vacuum for at least 24 hours to minimize hydrolytic degradation of polylactic acid-based polymer during the subsequent melt processing. Blending was done on a single screw extruder operating between 150° and 160° C. and a screw speed of 50 rpm. Each sample was extruded twice. This protocol can be varied as long as the polymers and polyesters form a continuous or co-continuous phase blend.

The composition and sample code for each blend made up of polylactic acid and BIONOLLE are reported in Table 1. The A in each sample code refers to the percentage of polylactic acid-based polymer in the blend, and the B refers to the polyester, BIONOLLE#3000, BIONOLLE#6000, or BIONOLLE#7000, which were used to make the new blends with polylactic acid.

TABLE 1

Sample Code	PLA	A90B10	A80B20	A70B30	A50B50	A30B70	Bio#_
PLA wt %	100	90	80	70	50	30	0
BIONOLLE wt %	0	10	20	30	50	70	100

Sample Preparation

Rectangular shaped samples of each blend were prepared to enable uniform testing of characteristics. The tensile test samples were made according to a modified specification in ASTM D 882. In particular, samples of about 0.3 mm thickness, 12.7 mm width, and 38.1 mm length between the grips of the tensile test machine holding the sample, i.e., gage length, were compression molded at 155° C. and cooled in a cooling press machine at 20° C. and 700 psi. Thin film samples were made by melt blending on an extruder and then compression molding to 0.3 mm thickness. The films

were cut into 20 mm×20 mm samples for testing biodegradation in soil and in composting environments.

Testing Methods

Tensile test properties of blends were obtained 1, 2, 4, 7, 14, 21, 35, 40, and 70 days after making the samples. During this interim time period between making and testing, the samples were physically aged at room temperature and atmospheric pressure. The tensile test was done according to ASTM D 882 with the following modifications. The grip separation used was 38.1 mm (1.5 inches) instead of 50 mm (2 inches), and the grip separation rate was 2 inches/minute even for samples with elongation at break greater than 100%, while ASTM D 882 specifies that the grip separation rate be 20 inches/minute for samples with elongation at break greater than 100%.

Biodegradation testing in an artificial soil environment was performed on films of the blends using the respirometric method developed at the NSF Biodegradable Polymer Research Center, University of Massachusetts Lowell and designated UML-7645. This test method covers the determination of the degree and rate of aerobic biodegradation of synthetic plastic materials (including formulation additives) in contact with moist soil under controlled laboratory condition. Carbon dioxide production, as a fraction of the measured theoretical carbon content of the test materials, is reported as a function of time. The test is designed to determine the biodegradability of plastic materials, relative to that of a comparative standard material, in an aerobic environment. The test applies to all plastic materials that do not inhibit bacteria and fungi present in soil.

Biodegradation testing in an artificial compost environment was conducted on film samples in a simulated municipal compost as described in Example 4.

In addition, morphology of the blends was observed under polarizing optical and scanning electron microscopy.

Uses of Polylactic Acid-Based Blends

Like wood and paper, these blends are stable in the atmosphere but biodegradable in compost, in moist soil, in water with activated sludges, and in the sea, where a large number of microorganisms are present. These blends can be incinerated with only slight damage to the furnace since the heat of combustion is relatively low, and no toxic gases are generated. The blends made by this invention can be used to make biodegradable plastic film, sheets, and other products by conventional processing methods such as blown film, extrusion, and injection molding methods. The resulting blends can be used to manufacture bags, food packaging, laminated papers, food trays, fishing line, net, rope, diapers, disposable medical supplies, sanitary napkins, shampoo, drug, cosmetic, and beverage bottles, cutlery, brushes, combs, molded and extruded foamed articles such as packing material and cups, and cushions for flexible packing. These blends provide not only the excellent processibility of polyethylene, but also possess excellent properties like those of polyethylene terephthalate. In addition, these blends can be processed into films that are heat-sealable, unlike polyethylene terephthalate.

EXAMPLES

The following examples further describe the invention without limitation.

Example 1

Tensile Testing

The tensile test was done according to ASTM D 882 with the modifications in the sample length between grip separation and the grip separation rate, as stated above.

Specifically, tensile testing was done by using an Instron Tensile machine, model 1137, at grip separation rates of 0.5 and 2.0 inches/minute.

Tensile test properties of blends were obtained 1, 2, 4, 7, 14, 21, 35, 40, and 70 days after making the samples. During this interim time period between preparing and testing, the samples were physically aged at room temperature and atmospheric pressure.

The stiffness of the blends was determined from the slope of the initial linear portion of the stress-strain curve. Stress was measured as the nominal stress defined as force per unit original area. Strain and elongation are used as synonymous terms, and they were measured as percent change in length per unit length of a sample. The yield point of the blends, i.e., where a large inelastic deformation starts (yielding occurs), but the material continues to deform and absorb energy long beyond that point, was characterized as the intersection of the initial linear portion of the stress-strain curve and the flat horizontal portion of the stress-strain curve.

The toughness of the blends, which can be defined as the tensile energy to break according to ASTM D 822, was measured according to ASTM D 822 by integrating the area under the stress-strain curve.

Specifically, a load range such that a specimen would fail within its upper two thirds was selected. The cross sectional area of the specimen at several points along its length was measured to an accuracy of 0.0025 mm. The initial grip separation was at 38.1 mm. The rate of grip separation rate was set at 0.5 inches/minute for samples with less than 20% elongation at break, and at 2 inches/minute for samples with more than 20% elongation at break. The load cell of the Instron tester was balanced, zeroed, and calibrated for measuring and recording force. The rectangular test specimen was placed in the grips of the Instron testing machine, taking care to align the long axis of the specimen with an imaginary line joining the points of attachment of the grips to the machine. The grips were tightened evenly and firmly to the degree necessary to minimize slipping of the specimen during test. The Instron machine was started and stress versus grip separation was recorded.

Tensile stress (nominal) was calculated by dividing the load by the original minimum cross-sectional area of the specimen in the loading direction. The modulus value was determined from the initial slope of the stress-strain curve. Tensile strength (nominal) at break was calculated in the same way as tensile stress except that the load at break was used in place of the maximum load. Percentage elongation at break was calculated by dividing the extension (i.e., grip separation) at the moment of rupture of the specimen by the initial length of the specimen between the grips. Yield stress and percentage elongation at yield were determined by recording the stress and percent elongation at the yield point, which was established as noted above.

Tensile stress-strain curves of blends of BIONOLLE#3000 and polylactic acid are shown in FIGS. 1 and 2. These blends were aged for 14 days. FIG. 1 shows the complete stress-strain curves of samples coded in Table 2 as PLA, A90B10, A80B20, A70B30, A50B50, A30B70, and BIO#3000. FIG. 2 is an expanded view of the initial portion of the stress-strain curves in FIG. 1, i.e., up to a strain of 50%. The excellent strain hardening characteristics of these blends is exhibited in FIG. 1 by the rapid increase in stress prior to break. For example, strain hardening in A30B70 occurred in the strain range of 300–500%, and the corresponding increase in stress was from about 25 MPa to about 50 MPa.

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FIG. 2 shows that both stiffness and stress at yield decrease with increasing BIONOLLE#3000 content, while elongation at yield and at break increase with increasing BIONOLLE#3000 content. Based on the data in FIGS. 1 and 2, FIGS. 3 and 4 show modulus (i.e., stiffness) and stress at yield and break, respectively. The outstanding strain hardening behavior of these blends was further exemplified by the increasing difference in stress at break and stress at yield with increasing BIONOLLE#3000 content.

FIG. 5 shows that the elongation at both yield and break of poly(lactic acid)/BIONOLLE#3000 blends increase with BIONOLLE#3000 content, with a dramatic increase at break above 10 percent BIONOLLE. FIG. 6 shows that the toughness of poly(lactic acid)/BIONOLLE#3000 blends increases as a function of BIONOLLE#3000 content above 10 percent. Both FIGS. 5 and 6 show a surprising and unexpected increase in the elongation at break of the blends when the BIONOLLE#3000 content was increased to over about 10 weight percent to about 30 weight percent in the poly(lactic acid)/BIONOLLE#3000 blends, and in toughness of the blends when the BIONOLLE#3000 content was increased to over about 10 percent to about 40 or 50 weight percent in the poly(lactic acid)/BIONOLLE#3000 blends.

Tensile properties (modulus and elongation at break) after aging for 7 and 21 days as a function of BIONOLLE#6000 and BIONOLLE#7000 content are shown in FIGS. 7 and 8. The modulus decreases (FIG. 7) and the elongation at break increases (FIG. 8) with increasing BIONOLLE#6000 and BIONOLLE#7000 content. As the aging time increases from 7 to 21 days, the modulus shows a slight increase (FIG. 7), and the elongation at break shows a slight decrease (FIG. 8). Since BIONOLLE#7000 is a softer polymer than BIONOLLE#6000, poly(lactic acid)/BIONOLLE#7000 blends have a lower modulus and a higher elongation at break compared with those of poly(lactic acid)/BIONOLLE#6000 blends.

Unlike BIONOLLE#3000, BIONOLLE#6000 and BIONOLLE#7000 do not increase the elongation at break significantly when 10 to 40% by weight of BIONOLLE#6000 or BIONOLLE#7000 is blended with poly(lactic acid). This may be due to the fact that pure BIONOLLE#6000 and BIONOLLE#7000 do not possess the same tensile properties of BIONOLLE#3000, and also more importantly, the compatibility of poly(lactic acid) with BIONOLLE#6000 and BIONOLLE#7000 is not as good as that of poly(lactic acid) and BIONOLLE#3000. However, the compatibility of poly(lactic acid) with BIONOLLE#6000 and BIONOLLE#7000 can be improved with the addition of a suitable compatibilizer, such as a small amount of BIONOLLE#3000.

Example 2

Aging Effect

The effect of aging on the blends was measured by physically aging the samples at room temperature and atmospheric pressure, and subsequently testing the samples by tensile testing according to ASTM D 882 with the modifications already stated above.

FIG. 9 shows elongation at break of poly(lactic acid), BIONOLLE#3000, and their blends, as a function of aging. The elongation at break of poly(lactic acid) was below 8%, and decreased to about 5% with aging. Similarly, the elongation at break of A90B10 was rather low (about 50%) and decreased to less than 10% with aging. However, blends having a BIONOLLE#3000 content of 20% or more by weight showed outstanding elongation at break (200% elongation for 20% BIONOLLE#3000, and similarly, 300% for 30%, 400% for 50%, and 500% for 70%, respectively). In

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addition, these BIONOLLE#3000 containing blends did not exhibit any significant reduction in elongation after aging.

Example 3

Biodegradation Testing in Soil

Soil testing in an artificial soil environment was performed on 0.3 mm thick films of the blends using the respirometric method developed at the NSF Biodegradable Polymer Research Center, University of Massachusetts Lowell and designated UML-7645. A standard soil mix (1:1:0.1 potting soil:sand:dehydrated cow manure by weight) was prepared and characterized. The soil test materials were exposed to the soil under controlled aerobic conditions at $30 \pm 2^\circ$ C. Carbon dioxide production, expressed as a fraction of the measured of theoretical carbon content of the test materials, was measured as a function of time. The degree of biodegradation of the test material is assessed by comparing the amount of CO_2 produced from the test material to that produced from a standard material, i.e., one that is known to biodegrade (here PLA was used for comparison).

Specifically, the soil biodegradation test was conducted as follows. Fifty grams (oven-dry weight basis) of soil was weighed into a large (14 cm) disposable weighing boat. Enough distilled water was added to the soil and mixed thoroughly to bring the soil to a moisture content of 60 to 70%. Approximately 15 g of the moist soil was set aside. The test specimen, or standard material, was added to the soil and the amended soil was mixed thoroughly. As shown in FIG. 10, the amended soil **16** was transferred to a large chamber **20** of a 250-mL biometer flask **22**, packed to a uniform depth (about 2.5 cm), and covered by the 15 g of the moist soil set aside. The large chamber **20** was then closed with a rubber stopper **24** connected to a 3-mL plastic syringe **26** packed with a material **26** that removes any carbon dioxide from air entering the biometer during incubation, such as sodium hydroxide-coated silicon (e.g., AscariteTM), between plugs of a filter material **28**, e.g., glass wool or cotton, that allows air, but not the AscariteTM, to pass.

The combined weight of the flask, rubber stopper, and amended soil containing the test specimen was determined and recorded. Twenty mL of 0.4M sodium hydroxide was pipetted into the side-arm chamber **30** of the biometer flask **22** and the side-arm chamber **30** was sealed with a rubber stopper **32**. The biometer flask was placed in an environmental chamber at 30° C and this chamber was kept dark.

The carbon dioxide analysis was done by reacting the carbon dioxide produced in the biometer with the sodium hydroxide in the side-arm chamber to form an aqueous solution of sodium carbonate. The amount of carbon dioxide produced was monitored by removing the sodium hydroxide from the trap and transferring it to a glass test tube to which 5 mL of 1.5M barium chloride was added. The barium chloride reacts with the sodium carbonate to form a precipitate of barium carbonate. The amount of carbon dioxide evolved was calculated by standard stoichiometric calculation.

The net degradation was measured as the ratio of carbon dioxide evolved to the amount of theoretical maximum carbon dioxide production possible by the test specimen. The theoretical maximum carbon dioxide production was determined by the total organic carbon content of the test material (by calculation, if the chemical composition was well established, or elemental analysis). The maximum amount of carbon dioxide that can be theoretically evolved was calculated by the equation:

$$\text{Maximum carbon dioxide} = [(W \times C) / 100] \times [44 / 12]$$

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where W is the weight of the test specimen; C is the percent organic carbon in the test specimen, 44 is the molecular weight of carbon dioxide, and 12 is the equivalent weight of carbon.

The biodegradation testing in soil showed that the biodegradation rate of BIONOLLE#3000 by itself was extremely fast, while the biodegradation rate of polylactic acid by itself was relatively slow.

The soil degradation testing results of the two polymers and their blends are reported in FIG. 11. After degradation for 45 days, BIONOLLE#3000 degraded almost 100%, while polylactic acid degraded only about 14% by loss in weight. For blends with 70 and 50% BIONOLLE#3000, the degradation rate was relatively fast. After 45 days, the A30B70, A50B50, and A70B30 blends degraded about 77%, 65% and 25%, respectively, by loss in weight. FIG. 11 shows that polylactic acid biodegrades in soil, but just not quickly, and the addition of the second aliphatic polymer, such as BIONOLLE#3000, increases the biodegradation rate.

The importance of the soil biodegradation curves shown in FIG. 11 is that a specific blend can now be designed such that this blend would have a certain net degradation in a given number of days within the soil.

Example 4

Biodegradation Testing in Compost

Biodegradation testing in an artificial compost environment was conducted on film samples in a simulated municipal compost. Biodegradation testing in an artificial compost environment was conducted on compression molded film samples of dimensions 20 mm×20 mm×0.3 mm in a simulated municipal compost mixture consisting of 60% by weight of water and the rest containing shredded leaves, shredded paper, mixed frozen vegetables, meat waste, urea, and commercial compost seeds. The carbon to nitrogen (C:N) ratio of the starting mix was 14:1. The composting process was carried out for 30 days at 55° C. Triplicate test samples were removed from the composting bioreactors at an interval of 5 days and weighed to measure the weight loss per surface area in the units of $\mu\text{g}/\text{mm}^2$.

After 20 days in the composting environment at 55° C., BIONOLLE#3000 had a high weight loss rate while polylactic acid had negligible weight loss. The weight loss rates in the blends of polylactic acid and BIONOLLE#3000 after 20 days in the composting environment were between the rates of polylactic acid and BIONOLLE#3000.

The compost degradation testing results of the two polymers and their blends are reported in FIG. 12. After degradation for 20 days, BIONOLLE#3000 degraded almost 40%, while polylactic acid degraded only about 3%, by loss in weight. For blends with 70 to 20% BIONOLLE#3000, the degradation percentage was much greater (and the rate much faster) than that of polylactic acid, e.g., after 20 days, the A30B70, A50B50, and A70B30 blends degraded about 35%, 25% and 15%, respectively, by loss in weight. FIG. 12 shows that polylactic acid biodegrades in compost, but slowly, and the addition of even 20% by weight BIONOLLE#3000 increases this biodegradation rate dramatically.

The importance of the compost biodegradation curves shown in FIG. 12 is that a specific blend can now be designed such that this blend would have a certain net degradation in a given number of days in a composting environment.

Example 5

Morphology

Samples were analyzed by microscopy to investigate the morphology of the phases of polylactic acid versus the

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phases of BIONOLLE#3000. The blends were exposed to acetone to dissolve the polylactic acid component without affecting the BIONOLLE#3000 component. For the blend containing 70% by weight of polylactic acid and 30% by weight of BIONOLLE#3000, 67% of the material, or approximately 95% of the polylactic acid, was dissolved. The remaining material was in a sheet form, and the BIONOLLE#3000 phase in the original blend formed a continuous or co-continuous phase, while the dissolved polylactic acid left behind holes in the sheet-like structure of BIONOLLE#3000. This continuous or co-continuous structure of the BIONOLLE#3000 phase in the original blend explained the outstanding toughness shown in the graph of FIG. 6.

OTHER EMBODIMENTS

It is to be understood that while the invention has been described in conjunction with the detailed description thereof, that the foregoing description is intended to illustrate and not limit the scope of the invention, which is defined by the scope of the appended claims. Other aspects, advantages, and modifications are within the scope of the following claims.

What is claimed is:

1. A biodegradable blend comprising:

(a) a first polylactic acid-based polymer or copolymer, and

(b) a second polymer consisting essentially of one or more polyesters,

wherein said first and second polymers are present in a ratio of 9:1 to 1:9 by weight, and wherein the second polymer is a homopolymer or random copolymer that forms a continuous or co-continuous phase in the blend.

2. The biodegradable blend of claim 1, wherein said one or more polyesters are of one aliphatic C_2 to C_{20} diacid or of a combination of two more different aliphatic C_2 to C_{20} diacids.

3. The biodegradable blend of claim 1, wherein said first, polylactic acid-based polymer is a homopolymer of polylactic acid.

4. The biodegradable blend of claim 1, wherein said first, polylactic acid-based polymer is selected from the group consisting of D-polylactic acid, L-polylactic acid, D,L-polylactic acid, meso-polylactic acid, and any combination of D-polylactic acid, L-polylactic acid, D,L-polylactic acid and meso-polylactic acid.

5. The biodegradable blend of claim 1, wherein said first, polylactic acid-based polymer is a copolymer having at least 60% by weight of polylactic acid.

6. The biodegradable blend of claim 1, wherein said second polymer or copolymer is selected from the group consisting of polybutylenesuccinate homopolymer, polybutyleneadipate homopolymer, polybutylenesuccinate-adipate copolymer, polyethylenesuccinate homopolymer, polyethyleneadipate homopolymer and polyethylenesuccinate-adipate copolymer.

7. The biodegradable blend of claim 1, wherein said polyester is an aliphatic polyester.

8. The biodegradable blend of claim 1, wherein said second polymer or copolymer is a copolyester of an aliphatic polyester and up to 50 percent, by weight, of an aromatic polyester.

9. The biodegradable blend of claim 8, wherein said aromatic polyester is polyethylene terephthalate.

10. A biodegradable blend of claim 1, further comprising (c) a compatibilizer consisting essentially of one or more polyesters or polyvinyl alcohols.

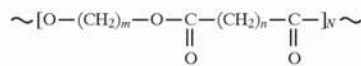
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- 11. The biodegradable blend of claim 1, said blend having an elongation at break of at least 10%.
- 12. The biodegradable blend of claim 1, said blend having an elongation at break of at least 200%.
- 13. The biodegradable blend of claim 1, said blend having an elongation at break of at least 10% after 70 days of aging.
- 14. The biodegradable blend of claim 1, said blend having an elongation at break of at least 200% after 70 days of aging.
- 15. The biodegradable blend of claim 1, said blend having a toughness of at least 10 MJ/m³.
- 16. The biodegradable blend of claim 1, said blend having a toughness of at least 70 MJ/m³.
- 17. The biodegradable blend of claim 1, wherein said second polymer is present in said blend as a co-continuous phase.
- 18. The biodegradable blend of claim 1, wherein said first, polylactic acid-based polymer or copolymer is a homopolymer of lactic acid or a block, graft, or random copolymer of lactic acid having the formula:



wherein R₁ is a lactic acid unit, R₂ is caprolactone, glycolide, trimethylene carbonate, dioxanone, butyryl lactone, or ethylene oxide, a is 10 to 10,000, and b is 0 to 10,000.

- 19. The biodegradable blend of claim 1, wherein said polyester has the formula:



wherein m is 2 to 20, n is 2 to 20, and N is 10 to 10,000.

- 20. The biodegradable blend of claim 1, wherein said first, polylactic acid-based polymer or copolymer is a polylactic acid homopolymer, and wherein said second polymer or copolymer is a polybutylenesuccinate homopolymer.
- 21. The biodegradable blend of claim 1, wherein said first, polylactic acid-based polymer or copolymer is a polylactic acid homopolymer, and wherein said second polymer or copolymer is a polybutylenesuccinate-adipate copolymer.
- 22. A film comprising a biodegradable blend comprising:
 - (a) a first polylactic acid-based polymer or copolymer, and

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- (b) a second polymer consisting essentially of one or more polyesters,
- wherein said first and second polymers are present in a ratio of 9:1 to 1:0 by weight, and wherein the second polymer is a homopolymer or random copolymer that forms a continuous or co-continuous phase in the blend.
- 23. A bag comprising a biodegradable blend comprising:
 - (a) a first polylactic acid-based polymer or co-polymer, and
 - (b) a second polymer consisting essentially of one or more polyesters.
- wherein said first and second polymers are present in a ratio of 9:1 to 1:0 by weight, and wherein the second polymer is a homopolymer or random copolymer that forms a continuous or co-continuous phase in the blend.
- 24. A container comprising a biodegradable blend comprising:
 - (a) a first polylactic acid-based polymer or copolymer, and
 - (b) a second polymer consisting essentially of one or more polyesters,
- wherein said first and second polymers are present in a ratio of 9:1 to 1:0 by weight and wherein the second polymer is a homopolymer or random copolymer that forms a continuous or co-continuous phase in the blend.
- 25. A disposable diaper comprising a biodegradable blend comprising:
 - (a) a first polylactic acid-based polymer or copolymer, and
 - (b) a second polymer consisting essentially of one or more polyesters,
- wherein said first and second polymers are present in a ratio of 9:1 to 1:0 by weight, and wherein the second polymer is a homopolymer or random copolymer that forms a continuous or co-continuous phase in the blend.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 5,883,199
APPLICATION NO. : 08/825810
DATED : March 16, 1999
INVENTOR(S) : McCarthy et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page item (54), and col. 1, line 1, – replace “Polyactic” with -- Polylactic --

Signed and Sealed this

Twentieth Day of February, 2007

A handwritten signature in black ink on a light gray dotted background. The signature reads "Jon W. Dudas" in a cursive style.

JON W. DUDAS
Director of the United States Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 5,883,199
APPLICATION NO. : 08/825810
DATED : March 16, 1999
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Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

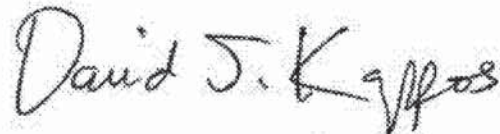
Column 14, Claim 22, Line 4
Delete "1:0" and Insert --1:9--

Column 14, Claim 23, Line 15 (Approx)
Delete "1:0" and Insert --1:9--

Column 14, Claim 24, Line 27 (Approx)
Delete "1.0" and Insert --1:9--

Column 14, Claim 25, Line 39
Delete "1:0" and Insert --1:9--

Signed and Sealed this
Eighth Day of March, 2011



David J. Kappos
Director of the United States Patent and Trademark Office

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EXHIBIT
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Metabolix Grants a Patent License to NatureWorks LLC for New Biopolymer Blends

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03/14/2012



CAMBRIDGE, Mass.--(BUSINESS WIRE)-- Metabolix, Inc. (NASDAQ: MBLX), a bioscience company focused on bringing environmentally sustainable solutions to the plastics, chemicals and energy industries, today announced that it has granted a non-exclusive license to NatureWorks LLC for the U.S. patent No. 5,883,199, titled "Polylactic Acid-based Blends," to make, use and sell blends of polylactic acid (PLA) with certain other polymers including polybutylene succinic polymers (PBS). The

University of Massachusetts Lowell is the owner of the '199 patent, and Metabolix, Inc. is the exclusive licensee in the relevant field. NatureWorks and the biochemicals company BioAmber recently announced a joint venture which will support NatureWorks in bringing to market new performance Ingeo polymer compositions.

"This research greatly expands the uses of PLA in biodegradable plastics because the blends allow for a stronger, more flexible form. The basis of my research is to improve the potential uses for PLA because it is made from renewable natural resources rather than oil, and is environmentally friendly," said inventor and patent-holder Stephen McCarthy, a professor of plastics engineering at UMass Lowell and director of the university's Bioplastics Research Center. The exclusive license agreement was negotiated on behalf of the university with Metabolix by UMass Lowell's Office of Commercial Ventures and Intellectual Property.

"As a leader in the development of biobased polymer technology, we have assembled a broad intellectual property portfolio covering key elements of making and using advanced biomaterials, including biopolymer blends," commented Richard P. Eno, President and CEO of Metabolix. "For areas outside of our technical and commercial focus, we are amenable to licensing arrangements that provide Metabolix the opportunity for a financial participation and pave the way for the introduction of new materials to the marketplace."

About NatureWorks LLC

NatureWorks LLC is a company dedicated to meeting the world's needs today without compromising the earth's ability to meet the needs of tomorrow. NatureWorks LLC is the first company to offer a family of commercially available, low-carbon footprint Ingeo biopolymers derived from 100 percent annual renewable resources with performance and economics that compete with oil-based plastics and fibers. In October 2011, Thailand's largest chemical producer, PTT Chemical Public Company Limited, entered into an agreement to make a \$150 million equity investment in NatureWorks. The transaction remains subject to regulatory clearances. For more information on NatureWorks and Ingeo, visit www.natureworks.com.

About University of Massachusetts Lowell

UMass Lowell is a comprehensive, national research university located on a high-energy campus in the heart of a global community. The campus offers its 15,000 students bachelor's, master's and doctoral degrees in education, engineering, fine arts, health and environment, humanities, liberal arts, management, sciences and social sciences. UMass Lowell delivers high-quality educational programs, vigorous hands-on learning and personal attention from leading faculty and staff, all of which prepare graduates to be ready for work, for life and for all the world offers.

www.uml.edu.

About Metabolix

Founded in 1992, Metabolix, Inc. is an innovation-driven bioscience company focused on providing sustainable solutions for the world's needs for plastics, chemicals and energy. The Company is taking a systems approach, from gene to end product, integrating sophisticated biotechnology with advanced industrial practice. Metabolix is developing biobased industrial chemicals and plastics, as well as a proprietary platform technology for co-producing plastics, chemicals and energy, from crops. For more information, please visit www.metabolix.com. (MBLX-E)

Metabolix: Safe Harbor for Forward-Looking Statements

This press release contains forward-looking statements which are made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. The forward-looking statements in this release do not constitute guarantees of future performance. Investors are cautioned that statements in this press release which are not strictly historical statements, including, without limitation, statements regarding future licensing opportunities, constitute forward-looking statements. Such forward-looking statements are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated and are detailed in Metabolix's filings with the Securities and Exchange Commission, including its 10-K for the year ended December 31, 2011, which was filed on March 12, 2012. Metabolix assumes no obligation to update any forward-looking information contained in this press release or with respect to the announcements described herein.

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University Relations - Cumnock Hall, 31 University Ave., Lowell, MA 01854
Phone: 978-934-3224 Fax: 978-934-3033 [Contact Us](#)

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UMass Lowell, Metabolix/Telles Celebrate Partnership

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More Than \$2.5 Million in Funded Research Conducted



Chancellor Marty Meehan, center, Prof. Stephen McCarthy, second from right, and Executive Vice Chancellor Jacqueline Moloney, far right, with executives from Metabolix/Telles.

06/30/2010

By Edwin L. Aguirre

UMass Lowell recently hosted a reception for Metabolix/Telles to celebrate the company's 15 years of sponsored research and licensing partnership with the University. More than 30 students, faculty, University administrators and company officers attended the gathering, which was held at the newly renovated UMass Lowell Bellegarde Boathouse.

Attendees included Chancellor Marty Meehan, Executive Vice Chancellor

Jacqueline Moloney, Administration and Finance Vice Chancellor Joanne Yestramski, Provost Ahmed Abdelal and Engineering Dean John Ting as well as Metabolix/Telles President and CEO Richard Eno, Chief Scientific Officer Oliver Peoples, Telles General Manager Robert Engle and Strategy & Commercial Development Vice President Johan van Walsem.

In his welcome remarks, Meehan thanked Metabolix/Telles for its support through the years.

"Bioplastics and green technology are important to the future of the University and the new Emerging Technologies and Innovation Center being built on campus," he said.

"We are very pleased with our partnership with UMass Lowell," said Eno. "It is one of the best universities in the country."

Cambridge-based Metabolix is an innovation-driven bioscience company focused on providing sustainable solutions for the world's needs for plastics, chemicals and energy. For example, the company is now developing and commercializing Mirel™ bioplastics, a renewable and biodegradable alternative to petroleum-based plastic made from sugarcane.

"Research in bioplastics is vital to UMass Lowell," said plastics engineering Prof. Stephen McCarthy. "Metabolix located the headquarters of Telles in Lowell because of its partnership with the University."

McCarthy said Metabolix has funded more than \$2.5 million in sponsored research with UMass Lowell and more than 50 students for their master's and doctorates. It has also donated more than a half million dollars' worth of bioplastic processing equipment.

"Metabolix has licensed UMass Lowell patents for bioplastic blends, with potential royalties of \$100,000 a year," said McCarthy.

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RX-I

From: [Brian Igoe](#)
To: jfrankle@ftc.gov
Cc: [Kristi Guillemette](#); [Steve Mojo](#)
Subject: FW: Good Earth and ECM
Date: Thursday, June 26, 2008 4:55:47 PM
Attachments: [goodearthproductclaims.pdf](#)
[ECM Exhibits July 17.pdf](#)
[Comments on ECM Documents Fnal.pdf](#)

Dear Janice,

Please check out the claims this company is making about a microbial additive to traditional plastics, including PVC and EPS which makes them biodegradable and harmless to the environment. <http://www.goodearthpkg.com/> It is clear they are making vague and intentionally deceptive claims about environmental benefits and ASTM certifications with no corroborative data. This is a clear violation of the FTC guidelines for environmental marketing claims. Also, in the Good Earth "Certification" section on their website they reference ASTM 5338, which is a test method (which yields a rate of mineralization), and not a certification.

I am attaching copies of Good Earth and ECM's selling materials and some comments from the Bioplastic Products Institute regarding the material. When you review the Good Earth PPT presentation (on their website), and ECM's material you'll see these products use ECM's additive technology. Most of the photos in the powerpoint document on the Good Earth website (and signatures) match that of the ECM info attached.

I hope this helps in your pursuit of false claims by these companies.

Sincerely,
Brian Igoe

Brian Igoe
VP and Chief Brand Officer
978-513-1850



650 Suffolk Street, Suite 100
Lowell, MA, 01854 USA

www.metabolix.com

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Organization Mirel™ Bioplastics by Metabolix

First name Dave

Last name Scarlett

e-Mail scarlett@metabolix.com

Phone 978-513-1870

Product Image

Contact data

Affiliation Materials Supplier

Directory listing text Manufactures and sells a broad family of Mirel™ bioplastic including injection molding materials P1003, P5001, F1005, P1004/F1006, and M.vera™ B5002 film.

Personal information

Address 650 Suffolk Street; Suite 100

City Lowell

Additional information

Province/State MA

Postal code 01854-3639

Country USA

FAX 617-492-1796

BPI Custom Fields

Website www.mirel.com

Company Logo

Certified Biodegradable Products Resins

Compostable Products Compostable Resins

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Biodegradable Products Institute, Inc.

888c 8th Ave #141

New York, NY 10019

1-888-BPI-LOGO (274-5646) [North America] - International +1-646-845-0776

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Online marketing strategy by SPS Group, Inc.

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4080 Products listed as of

Wednesday, May 7, 2014



<http://www.metabolix.com>

Metabolix
 21 Erie St
 Cambridge, MA 02139
 P:978-513-1800
 F:978-513-1886

<http://www.metabolix.com> (<http://www.metabolix.com>)

Company Description:



Manufacturers and sells a broad family of degradable plastics under the Mirel and Mvera tradenames.

This Company's Products - Manufactured or Licensed

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<http://products.bpiworld.org/companies/8205/px/xls>

Subcategory: injection molding resins

Brand	SKU	Title	Category	Subcategory	Color
Mirel	P1004	Mirel-brand natural-color Injection Molding Resins 488 microns (19.21 mils) thick	Resins	injection molding resins	natural
Mirel	P1003	P1003 Injection Molding Resin	Resins	injection molding resins	natural
Mirel	F1006	Mirel-brand natural-color Injection Molding Resins 500 microns (19.69 mils) thick	Resins	injection molding resins	natural
Mirel	F1005	F1005 Injection Molding Resin	Resins	injection molding resins	natural

Subcategory: resins

Brand	SKU	Title	Category	Subcategory	Color
Mirel	M000	Mirel® resin grade M000	Resins	resins	natural
Mirel	M4300	Mirel® resin grade M4300	Resins	resins	natural
Mirel	M2100	Mirel® resin grade M2100	Resins	resins	natural
Mirel	M2200	Mirel® resin grade M2200	Resins	resins	natural
Mirel	M4100	Mirel® resin grade M4100	Resins	resins	natural
Mirel	P4004	Uncolored resins	Resins	resins	natural

Subcategory: film resins

Brand	SKU	Title	Category	Subcategory	Color
Mvera®	B5011	Resin for blown and cast films (197 µm)	Resins	film resins	natural

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Certificate Description

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<u>Company</u>	
<u>Metabolix</u>	M2100, M2200 and M4100 Resins
<u>Metabolix</u>	Natural colored resin with a maximum thickness 0.69 mm .
<u>Metabolix</u>	Uncolored resins, sold under the tradename Mirel®, for max. approved thickness of 0.69mm [P4004]
<u>Metabolix</u>	Injection Molding Grades P1003/P1004 (max. thickness 0.48mm)
<u>Metabolix</u>	Injection Molding Grades F1005/F1006
<u>Metabolix</u>	M0000 and M4300 resins, approved up to 0.69 mm
<u>Metabolix</u>	Uncolored resins for the production of blown and cast films with a max. thickness of 197 μ m

BPI is a trademark of the Biodegradable Products Institute

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331 West 57th Street, Suite 415,

New York, NY 10019

1-888-BPI-LOGO (274-5646)

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<http://www.bpiworld.org/BPI-Public/Contact.html>) [Online marketing strategy by SPS Group, Inc. \(http://www.spsgc.com\)](http://www.spsgc.com)

RESPONDENT
EXHIBIT
RX-K

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION

In the Matter of)	
)	
ECM BioFilms, Inc.,)	Docket No. 9358
a corporation, also d/b/a)	
Enviroplastics International)	
)	

**COMPLAINT COUNSEL’S THIRD SET OF
REQUESTS FOR PRODUCTION OF DOUMENTS**

Pursuant to Rule § 3.37 Complaint Counsel request that ECM Biofilms, Inc. (“ECM”) respond to these Requests within the time the Commission’s Rules allow, and produce the requested documents at the address below, or at another agreed time and place.

INSTRUCTIONS

1. These instructions should be construed to require responses based upon the information available to ECM as well as your attorneys, representatives, and others acting on your behalf, including anyone engaged as an expert in the above-captioned action.

2. If you are unable to produce a document requested, state why you cannot produce it, and, if your inability to produce the document is because it is not in your possession or the possession of a person from whom you could obtain it, state the name, address, and telephone number of any person you believe may have the original or a copy of any such document.

3. If you object to a portion or an aspect of any Request, state the grounds of your objection with specificity and respond to the remainder of the Request.

4. If, in answering these Requests, you encounter any ambiguities when construing a request, instruction, or definition, your response shall set for the matter deemed ambiguous and the construction used in responding.

5. Where a claim of privilege is asserted in responding or objecting to any discovery requested in these Requests and information is withheld on the basis of such assertion, your response or objection must identify the nature of the privilege (including work product) which is

being claimed. When any privilege is claimed, you shall indicate, as to the information requested, whether (a) any documents exist, or (b) any communications took place, and (c) also provide the following information for each such document in a “privilege log”: (i) the type of document; (ii) its general subject matter; (iii) its the date; (iv) its author(s); (v) its addressee(s) and any other recipient(s); and (vi) its the custodian, where applicable.

6. If the document includes color charts or graphs, produce color copies.

7. Every Request herein shall be deemed a continuing Request, and you must supplement your responses promptly if and when you obtain responsive documents that add to or are in any way inconsistent with your initial production.

8. Notwithstanding any definition below, each word, term, or phrase used in these Requests is intended to have the broadest meaning permitted under the FTC’s Rules. By way of example, “all” and “any” both mean and include “any and all.”

DEFINITIONS

1. “All” and “any” each include “any and all.”

2. “And” and “or” shall be construed either disjunctively or conjunctively as necessary to broaden the interrogatory’s scope.

3. “Asserted Expert” includes Ranjit Sahu, Ryan N. Burnette, David W. Stewart, Morton A. Barlaz, and Alexander Volokh.

4. “You” and “your” means ECM.

REQUESTS

1. With respect to any action in which the Federal Trade Commission (or any subdivision thereof, such as Complaint Counsel) was a party, or produce copies of all (a) deposition testimony given by David Stewart, (b) trial testimony given by David Stewart, and (c) reports of any sort prepared by David Stewart.

2. With respect to David Stewart, produce any report, trial testimony, or deposition testimony in which he opines regarding consumer perception of any claim, qualified claim, or disclaimer associated with a purported environmental benefit, feature, or characteristic of any sort.

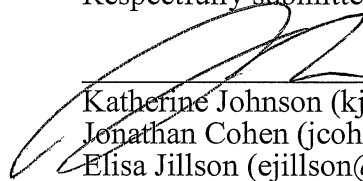
3. Produce documents sufficient to identify all compensation paid, or proposed to be paid, to each Asserted Expert.

4. With respect to each Asserted Expert, produce documents sufficient to identify all facts or data that You or your attorneys provided to the Asserted Expert, and which the Asserted Expert considered in forming the opinions he will express.

5. With respect to each Asserted Expert, produce all documents related to assumptions that You or your attorneys provided to the Asserted Expert, and that the Asserted Expert relied on in forming the opinions he will express.

Dated: March 21, 2014

Respectfully submitted,



Katherine Johnson (kjohnson3@ftc.gov)

Jonathan Cohen (jcohen2@ftc.gov)

Elisa Jillson (ejillson@ftc.gov)

Federal Trade Commission

600 Pennsylvania Ave., N.W. M-8102B

Washington, DC 20580

Phone: 202-326-2185; -2551; -3001

Fax: 202-326-2551

CERTIFICATE OF SERVICE

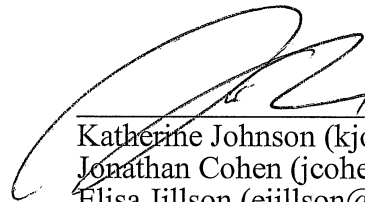
I hereby certify that on March 21, 2014, I caused a true and correct copy of the paper original of the foregoing document to be served as follows:

One electronic copy to **Counsel for the Respondent:**

Jonathan W. Emord
Emord & Associates, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Email: jemord@emord.com

Peter Arhangelsky
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3210 S. Gilbert Road, Suite 4
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RESPONDENT
EXHIBIT
RX-L

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION

In the Matter of)	
)	
)	
ECM BioFilms, Inc.,)	Docket No. 9358
a corporation, also d/b/a)	
Enviroplastics International)	
)	

COMPLAINT COUNSEL’S THIRD SET OF INTERROGATORIES TO ECM BIOFILMS, INC.

Pursuant to Rule §§ 3.31(a) and 3.35, and Scheduling Order ¶ 19, Respondent ECM Biofilms, Inc. (“ECM”) respond to these Interrogatories within 30 days and furnish the requested information to Complaint Counsel at the address below, or as otherwise agreed.

INSTRUCTIONS

1. Each Interrogatory should be set forth in full preceding the answer to it and should be answered separately and fully in writing, under oath.
2. These Interrogatories seek information in your knowledge or possession, or under your actual or constructive custody or control, whether or not such information is located in the files of, or possessed by your individual officers, directors or employees, whether or not such information is received from or disseminated to any other person or entity including attorneys, accountants, directors, officers, employees, independent contractors, or volunteers, and whether or not such information is solely within your counsel’s physical possession.
3. If you object to any Interrogatory or a part thereof, state the Interrogatory or part to which you object, state the exact nature of the objection, and describe in detail the facts upon which you base your objection. If any Interrogatory cannot be answered in full, it shall be answered to the fullest extent possible and the reasons for the inability to answer fully shall be provided. If you object to any Interrogatory on the grounds of relevance or overbreadth, you shall provide all responsive information that is concededly relevant to the parties’ claims or

defenses or the requested relief. For each Interrogatory that cannot be answered in full, you shall describe the efforts made to locate information needed for such answer.

4. If any documents are not identified in response to an Interrogatory on grounds of privilege, submit together with such claim a schedule of the items withheld which states individually for each item withheld: (a) the type, title, specific subject matter, and date of the item; (b) the names, addresses, positions, and organizations of all authors and recipients of the item; and (c) the specific grounds for claiming that item as privileged. If only part of a responsive document is privileged, all non-privileged portions of the item must be identified.

5. Unless otherwise specified, these Interrogatories cover an unlimited period.

6. These Interrogatories are continuing in character so as to require you to produce additional information promptly upon obtaining or discovering different, new or further information before the close of discovery. Further instructions pertinent to a particular Interrogatory appear in parentheses within or following that Interrogatory.

7. Notwithstanding any definition below, each word, term, or phrase used in these Interrogatories has the broadest meaning permitted under the Federal Trade Commission's Rules.

DEFINITIONS

1. "All" and "any" each include "any and all."
2. "And" and "or" shall be construed either disjunctively or conjunctively as necessary to broaden the interrogatory's scope.
3. "You" and "your" means ECM.

INTERROGATORIES

1. For each email you produced that was sent or received with attached documents or files of any sort, identify the specific attached documents or files by Bates range in a manner that enables Complaint Counsel to easily ascertain which attachments were sent or received with which emails.

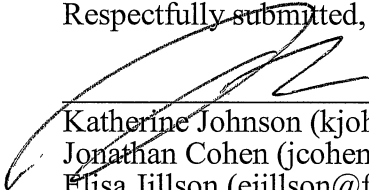
NOTE: This interrogatory is limited to sets of emails and attachments that ECM did not produce consecutively.

2. With respect to David Stewart, identify by caption, jurisdiction, and filing date every action of any sort in which he:

- (a) gave deposition testimony, trial testimony, and/or prepared a report of any sort, and in which the Federal Trade Commission (or any subdivision thereof, such as Complaint Counsel) was a party; or
- (b) offered any opinion regarding consumer perception of any claim, qualified claim, or disclaimer associated with a purported environmental benefit, feature, or characteristic of any sort.

Dated: March 21, 2014

Respectfully submitted,



Katherine Johnson (kjohnson3@ftc.gov)
Jonathan Cohen (jcohen2@ftc.gov)
Elisa Jillson (ejillson@ftc.gov)
Federal Trade Commission
600 Pennsylvania Ave., N.W. M-8102B
Washington, DC 20580
Phone: 202-326-2185; -2551; -3001
Fax: 202-326-2551

CERTIFICATE OF SERVICE

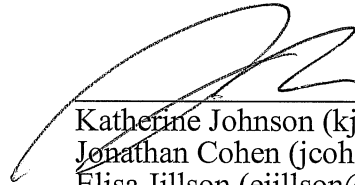
I hereby certify that on March 21, 2014, I caused a true and correct copy of the paper original of the foregoing document to be served as follows:

One electronic copy to **Counsel for the Respondent:**

Jonathan W. Emord
Emord & Associates, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
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Peter Arhangelsky
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Katharine Johnson (kjohnson3@ftc.gov)
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RESPONDENT
EXHIBIT
RX-M



January 30, 2008

Federal Trade Commission
Office of the Secretary
Room H-135 (Annex B)
600 Pennsylvania Ave, NW
Washington, D.C. 20580

RE: Green Guides Regulatory Review, 16 CFR Part 260, Comment,
Project No. P954501

To Whom It May Concern:

This provides the comments of the Biodegradable Products Institute (BPI) with regards to the FTC's Environmental Marketing Guides.

The BPI is a multi-stakeholder trade association, involving people and companies that produce, use or recover compostable products. The BPI strongly supports the recovery of organic materials via composting and many of the members are actively involved in the production of materials from renewable feedstocks. All BPI approved products meet stringent scientifically based standards for compostability. Currently the organization has 42 members including leading suppliers of compostable resins, compostable bags, compostable food service items and compostable packaging. Member organizations include BASF, NatureWorks LLC, Metabolix, Novamont, Cereplast, BiobagUSA, Heritage Bag and Poly-America. The BPI's "Compostable Logo" is used by organizations in the US, Canada, China, Australia, Europe and Brazil. Moreover, it is recognized by composting facilities from San Francisco to Prince Edward Island. Also the BPI's efforts are recognized by the US EPA and the Canadian Plastics Industry Association. A complete list of BPI approved products and members can be found on our website: www.bpiworld.org.

It is important to note that membership in the BPI has grown dramatically over the past couple years. I believe that our membership growth parallels the increasing interest in environmental claims driven in part by Wal-Mart's Sustainable Packaging Program and increased awareness in global warming. In concert with this interest in the environment, the BPI has seen an increasing level of "biodegradable" claims, especially in landfills. These are largely unsupported by conclusive scientific data and importantly lead consumers to believe that "biodegradation" in landfills is an environmental benefit, when it is not. Appendix 1 is a recent example of this trend (Jan 14, 2008 Dispoz-o Plate Press Release).

Overall Comments:

The BPI and its members believe that the current FTC Environmental Marketing Guides have provided significant direction to manufacturers since they were first developed in the early 1990's. Moreover, the BPI fully supports the overall directions of the Guides, especially the reliance on sound science to support claims. However, since the last revision in the Guides in the late 1990's, there have been two developments that should be incorporated in your next revision, pertaining to the definitions for "biodegradable" and "compostable".

1. The American Chemistry Council (ACC) fielded a national survey to better understand consumer attitudes with regards to the terms "biodegradable" and "compostable" and "renewable" in September 2006. Over 1000 consumers were surveyed in a statistically sound manner. This study, one of the first that I am aware of, probes consumers' knowledge of these terms. The ACC and BPI have already discussed the findings of this work with the FTC and provided a complete copy of the results and questionnaire¹. I will reference the relevant sections of this work in this letter and attach a copy of presentation from 2007.
2. Development of two specifications by the American Society of Testing and Materials (ASTM) that speak to the identification of compostability of plastics and plastic coated paper products. These 2 specifications are
 - o ASTM D6400: "Standard Specification of Compostable Plastics"
 - o ASTM D6868: "Standard Specification for Biodegradable Plastics Used as Coatings on Paper and Other Compostable Substrates"

Products meeting these specifications are in commerce today. They are being processed by the growing number of professionally managed composting facilities throughout North America and Europe today. Moreover, the ASTM Specifications are similar to those used in Europe and its key requirements will be incorporated in the ISO standard now under development (#17088).

The BPI's comments will focus on the terms in the current Guides: "biodegradable", "compostable" and "degradable as well as the terms relating to "renewable or biobased content".

"Biodegradable" Comments:

Based on the ACC's research, most consumers do not really understand the scientific process behind biodegradation. Rather, they believe that something that is labeled as "biodegradable" will somehow disappear into nothing within a year, regardless of location. Quoting from the report's findings:

- *"For most people, this term ("biodegradable") means that the material is able to decompose or break down naturally (on its own).*
- *Most people believe the material would break down in 1 year or less.*

¹ Email correspondence to J. Frankle Podoll (FTC) from J. Killinger (ACC) on June 25, 2007.

- *One key attribute assigned to biodegradable by most people is that when it breaks down the material disappears completely - there is nothing left behind.*

When asked how long something should take to “biodegrade”, 60% of the respondents stated a year or less.

Further, over 80% of the people surveyed believed that “biodegradable” products would break down in a landfill or in the natural environment.

Given this level of consumer understanding, the BPI recommends

- 1) The term “biodegradable” should have a separate definition from that of ‘degradable’ and ‘photodegradable’. Consumers expect that a ‘biodegradable’ material will be totally eliminated from the environment. The only way that this can be accomplished is via microbial assimilation, where these products are used as a food source.

Conversely, ‘degradable’ and ‘photodegradable’ are forms of fragmentation, where the polymers become friable, yet remain in the environment. While each has value, the end result of the process differs from what occurs during biodegradation.

2. The FTC should reinforce returning “entirely to products found in nature” and **cite a specific timeframe for the process**. The BPI has seen claims from manufacturers, whose materials achieve an overall 5% rate of biodegradation and their sales literature states that it will “Fully biodegrade in 9 months to 5 years” or “Fully biodegrade wherever it is disposed”. These materials have been sent to the FTC²

ASTM has developed tests, which conclusively measure the rate and extent of biodegradation, for major solid waste disposal avenues, including composting, soil burial and even landfilling. These should be referenced as part of any new definitions.

3. It is recommended that the FTC reinforce the limited environmental benefits of landfilling “biodegradable” products. Work conducted and published by Prof. William Rathje in the 1980’s & 90’s demonstrated that readily biodegradable materials, such as food scraps and newspapers, remain in landfills for many years if not decades. Further, the US EPA’s Solid Waste Hierarchy establishes landfilling and incineration as the least desirable forms of disposal. Manufacturers should be discouraged from claiming that “biodegradation” is the panacea to solid waste disposal, when their products are landfilled.

With these factors in mind, the BPI recommends that the FTC definition for “biodegradable” be revised to read:

An unqualified claim that a product or package is biodegradable should be substantiated by demonstrating that the entire product or package can be

² Email correspondence to Janice Frankle Podoll (FTC) from Steve Mojo (BPI) on July 17, 2007

completely converted to carbon dioxide, methane, water and biomass via microbial assimilation within 12-18 months by using the appropriate ASTM Test Methods which reflect customary disposal conditions. A claim is deceptive if it leads consumers to believe that there is an benefit provided when the product is disposed of in a landfill.

Additionally the FTC should create an example under the definition to address biodegradable claims for products that are normally landfilled.

Example 1

A trash bag is marketed as "biodegradable". The marketer relies on soil burial tests to show that the product will decompose in the presence of water and oxygen. The trash bags are customarily disposed of in incineration facilities or at sanitary landfills that are managed in a way that inhibits biodegradation by minimizing moisture and oxygen. Biodegradation is irrelevant for those trash bags that are incinerated and, for those disposed of in landfills. Also, the marketer does not possess adequate substantiation that the bags will completely biodegrade in 12 to 18 months, using ASTM Test Methods, which replicate landfill conditions. The claim is therefore deceptive.

"Compostable" Comments:

According to the ACC research, consumers view compostable materials as ones that are able to be returned to the soils after composting as a useful soil amendment.

- *"Compostable" means that the material can be put back into the ground to make soil, mulch, or fertilizer that can be used in a garden or around your home.*
- *The chief attribute of compostable materials is that the decomposition is beneficial to the earth. This stands in opposition to biodegradable material which most believe disappears completely.*
- *Compostable materials are natural or organic materials and include leaves, twigs, grass clippings, food products (fruit peels, vegetable parts, etc.) and other materials.*
- *These materials are expected to break down and be usable in a matter of months (3 months to a year).*

Consumer perceptions are in line with the requirements found in the 2 ASTM Specifications that are in place today.

Specifically ASTM D6400 and D6868 include criteria which insures that materials will disintegrate rapidly; biodegrade completely within a 6-12 months; do not harm the resulting compost and do not introduce unwanted levels of regulated metals. Products that meet these specifications are being successfully composted in professionally managed, large scale facilities, as our found in the US, Canada and Europe. Importantly, ASTM D6400 and D6868 are consistent with specifications in Europe as well as those under development by ISO.

Additionally, these ASTM specifications are recognized by the US Environmental Protection Agency, on its Organics page found at the link below:
<http://www.epa.gov/epaoswer/non-hw/organics/reduce.htm>

Quoting from the website:

“Biodegradable and Compostable Plastics

Plastic products are items you use everyday like bags, bottles, packaging, and containers. Conventional plastics used for these products include HDPE, PET, and LDPE. These plastics can be easily reused or recycled.

Other materials that have been developed are biodegradable and compostable plastics. This type of packaging will safely disintegrate and biodegrade in a well-managed composting site. Many, but not all, of these materials are produced from renewable resources (i.e. corn, switch grass, grain).

Two specifications that identify plastics as biodegradable and compostable have been developed by the [American Society for Testing and Materials](#):

- *ASTM D6400 (Standard Specification for Compostable Plastics) and*
- *ASTM D6868 (Standard Specification for Biodegradable Plastics Used as Coatings on Paper and Other Compostable Substrates).*

Composting biodegradable or compostable packaging or products is an effective form of recycling.

[The Biodegradable Products Institute](#) provides more information.”

Further, the State of California has created two regulations that govern the use of the terms “biodegradable”, “degradable” and “compostable”. These are found in CA’s Public Resources Code Sections: 42359-42359.6 and 42355-42357 and clearly state that plastic products must meet ASTM Specifications. These regulations were put in place to help minimize the growing confusion in this area.

For these reasons the BPI, recommends that the FTC strengthen its current definition for “compostable” to include the ASTM Specifications as follows:

Compostable: *It is deceptive to misrepresent, directly or by implication, that a product or package is compostable. A claim that a product or package is compostable should be substantiated by competent and reliable scientific evidence that all the materials in the product or package will break down into, or otherwise become part of, usable compost (e.g., soil-conditioning material, mulch) in a safe and timely manner in an appropriate composting program or facility, or in a home compost pile or device. Manufacturers must meet the requirements found in ASTM D6400 or ASTM D6868 to demonstrate compostability. Claims of compostability should be qualified to the extent necessary to avoid consumer deception. An unqualified claim may be deceptive if: (1) the package cannot be safely composted in a home compost pile or device; or (2) the claim misleads consumers about the environmental benefit provided when the product is disposed of in a landfill. A claim that a product is compostable in a municipal or institutional composting facility may need to be*

qualified to the extent necessary to avoid deception about the limited availability of such composting facilities.

Additionally, the BPI recommends that Example 2 under the definition in the Guides be modified as follows to recognize California's labeling regulations.

Example 2:

A plastic lawn and leaf bag is labeled and sold in California as "Compostable in Municipal Yard Trimmings Composting Facilities." The bag does not meet ASTM D6400. The claim is deceptive as it does not meet the current regulations in the State where it is sold.

Today, over 60% of the yard trimmings collected in the US are composted according the US EPA's Municipal Solid Waste Characterization for 2005³. This is one of the highest diversion rates for any solid waste category. Further, according to *BioCycle*, there are over 3000 leaf and yard waste composting sites. So professionally managed composting facilities are well established in the US.

However, the same EPA report states that food scraps recovery and diversion is approximately 2%. And while the number of food scrap organics diversion programs grows, the BPI believes that it is still necessary to urge consumers to check to see if programs exist in their neighborhoods. However, the BPI believes that a more positive qualification would also be appropriate. For example:

"Check to determine if a professionally managed composting facility exists in your community."

This phrase will continue to alert consumers as to check to determine if appropriate programs are available. Also, by being shorter, it will be easier to use on packaging.

Renewable Content" Comments:

According the ACC survey, eight out of ten consumers thought that products made from natural materials are also 'biodegradable'. Some manufacturers are capitalizing on this idea to convey inappropriate environmental benefits. For example, there is cutlery on the web that makes the following claims:

"Xxx products are made with a GMO free bio based starch and 100% biodegradable."

The BPI had this product analyzed in early 2007 using 2 outside labs. The tests showed that the product contained only 28% renewable content (based on ASTM D6866) and large amounts of polypropylene and polyethylene. Neither of these resins is biodegradable and there is no mention that the percentage of the product from renewable resources is less than 30%.

³ Source: <http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw06.pdf>

Additionally, work conducted on biobased cutlery and films for USDA's BioPreferred Program showed that the content coming from renewable resources ranged as follows:

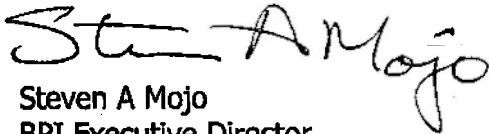
- 36% to 100% for cutlery⁴ &
- 2% to 96% for films⁵

The BPI believes that "renewable", "biobased" or "natural" content claims are similar to "recycled" content in the early 1990's. Direction should be provided by the FTC as to how manufacturers should measure and communicate renewable content and their environmental benefits.

With this in mind, the BPI recommends the following directions:

- All renewable content claims should be verified using ASTM D6866: "*Standard Test Methods for Determining the Biobased Content of Natural Range Materials Using Radiocarbon and Isotope Ratio Mass Spectrometry Analysis*". This test cost effectively provides definitive quantification as to the percentage of the material that derives from non-petroleum sources. Moreover, the BPI is aware of at least 3 laboratories that run this test today.
- Unqualified "renewable" or "natural content" claims should be limited to products with greater than 95% non-petroleum resources.
- Products containing less than 95% renewable content should be required to clearly state that percentage.

Respectively submitted,



Steven A Mojo
BPI Executive Director

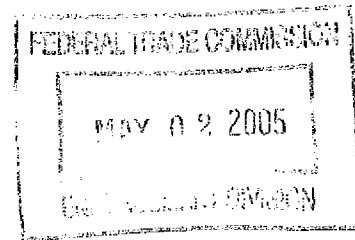
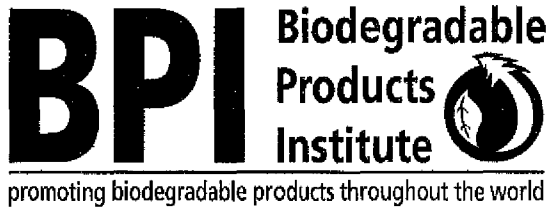
cc. BPI Board Members

Attachments

⁴ http://www.biopREFERRED.gov/files/Item_Designation_Cutlery.pdf

⁵ http://www.biopREFERRED.gov/files/Biodegradable_Films.pdf

RESPONDENT
EXHIBIT
RX-N-1



April 25, 2005

Ms. Janice Frankle
Federal Trade Commission
601 New Jersey Ave NW
Rm 2122
Washington D.C., 20001

Dear Janice:

It was good to speak with you again. As we discussed, I would like to bring to the FTC's attention that there are a growing number of "biodegradable" claims, especially by manufacturers of plastic bags for collecting pet waste. These manufacturer's actions are misleading, inappropriate (and in some cases knowingly illegal).

The BPI is designed to be a multi-stakeholder group, involving people and companies that produce, use or recover biodegradable products. Our goal is to include organizations and individuals ranging from resin suppliers and converters to industry suppliers to waste haulers and composters as well as government officials, scientists and leading academics.

The organization has shown steady growth over the past few years. Current members include leading biodegradable resin suppliers, such as BASF, NatureWorks LLC, DuPont, Novamont and Procter & Gamble, converters and distributors, such as Heritage Bag, Polargruppen A/S, Farnell Packaging, Georgia Pacific and Biota Spring Water, along with the United States Composting Council, The Massachusetts Department of Environmental Protection, and R. Narayan, Chairman of ASTM D20.96-Subcommittee on Degradable Plastics.

The issues that the BPI believes need to be addressed are

- Claiming to "biodegradable", even when the bags (and pet waste) are customarily landfilled.
- Failure to support "biodegrades in landfill" claims with scientific data.
- Knowingly breaking the laws in the State of California.

The 2 products that are emblematic of these offenses are "Oops I Pooped" and "Bags on Board". These products are sold throughout the United States via large retailers, like Petsmart and REI, as well as smaller outlets.

The BPI supports the FTC's *Guides for the Use of Environmental Marketing Claims*. Moreover, the BPI objects to the use of "biodegradable" without any qualifications as to where this occurs; how long it takes and not having the data to support this claim.

"An unqualified claim that a product or package is degradable, biodegradable or photodegradable should be substantiated by competent and reliable scientific evidence that the entire product or package will completely break down and return to nature, i.e., decompose into elements found in nature within a reasonably short period of time after customary disposal." Section 206.7 b of the FTC Guides for the Use of Environmental Marketing Claims.

Additionally, there are few, if any, benefits derived from putting "biodegradable" materials in a landfill, which are designed to be arid tombs according to RCRA. For this reason, the BPI believes that a claim of "biodegrades in landfills" is an exaggeration of an environmental benefit.

"Overstatement of environmental attribute: An environmental marketing claim should not be presented in a manner that overstates the environmental attribute or benefit, expressly or by implication. Marketers should avoid implications of significant environmental benefits if the benefit is in fact negligible." Section 206.6 c of the FTC Guides for the Use of Environmental Marketing Claims

In fact, in some countries, including Britain, Germany and Canada, regulations are being enacted to keep biodegradable materials out of the landfill as a way of reducing methane gas generation (a significant contributor global warming).

The BPI believes that the claims made by "Oops I Pooped" are misleading (see attached page from their website (Exhibit 1) because they are not supported by scientific data. Further, biodegradation in landfills provides no meaningful environmental benefit and thus this is an overstatement of an environmental benefit.

- "biodegradable waste bags for ..your dog"
- "will completely degrade in a landfill and leaves behind no harmful residue"
- Under benefits, "Steady degradation rate, typically 2 years."
- "1 to 5 years pending landfill conditions"
- "Our bags will biodegrade in landfills in every State but California"

When asked by the BPI, "Oops I Pooped" provided the attached data (Exhibit 2), which discusses the test results of polyethylene resins with an additive produced by ECM. The document was reviewed by Dr. Ramani Narayan a noted expert in the field of plastics and biodegradation. Dr Narayan's findings can be summarized as follows (see Exhibit 3 for complete comments):

- Only 24% of the material was mineralized (or biodegraded). According to the test results, seventy six percent of the material remains.
- The biodegradation process plateaued prior to the end of the test, indicating that the process had stopped. (There is no indication that it will continue).
- These levels are comparable to those achieved by the first round of "biodegradable plastics" 20 years ago, which generated the initial FTC lawsuits in this area.

Clearly, there is no support for complete biodegradation in a landfill, even in 5 years, as stated by the supplier and shown on a retailer website (See Exhibit 4). Also, attached is a partial listing of retailers carrying this product, according to the manufacturer's website (Exhibit 5)

Additionally, the last claim, "Our bag will biodegrade in landfills in every state except California", shows that the manufacturer knows that it is not complying with applicable state laws. As background, the State of California regulations state that any claims of "biodegradable, compostable or degradable" by plastic films must comply with a current ASTM Specification (Exhibit 6). California enacted this law in order to stop the misleading claims made by plastic bag manufacturers, which were on the increase. The California law does not create an exemption for products that are customarily landfilled. Moreover, there are no ASTM Specifications for landfill biodegradation.

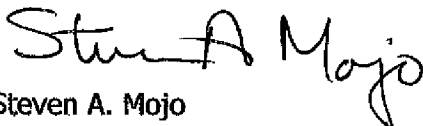
In the case of "Bags On Board", the BPI objects to their "100% Biodegradable Bags, except as defined by California" claim for 3 reasons (Exhibits 7 & 8):

- The attached independent analysis shows that the bags are essentially polyethylene with no additives to promote degradation (Exhibit 9).
- Promoting biodegradation of a product that is landfilled is inappropriate and an overstatement of an environmental benefit.
- The packaging clearly shows that the producer is not in compliance with the laws of California.

The plastics industry is working hard to develop tests and criteria for determining acceptable biodegradation performance in appropriate disposal routes. ASTM D6400 for Compostable Plastics and ASTM D6868 for Compostable Packaging are good examples. Claims such as those used by "Oops I Pooped" and "Bags on Board" harm the credibility of all manufacturers that seek to comply with the FTC Environmental Marketing Guides. More importantly, their statements mislead consumers by claiming to have environmental benefits when in fact they do not.

Janice, this note requests that the FTC order these 2 companies to cease their misleading advertising. Further, the BPI hopes that FTC would recognize and support California's effort to use ASTM Specifications as the basis for making biodegradable, compostable and degradable claims. Finally, the FTC should reiterate that claims of biodegradability for products customarily disposed in landfills is an overstatement of an environmental benefit.] ←

Sincerely,



Steven A. Mojo
BPI Executive Director

Attachments

List of Exhibits

- #1: Oops I Pooped claims from their website. You will find
 - "Will completely biodegrade in landfill and leave behind no harmful residue"
 - "Steady degradation rate typically 2 years"
 - "1 to 5 years pending landfill conditions"
 - "Our bags will biodegrade in landfills in every State but California!"
- #2: Document supplied by Oops I Pooped, providing their substantiation
 - "Ecological Assessment of ECM Plastic"
- #3 Analysis and comment of Exhibit #2 by Dr. R. Narayan.
- #4 : Samples from REI's (retailer) website promoting biodegradation in landfills
- #5 Partial list of retailers from Oops I Pooped website
- #6 Text of California Labeling Legislation
- #7 Sample of "Bags on Board" product purchased at retail, claiming 100% Biodegradable Bags, except as defined in California"
- #8 Materials from retailer website, claiming "100% Biodegradable"
- #9 Analysis by Polimeri Europa, showing that the bags are polyethylene

RESPONDENT
EXHIBIT
RX-N-2



March 30, 2010

Mr. Michael Davis
 Federal Trade Commission
 CRC-240
 600 Pennsylvania Ave, NW
 Washington, D.C. 20580

Dear Mike,

Enclosed you will find 2 examples of the continuing stream of "biodegradable" products. What is interesting about these is that in both cases they use the same additive, EcoPure from BioTec (per the packages), and are making somewhat similar claims:

- 1) **Biodegradable Easter Grass** (also labeled as Green)
 This product claims to meet ASTM D5511 (an anaerobic test). The back of the package states that this product will biodegrade in a landfill and achieves 3% biodegradation in 20 days, where ordinary Easter Grass does nothing. I don't know if they are saying that 3% is enough to warrant a "biodegradable" claim. Or if they believe that the process will continue until the product reaches close to 100%. In which case, they should have extended the testing period.
- 2) **Green Genius Biodegradable Bags**
 According to the company's website (<http://www.thegreengenius.com>)
"Well, at least not for a thousand years or so. That's why we invented Green Genius bags. We figured the world was ready for a biodegradable plastic trash bag. They're just as strong as regular plastic bags, but unlike their more stubborn cousins, they meet ASTM D5511, an industry standard for biodegradability."

I would urge you to review the video on their site. This clearly gives the impression that the product will fully biodegrade in a landfill.

Also, they provide consumers and customers with a letter from UL (attached).

"Product is biodegradable in landfills where anaerobic digestion is occurring. Based on 36 day ASTM D5511 test results, it is estimated that the Green Genius trash bags will biodegrade within a one to ten year time frame, depending on the exact conditions"

and operation of the landfill environment into which it is disposed."

It is clear that UL nor the manufacturer have done the tests to demonstrate that the entire product will biodegrade as called for in the Environmental Marketing Guides. Further, based on the technology, it is reasonable to expect that the overall rate of biodegradation would be comparable to what was achieved in the Easter Grass example and well short of "complete".

While I believe that each of the companies bears some responsibility in making these misleading claims, it is the additive supplier BioTec, who is the real culprit in this situation. You can see from the commonality in claims, that the link is the additive supplier, not necessarily the manufacturers of the products themselves.

BioTec is a New Mexico based company with the following address:

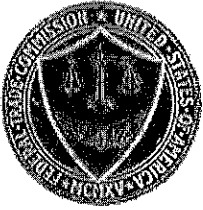
Bio-Tec Environmental, LLC
7009 Prospect Ave NE #202
Albuquerque, New Mexico
87110 USA

Website: <http://www.bio-tec.biz/aboutus.html>

Regards

Steve Mojo
BPI Executive Director

RESPONDENT
EXHIBIT
RX-O-1

United States of America
FEDERAL TRADE COMMISSION

Katherine Johnson
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-2185; kjohnson3@ftc.gov

Jonathan Cohen
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-2551; jcohen2@ftc.gov

Elisa Jillson
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-3001; ejillson@ftc.gov

April 29, 2014

VIA EMAIL AND FEDERAL EXPRESS

Eden Research Laboratory
c/o Mr. Thomas Poth
211 Menaul NE, Suite A
Albuquerque, New Mexico 87107

Re: *In the Matter of ECM BioFilms, Inc, Dkt. No. 9358 – Deposition Subpoena*

Dear Mr. Poth:

As you know, the FTC has initiated the above-referenced administrative proceeding against ECM BioFilms. This letter notifies you that we have subpoenaed the deposition testimony of a corporate designee (a person at your company who can testify on the company's behalf) for **Monday, May 19, 2014** at the **United States Attorney's Albuquerque Office**, located at 201 3rd St. NW, Suite 900, Albuquerque, NM 87102. The deposition will begin at **9:00 A.M.** before an officer authorized to take depositions. See FTC Rules of Practice, 16 C.F.R. §§ 3.33(c)(1) & 3.34(a).

Enclosed please find the subpoena, which contains the instructions for where and when your corporate designee must appear. The designee must be prepared to testify as to matters known or reasonably available to Eden Research Laboratory ("Eden") regarding the topics listed in the attached schedule. See *id.* § 3.33(c)(1). Your designee has a legal obligation to review all information known or reasonably available to Eden regarding these topics, so that he or she can respond knowledgeably to questions on Eden's behalf.

Please call me at (202) 326-3001 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Elisa Jillson". The signature is fluid and cursive, with a large loop at the end.

Elisa Jillson
Complaint Counsel

Enclosures

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION

_____)
In the Matter of)
)
ECM BioFilms, Inc.,) **Docket No. 9358**
a corporation, also d/b/a)
Enviroplastics International)
_____)

COMPLAINT COUNSEL'S NOTICE OF RULE 3.33(c)(1) DEPOSITION

To: Eden Research Laboratory

DEFINITIONS

- A. **"Communication"** includes, but is not limited to, any transmittal, exchange, transfer, or dissemination of information, regardless of the means by which it was accomplished, and includes all communications, whether written or oral.
- B. **"ECM"** shall mean ECM Biofilms, Inc., including without limitation, its agents, employees, officers, or anyone else acting on its behalf.
- C. **"ECM Additive"** means any plastic additive directly or indirectly sold or distributed by ECM Biofilms, Inc.
- D. **"ECM Plastic"** means any product that contains the ECM Additive.
- E. **"Include"** and **"including"** mean "without limitation," or "including but not limited to," so as to avoid excluding any documents or information that might otherwise be construed to be within the scope of any specification.
- F. **"You"** and **"Your"** means Eden Research Laboratory, along with any affiliates, successors, predecessors, entities You acquired, entities You control, and entities whose information You control.

INSTRUCTIONS

- A. **Protective Order:** On October 22, 2013, the Court entered an order governing discovery material in this matter. A copy of the Protective Order is attached hereto as **Exhibit A** with instructions on the handling of confidential information.
- B. **Petitions to Limit or Quash:** Pursuant to Commission Rule of Practice 3.34(c), any motion to limit or quash this subpoena must be filed within ten days of service hereof.

DEPOSITION TOPICS

PLEASE TAKE NOTICE that Complaint Counsel will depose Eden Research Laboratory, Inc. ("Company"), upon oral examination, pursuant to Rules §§ 3.33(c)(1) and 3.34(a), as to the matters set forth below.

1. Your testing, assessment, or evaluation of the alleged biodegradability of the ECM Additive or ECM Plastic, including, but not limited to:
 - a. Every aspect of the testing procedures, protocols, and methodologies used to perform testing, assessment, or evaluation of any ECM Additive or ECM Plastic, including specifics as to how the tests, assessments, or evaluations were performed, the source of the test specimens, source and cultivation of inoculum, temperature, moisture, or other test conditions for each test performed.
 - b. The results of all testing, assessments, or evaluations conducted by You on any ECM Additive or ECM Plastic.
 - c. The conclusions drawn from the results of all testing, assessments, or evaluations conducted by You on any ECM Additive or ECM Plastic.
 - d. The reports prepared by You on the testing, assessment, or evaluation of any ECM Additive or ECM Plastic.
 - e. The process by which You decided to recommend a particular testing procedure, protocol, or methodology used to perform testing on any ECM Additive or ECM Plastic.
2. Your qualifications to conduct testing, assessment, or evaluation of the alleged biodegradability of the ECM Additive or ECM Plastic.
3. All of Your quality control measures, policies, and procedures.
4. All of Your laboratory instrumentation and laboratory equipment validations, maintenance and calibrations.
5. All local, State, and Federal regulatory requirements, inspections, and accreditations, registrations, licenses, and certifications required or held by You.
6. Any audit conducted by anyone and the results of such audits.
7. Your Communications regarding the ECM Additive, the alleged biodegradability of ECM Plastic, and the biodegradability (or lack thereof) of plastics, including, without limitation, (a) Communications with any ECM employee, (b) internal Communications, and (c) Communications with third parties such as ECM customers, ECM users, ECM competitors, trade groups interested in additives and/or plastic.

8. Your knowledge of, involvement in, or interaction with, in any, the Plastics Environmental Council and any other industry trade or interest group related to plastics, biodegradability of plastics, or additives.

9. Your knowledge of and involvement, if any, in ASTM International (f/k/a the American Society for Testing and Materials) ("ASTM"), and any other efforts to set, establish, or modify industry or legal standards for the evaluation of the biodegradability of plastic.

10. Your knowledge of ASTM standards used to evaluate (a) the alleged biodegradability of plastic; and (b) biodegradability in a landfill.

11. Your knowledge, if any, of documents, materials, or other information that calls into question the scientific tests conducted by You, or the results or conclusions of those tests.

12. Your knowledge, if any, of documents, materials, or other information that calls into question the scientific tests conducted by anyone else on the ECM Additive or ECM Plastic, or the results or conclusions of those tests.

13. Your knowledge, if any, of any potential bias or conflict of interest of any of the following:

- a. Dr. Ramani Narayan
- b. Biodegradable Products Institute
- c. Dr. Frederick Michel
- d. Robert Sinclair
- e. Dr. Morton Barlaz
- f. Dr. Stephen McCarthy
- g. Dr. Timothy Barber
- h. Dr. Ryan Burnette

14. Your document retention policies, practices, and procedures.

15. Your response to the subpoenas *duces tecum* issued to You in the above-captioned action.

16. Your Communications with ECM's attorneys and Robert Sinclair.



SUBPOENA AD TESTIFICANDUM DOCUMENT DEPOSITION

Provided by the Secretary of the Federal Trade Commission, and
Issued Pursuant to Rule 3.34(a), 16 C.F.R. § 3.34(a) (2010)

1. TO Eden Research Laboratory c/o Thomas Poth 2111 Manual NE, Suite A Albuquerque, NM 87107	2. FROM <p style="text-align: center;">UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION</p>
--	--


This subpoena requires you to appear and give testimony at the taking of a deposition, at the date and time specified in Item 5, and at the request of Counsel listed in Item 8, in the proceeding described in Item 6.

3. PLACE OF DEPOSITION <i>U.S. Attorney's Office 201 3rd St. NW, Suite 900 Albuquerque, NM 87102</i>	4. YOUR APPEARANCE WILL BE BEFORE Complaint Counsel and other designated counsel 5. DATE AND TIME OF DEPOSITION <p style="text-align: center;"><i>May 19, 2014 at 9:00 AM</i></p>
---	--

6. SUBJECT OF PROCEEDING

In re: ECM Biofilms, Inc., Docket No. 9358

7. ADMINISTRATIVE LAW JUDGE The Honorable D. Michael Chappell Federal Trade Commission Washington, D.C. 20580	8. COUNSEL AND PARTY ISSUING SUBPOENA Complaint Counsel Katherine Johnson (202) 326-2185 Jonathan Cohen (202) 326-2551 Elisa Jillson (202) 326-3001
--	---

DATE SIGNED <i>4/29/2014</i>	SIGNATURE OF COUNSEL ISSUING SUBPOENA  GENERAL INSTRUCTIONS
-------------------------------------	--

APPEARANCE

The delivery of this subpoena to you by any method prescribed by the Commission's Rules of Practice is legal service and may subject you to a penalty imposed by law for failure to comply.

MOTION TO LIMIT OR QUASH

The Commission's Rules of Practice require that any motion to limit or quash this subpoena must comply with Commission Rule 3.34(c), 16 C.F.R. § 3.34(c), and in particular must be filed within the earlier of 10 days after service or the time for compliance. The original and ten copies of the petition must be filed before the Administrative Law Judge and with the Secretary of the Commission, accompanied by an affidavit of service of the document upon counsel listed in Item 8, and upon all other parties prescribed by the Rules of Practice.

TRAVEL EXPENSES

The Commission's Rules of Practice require that fees and mileage be paid by the party that requested your appearance. You should present your claim to Counsel listed in Item 8 for payment. If you are permanently or temporarily living somewhere other than the address on this subpoena and it would require excessive travel for you to appear, you must get prior approval from Counsel listed in Item 8.

A copy of the Commission's Rules of Practice is available online at <http://bit.ly/FTCRulesofPractice>. Paper copies are available upon request.

This subpoena does not require approval by OMB under the Paperwork Reduction Act of 1980.

Resp. Mot. to Compel

Exh. RX-O-1

RETURN OF SERVICE

I hereby certify that a duplicate original of the within subpoena was duly served: (check the method used)

- in person.*
- by registered mail.*
- by leaving copy at principal office or place of business, to wit:*

Fed Ex, per FTC Rule 4.4(a)(2)

on the person named herein on:

(Month, day, and year)

4/29/2014

(Name of person making service)

Elisa Jillson

(Official title)

Attorney

CERTIFICATE OF SERVICE

I hereby certify that on April 29, 2014, I caused a true and correct copy of the foregoing document to be served by email to **Counsel for the Respondent**:

Jonathan W. Emord
Emord & Associates, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Email: jemord@emord.com

Peter Arhangelsky
Emord & Associates, P.C.
3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286
Email: parhangelsky@emord.com

Lou Caputo
Emord & Associates, P.C.
3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286
Email: lcaputo@emord.com

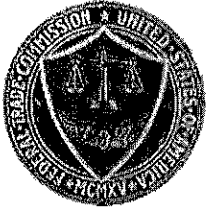
Dated: April 29, 2014

Respectfully submitted,



Katherine Johnson (kjohnson3@ftc.gov)
Jonathan Cohen (jcohen2@ftc.gov)
Elisa Jillson (ejillson@ftc.gov)
Federal Trade Commission
600 Pennsylvania Ave., N.W. M-8102B
Washington, DC 20580
Phone: 202-326-2185; -2551; -3001
Fax: 202-326-2551

RESPONDENT
EXHIBIT
RX-O-2

United States of America
FEDERAL TRADE COMMISSION

Katherine Johnson
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-2185; kjohnson3@ftc.gov

Elisa Jillson
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-3001; ejillson@ftc.gov

Jonathan Cohen
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-2551; jcohen2@ftc.gov

April 30, 2014

VIA EMAIL AND FEDERAL EXPRESS

Northeast Laboratories, Inc.
c/o Garrett W. Johnson, Esq.
129 Mill Street
Berlin, CT 06037

Re: *In the Matter of ECM BioFilms, Inc, Dkt. No. 9358 – Deposition Subpoena*

Dear Mr. Johnson:

As you know, the FTC has initiated the above-referenced administrative proceeding against ECM BioFilms. This letter notifies you that we have subpoenaed the deposition testimony of a corporate designee (a person at your company who can testify on the company's behalf) for **Friday, May 9, 2014** at the **United States Attorney's New Haven Office**, located at Connecticut Financial Center, 157 Church Street, Floor 25, New Haven, CT 06510. The deposition will begin at **9:00 A.M.** before an officer authorized to take depositions. See FTC Rules of Practice, 16 C.F.R. §§ 3.33(c)(1) & 3.34(a).

Enclosed please find the subpoena, which contains the instructions for where and when your corporate designee must appear. The designee must be prepared to testify as to matters known or reasonably available to Northeast Laboratories, Inc. ("Northeast Labs") regarding the topics listed in the attached schedule. See *id.* § 3.33(c)(1). Your designee has a legal obligation to review all information known or reasonably available to Northeast Labs regarding these topics, so that he or she can respond knowledgeably to questions on Northeast Labs' behalf.

Please call me at (202) 326-2185 if you have any questions.

Sincerely,

Katherine Johnson

Katherine Johnson
Complaint Counsel

EKT

Enclosures



SUBPOENA AD TESTIFICANDUM DEPOSITION

Provided by the Secretary of the Federal Trade Commission, and
Issued Pursuant to Rule 3.34(a), 16 C.F.R. § 3.34(a) (2010)

<p>1. TO</p> <p>Northeast Laboratories, Inc. c/o Garrett W. Johnson, Esq. 129 Mill Street Berlin, CT 06037</p>	<p>2. FROM</p> <p style="text-align: center;">UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION</p>
--	---

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<p>3. PLACE OF DEPOSITION</p> <p><i>United States Attorney - New Haven Office Connecticut Financial Center 157 Church St., Floor 25 New Haven, CT 06510</i></p>	<p>4. YOUR APPEARANCE WILL BE BEFORE</p> <p>Complaint Counsel and other designated counsel</p> <hr/> <p>5. DATE AND TIME OF DEPOSITION</p> <p><i>May 9, 2014 at 9:00 A.M.</i></p>
---	---

6. SUBJECT OF PROCEEDING

In re: ECM Biofilms, Inc., Docket No. 9358

<p>7. ADMINISTRATIVE LAW JUDGE</p> <p>The Honorable D. Michael Chappell</p> <p style="text-align: center;">Federal Trade Commission Washington, D.C. 20580</p>	<p>8. COUNSEL AND PARTY ISSUING SUBPOENA</p> <p>Complaint Counsel Katherine Johnson (202) 326-2185 Jonathan Cohen (202) 326-2551 Elisa Jillson (202) 326-3001</p>
--	---

<p>DATE SIGNED</p> <p><i>4/30/2014</i></p>	<p>SIGNATURE OF COUNSEL ISSUING SUBPOENA</p> <p style="text-align: center;"><i>[Handwritten Signature]</i></p>
--	--

GENERAL INSTRUCTIONS

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- by registered mail.*
- by leaving copy at principal office or place of business, to wit:*

Fed Ex, per FTC Rule 4.4(a)(2)

on the person named herein on:

4/30/2014

(Month, day, and year)

Elisa Jillson

(Name of person making service)

Attorney

(Official title)

DEPOSITION TOPICS

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 - a. Every aspect of the testing procedures, protocols, and methodologies used to perform testing, assessment, or evaluation of any ECM Additive or ECM Plastic, including specifics as to how the tests, assessments, or evaluations were performed, the source of the test specimens, source and cultivation of inoculum, temperature, moisture, or other test conditions for each test performed.
 - b. The results of all testing, assessments, or evaluations conducted by You on any ECM Additive or ECM Plastic.
 - c. The conclusions drawn from the results of all testing, assessments, or evaluations conducted by You on any ECM Additive or ECM Plastic.
 - d. The reports prepared by You on the testing, assessment, or evaluation of any ECM Additive or ECM Plastic.
 - e. The process by which You decided to recommend a particular testing procedure, protocol, or methodology used to perform testing on any ECM Additive or ECM Plastic.
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4. All of Your laboratory instrumentation and laboratory equipment validations, maintenance and calibrations.
5. All local, State, and Federal regulatory requirements, inspections, and accreditations, registrations, licenses, and certifications required or held by You.
6. Any audit conducted by anyone and the results of such audits.
7. Your Communications regarding the ECM Additive, the alleged biodegradability of ECM Plastic, and the biodegradability (or lack thereof) of plastics, including, without limitation, (a) Communications with any ECM employee, (b) internal Communications, and (c) Communications with third parties such as ECM customers, ECM users, ECM competitors, trade groups interested in additives and/or plastic.

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12. Your knowledge, if any, of documents, materials, or other information that calls into question the scientific tests conducted by anyone else on the ECM Additive or ECM Plastic, or the results or conclusions of those tests.

13. Your knowledge, if any, of any potential bias or conflict of interest of any of the following:

- a. Dr. Ramani Narayan
- b. Biodegradable Products Institute
- c. Dr. Frederick Michel
- d. Robert Sinclair
- e. Dr. Morton Barlaz
- f. Dr. Stephen McCarthy
- g. Dr. Timothy Barber
- h. Dr. Ryan Burnette

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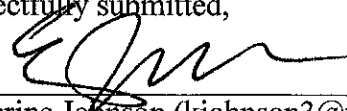
Jonathan W. Emord
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Email: jemord@emord.com

Peter Arhangelsky
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Lou Caputo
Emord & Associates, P.C.
3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286
Email: lcaputo@emord.com

Dated: April 30, 2014

Respectfully submitted,



Katherine Johnson (kjohnson3@ftc.gov)
Jonathan Cohen (jcohen2@ftc.gov)
Elisa Jillson (ejillson@ftc.gov)
Federal Trade Commission
600 Pennsylvania Ave., N.W. M-8102B
Washington, DC 20580
Phone: 202-326-2185; -2551; -3001
Fax: 202-326-2551