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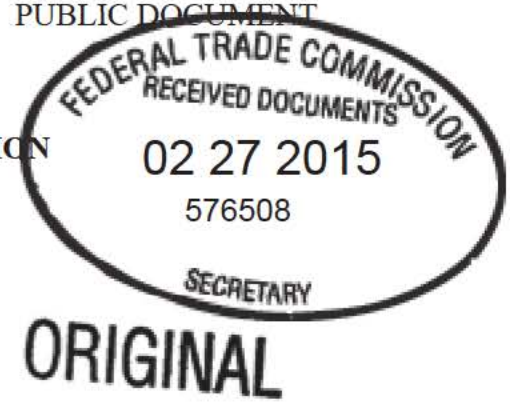

ORIGINAL

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION

COMMISIONERS: **Edith Ramirez, Chairwoman**
Julie Brill
Maureen K. Ohlhausen
Joshua D. Wright
Terrell McSweeny

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

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Dated: February 27, 2015

RECORD REFERENCES

CCFF – Complaint Counsel's Proposed Findings of Fact

CCX – Complaint Counsel's Exhibit

Dep. – Deposition transcript

ID – Initial Decision

IDFF – Initial Decision Findings of Facts

RX – Respondent's Exhibit

Tr. – Trial Transcript

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I. STATEMENT OF THE CASE

A. Introduction

This is a straightforward deception case. ECM Biofilms, Inc. ("ECM") sells an additive that it contends makes plastic "biodegradable." Specifically, for almost a decade, ECM expressly claimed that mixing its "revolutionary" additive with plastic would make the plastic completely biodegrade in nine months to five years in a landfill. Since the FTC revised its Guides for Environmental Marketing in October 2012, ECM has also claimed that its additive enables plastic to completely biodegrade in a landfill "in some period greater than a year." ECM provided its plastic manufacturer customers with certificates, logos, flyers, ad copy, and more to pass these false claims to hundreds of businesses and millions of end-use consumers.

At trial, ECM's own experts conceded that ECM's nine-month-to-five-year claim is false. The ALJ correctly found this material claim false and unsubstantiated in violation of the FTC Act. The ALJ also correctly found that ECM provided its customers with the means and instrumentalities to make deceptive biodegradability claims.

However, ECM not only made false and unsubstantiated express claims but also deceptive implied claims. Overwhelming evidence of consumer perception and Respondent's intent—well beyond a preponderance[1]—demonstrates that ECM's unqualified claims told

[1] Complaint Counsel's burden is to prove each element of the case by a preponderance of the evidence. (ID 164-165, citing cases.) This is not a high standard. To the contrary, the "preponderance" standard merely requires proof that "the existence of a fact is more probable than its nonexistence." *Concrete Pipe & Prods. v. Constr. Laborers Pension Trust*, 508 U.S. 602, 622 (1993). The Commission has *de novo* review authority, 16 C.F.R. § 3.54, and its decision must be sustained if supported by "substantial evidence." *Charlton v. FTC*, 543 F.22d

consumers that "biodegradable" plastic would break down completely in a landfill in a reasonably short time (less than five years). Specifically, each of the four surveys in the record shows that significant minorities (and likely majorities) of consumers perceive short timeframes for unqualified biodegradable claims. Moreover, ECM repeatedly told its customers that their plastic could be labeled biodegradable because the additive caused complete landfill breakdown within one or five years.

Even if one were to ignore the clear evidence that consumers understand unqualified biodegradable claims to mean a product will completely break down in a short period, the evidence still overwhelmingly demonstrates that ECM's implied claim is false and unsubstantiated. At trial, a plastics expert, a landfill expert, and an expert in biochemistry all explained that conventional plastic does not biodegrade at all—let alone in landfills—and mixing in the ECM additive does nothing to change this scientific fact.

Moreover, substantial evidence establishes that ECM's testing does not substantiate its Implied Claim. Had the ALJ looked to what experts in the field would require to substantiate Respondent's scientifically radical claims, he would have had to find that Respondent's substantiation falls dramatically short. Specifically, the evidence overwhelmingly shows that: (1) there is no established mechanism or theory that would lead experts in the field to conclude that ECM's technology works; and (2) ECM's testing is neither of the type nor the quality that could substantiate its claims.

903, 907 (D.C. Cir. 1976). The "preponderance" and "substantial evidence" standards are identical. *Steadman v. SEC*, 450 U.S. 91, 101-102 (1981).

B. Summary of Facts

1. ECM's Deceptive Claims.

ECM made false and unsubstantiated claims to exploit end-use consumers' concern about plastics and the environment. (CCFF ¶¶ 14, 17.) For nearly a decade, ECM falsely advised its customers (plastic manufacturers) that mixing the ECM additive (the "Additive") with conventional plastic creates biodegradable plastic ("ECM Plastic"). (CCFF ¶¶ 18-19.) According to ECM, using the Additive allows customers to make "biodegradable" claims for their plastic products. (CCFF ¶ 62.) Specifically, ECM made four false and unsubstantiated claims:

- The ECM Additive enables plastic to "fully biodegrade" in "nine months to five years" "in landfills." (CCFF ¶¶ 32-33.)
- ECM Plastic is "biodegradable." (CCFF ¶¶ 27-30.)
- Testing proves its claims. (CCFF ¶¶ 44-45.)
- "Plastic products produced with our additives will biodegrade in biologically-active environments (including most landfills) in some period greater than a year." (CCFF ¶ 37.)[2]

In fact, none of these claims is true or substantiated for a very simple reason: physically blending the Additive with plastic does nothing to change a molecular structure that extant microorganisms cannot break down. (CCFF ¶¶ 7, 9.)

2. ECM's Bogus Testing.

ECM regularly boasted of "hundreds of thousands of dollars" it spent on "independent" testing. (CCFF ¶ 57.) In fact, ECM only commissioned a handful of shoddy tests—none of

[2] ECM started using this disclaimer in October 2012, purportedly to comply with the guidance on "degradable claims" in the Commission's Guides for the Use of Environmental Marketing Claims ("Green Guides"). 16 C.F.R. § 260.8. But ECM continued to make the "nine month to five year" claim to customers in marketing materials and emails. (CCFF ¶¶ 37-41.)

which shows complete biodegradation in any timeframe or biodegradation in landfills at all. (CCFF ¶¶ 449, 454.) Some of ECM's customers hired small laboratories to conduct additional tests, but none support ECM's claims. (CCFF ¶ 454.) Unsurprisingly, when sophisticated prospective customers like 3M Corporation conducted their own valid testing, they found no biodegradation at all of the plastic itself. (CCFF ¶ 94.) Moreover, the only study of ECM Plastic published in a peer-reviewed, academic journal decisively concluded that the plastic itself does not biodegrade. (CCX-164.) ECM was well aware of these results but hid them from prospective customers, by steering them away from labs that provided negative results and towards labs whose dubious testing protocols provided the semblance of positive results. (CCFF ¶ 99.)

3. ECM Sells the Right to Advertise Plastic Products as Biodegradable.

ECM does not simply sell an additive. Far more importantly, it sells the (purported) ability to make a "biodegradable" advertising claim. (CCFF ¶ 62.) To that end, ECM provides its customers with tools to pass claims to downstream business customers and, ultimately, end-use consumers. (CCFF ¶ 65.) For example, ECM provided a "Certificate of Biodegradability," which claims both to "certify" independent testing to accepted standards and "validate" biodegradable claims. (CCFF ¶¶ 47-48.) It also provided the ECM logo, a picture of a green tree with the words "ECM" and "Biodegradable." (CCFF ¶¶ 62-63.) As ECM intended, its customers posted the certificate on their websites, sent it to their own customers, or copied the language verbatim in their marketing materials. (CCFF ¶¶ 59-61.) Customers often used either the logo or their own "biodegradable" logo on their products, sometimes with the express timeframe and landfill claims. (CCFF ¶ 59.) ECM also reviewed and revised customers' "biodegradable" advertising claims, including advertisements and labels that repeat ECM's false express claims. (CCFF ¶¶ 68-70, 462-66.)

The deceptive advertising worked. ECM sold its bogus additive to about 300 customers. (CCFF ¶ 23.) These customers passed ECM's deceptive claims to millions of consumers who used or purchased "biodegradable" grocery bags, shampoo bottles, Frisbees, golf tees, highlighters, cutlery, and more. (CCFF ¶¶ 24-25.)

4. ECM Ignored Repeated Warnings that its Additive Does Not Work.

ECM's deception did not go undetected. At least two foreign tribunals, the National Advertising Division ("NAD") of the Better Business Bureau, and prospective customers warned ECM that its testing did not support its claims (or that its product was a hoax.) (CCFF ¶ 102-103.) ECM's President, Robert Sinclair, knew that NAD (three times) as well as French and Italian courts found that customers using ECM's "biodegradable" claims had made false and unsubstantiated claims. (CCFF ¶ 103.) Nonetheless, ECM continued to make them, explaining away credible criticism as bias or vendetta. (CCFF ¶¶ 104-106.)

C. Summary of the Argument

The ALJ correctly found that Respondent violated Section 5 by making material false and unsubstantiated efficacy and establishment claims. However, the analysis and findings were critically flawed in numerous respects. First, overwhelming consumer perception evidence as well as ECM's intent show it is more likely than not (*i.e.*, a preponderance) that ECM made deceptive implied claims. Second, Complaint Counsel demonstrated by a preponderance of the evidence that ECM's express and implied claims are false and unsubstantiated because ECM Plastic will not—and cannot—biodegrade in a landfill in any reasonably short period of time. Moreover, ECM's radical claims are not supported by the level of testing expected by the relevant scientific community, and these tests are neither of the type nor the quality to come anywhere close to that standard. Complaint Counsel's proposed relief is necessary to prevent

future violations by a respondent that has continued to make claims despite having been on notice for years that its product is little more than a hoax.

II. QUESTIONS PRESENTED

1. Whether the compelling consumer perception evidence combined with clear intent evidence demonstrate that it is more likely than not that Respondent's "biodegradable" claim and "some period greater than a year" claim implied to reasonable consumers that plastic treated with its additive would completely break down into elements found in nature in a landfill in a reasonably short period of time (*i.e.*, within one or five years) ("Implied Claim").

2. Whether the scientific evidence demonstrating that ECM's additive does not—and cannot—make plastic biodegradable renders ECM's Implied Claim false, and whether this fact, along with the lack of testing required by the relevant scientific community, renders ECM's Implied Claim unsubstantiated.

3. Whether the Notice Order is necessary and appropriate to prevent future violations because ECM knew its claims were false and unsubstantiated, yet continued to make them, and conceal contrary evidence from its customers.

III. ARGUMENT

A. ECM Made Implied Claims of Complete Biodegradability in a Landfill in a Reasonably Short Period of Time.

An advertisement "convey[s] a claim if consumers, acting reasonably under the circumstances, would interpret the advertisement to contain that message." *Kraft, Inc.*, 114 F.T.C. 40, 120 (1991). An interpretation of an advertisement may be reasonable "even though it is not shared by a majority of consumers in the relevant class, or by particularly sophisticated consumers." *Id.* at 122. Indeed, an interpretation is reasonable if a "significant minority" of consumers is likely to interpret the ad to make the claim. (ID 169, quoting *Telebrands Corp.*, 140 F.T.C. 278, 291 (2005)). Percentages ranging from 10% to 22% can constitute a significant minority. *See, e.g.*, *Firestone Tire & Rubber Co. v. FTC*, 481 F.2d 246, 249 (6th Cir. 1973); *Telebrands*, 140 F.T.C. at 325.

To show that ECM made the Implied Claim, Complaint Counsel must prove by a preponderance of the evidence (*i.e.*, that it is more likely than not) that a significant minority of consumers understood the advertising to make that claim. Overwhelming evidence—well beyond a preponderance—establishes that ECM made the Implied Claim.

1. Convergent Results of the Four Studies in the Record Prove Well Beyond a Preponderance that a Significant Minority of Consumers Infer Complete Biodegradation in a Landfill in a Short Time.

Four studies in the record reported on consumer perception of the claim "biodegradable." Despite different methodologies, each study reached a strikingly similar conclusion: when consumers see an unqualified "biodegradable" advertising claim, they infer a short time for biodegradation.

- In 2006, the American Plastics Council ("APCO") conducted a telephone survey, and found that 60% of respondents believe that packages labeled "biodegradable" should biodegrade within one year, 65% believe such packages should biodegrade within four years, and 83% believe such packages will biodegrade in a landfill. (CCFF ¶¶ 194, 195, 209; CCX-890 at 13.)

- In 2010, Synovate conducted an Internet panel survey, and reported that 25% of consumers believe that "less than one year" was a reasonable amount of time for a "biodegradable" package to decompose in a landfill, and 45% of consumers believe that "less than five years" was a reasonable amount of time. (CCFF ¶¶ 368, 369, 211.) Seventy-two percent of consumers believe that a package labeled "biodegradable" will biodegrade in a landfill. (CCX-890 at 13.)

- In 2014, Dr. Shane Frederick used Google Consumer Surveys ("GCS") to assess consumers' understanding of plastic products labeled "biodegradable." (CCFF ¶¶ 198, 199.) He estimated that 35% believe such products will biodegrade within one year. (CCFF ¶ 200.) Depending on the type of question and the wording, 40-76% understood that such product would biodegrade within five years. (CCFF ¶ 212.) Dr. Frederick found that 42%-64% of consumers believe that plastic products will biodegrade in a landfill,[3] (CCX-890 at 13), and 37%-50% of

[3] These numbers are probably lower than the numbers in APCO and Synovate (83% and 72%) because those studies asked about generic "products" whereas Dr. Frederick asked about plastic products. (CCX-890 at 13.)

consumers understand that a plastic product labeled "biodegradable" will break down completely into elements found in nature. (CCFF ¶ 312.)

- In 2014, ECM's expert, Dr. David Stewart, supervised a 400-person telephone survey. (CCFF ¶ 201.) When asked how long it would take for "something" biodegradable to decompose or decay, 206 respondents gave specific estimates of time: 33% estimated within one year and 58% estimated within five years.[4] (CCFF ¶¶ 203-205, 210.) Dr. Stewart also asked respondents what ECM's disclaimer "some period greater than a year" meant, and of the 150 respondents who gave specific time estimates, 50% estimated biodegradation within one year. (CCFF ¶¶ 206-7.)

In sum, four studies found that at least 25% of consumers (and likely more) believe that a product advertised as "biodegradable" will biodegrade within one year, and at least 40% (and likely more) believe it will biodegrade within five years. In other words, the studies concluded that a number of consumers well exceeding the threshold for a "significant minority" believe that a product advertised as "biodegradable" should break down completely into elements found in nature in a landfill in a reasonably short period of time.[5]

Dr. Frederick, a full professor at Yale University's School of Management and a prominent scholar on consumer behavior,[6] explained that it is highly significant that four studies,

[4] For reasons discussed *infra* at 25-26, it is appropriate to analyze responses that actually mention a number and unit of time. But even considering every response, ECM's own expert acknowledged that 17% of respondents referred to biodegradation within one year and 30% within five years. (Tr. 2790-91.) Thus, ECM's own survey, viewed in the light most favorable to ECM, supports Complaint Counsel's position.

[5] While ECM did dispute the timing of biodegradation, it did not dispute Complaint Counsel's allegation that "biodegradable" implies complete breakdown into elements found in nature in a landfill. (CCFF ¶ 311.) The evidence on both points is clear. The three studies that asked about landfills (APCO, Synovate, and GCS) found that between 42% and 83% of consumers believe that a "biodegradable" product will biodegrade in landfill. *See supra* at 7. The only study that asked about "complete breakdown" (the GCS study) found that 37-50% of consumers believe that a "biodegradable" product will completely break down into elements found in nature. *See id*. The ALJ ignored this actual consumer evidence in favor of his unsupportable facial analysis. (ID 217-223.)

[6] Dr. Frederick holds a Ph.D. in Decision Sciences from Carnegie Mellon, and has taught at some of the country's most prestigious institutions, including the Woodrow Wilson School of

conducted with four distinct methodologies, at different times, by four sets of researchers reached similar results.[7] (CCFF ¶ 208.) Converging results from four reasonably reliable and valid studies with different methodologies is powerful evidence that the shared results are accurate. (CCFF ¶¶ 192-193, 208.) Dr. Frederick testified that because of this "convergent validity," he could conclude with confidence that at least 35% of consumers believe that plastic products labeled "biodegradable" will biodegrade within one year. (CCFF ¶ 200.)[8]

Public and International Affairs at Princeton University, the Massachusetts Institute of Technology's Sloan School of Business, and Yale University's School of Management. (ID 18-19, CCX-890 at 3, Exh. A.) At Princeton, Dr. Frederick worked as a research assistant for Nobel laureate Daniel Kahneman. (CCX-890 at 3, Exh. A.) Dr. Frederick has published extensively in prominent peer-reviewed journals on consumer judgment and decisionmaking, focusing on preferences and cognitive biases (including "anchoring"). (ID 19; CCX-890 at 3, Exh. A.) An affiliate with Yale's Center for Consumer Insights, Dr. Frederick conducts and evaluates hundreds of surveys employing both traditional and newer Internet-based methodologies (such as Google Consumer Surveys). (ID 19; CCX-890 at 4-5, Exh. A.)

[7] A graphical representation starkly shows their convergence:

	Within 1 Year	Within 5 Years
APCO	60%	65%
Synovate	25%	45%
GCS Study	35%	40-76%
Stewart Survey	33%	58%

[8] The ALJ found Dr. Frederick's testimony less "credible" than the testimony of ECM's expert, Dr. Stewart. (ID 46.) But the ALJ did not actually make any credibility findings. Rather than comment on the experts' courtroom demeanor, the ALJ criticized Dr. Frederick based on his qualifications, opinions, use of an emerging survey tool, form of compensation, and the fact that he (a non-lawyer and first-time witness) could not recite legal standards. (ID 45-46, 188, 201.) Each criticism is entirely baseless: Dr. Frederick's qualifications are impeccable (*see supra* note 6), his opinions well-reasoned (*see infra* at 8-30), his use of a reliable survey tool reasonable (*see infra* at 13-26), his compensation a mere fraction of what Dr. Stewart received (*see infra* note 13), and his ability to evaluate survey validity beyond any serious question. The Commission is equally equipped to evaluate such matters, so these flawed "credibility" findings, which are subject to *de novo* review, should be set aside. *See, e.g.*, *POM Wonderful LLC*, No. 9344, 2013 FTC LEXIS 6, at *100 n.23 (Jan. 10, 2013) (finding expert credible despite ALJ's contrary

There is nothing new about this concept. (ID 211.) Although not using the technical term "convergent validity," both the Commission and its ALJs have long recognized that the convergence of results from different consumer perception studies is an indication of their reliability and probative value. *See Bristol-Myers Co.*, 85 F.T.C. 688, 744 n.2 (1975) (noting the fact that different "surveys are from independent sources and tend to confirm one another" is relevant to whether surveys are reasonably reliable and valid); *Thompson Med. Co.*, 104 F.T.C. 648, 836 n.82 (1984) ("The consistency of this finding across both studies should have been a warning signal to Thompson that potential consumers might be confused about the ingredients of Aspercreme."); *Am. Home Prods., Corp.*, 98 F.T.C. 136, 252 (1981) (noting that "[t]he fact that these studies generated consistent results over a relatively short period of time (three to four years) enhances their reliability") (ALJ op.). Indeed, as one FTC ALJ made clear, a factfinder can draw valid conclusions from several studies even when each study "could not, standing alone, serve as the basis for any conclusion." *Am. Home*, 98 F.T.C. at 253.

2. The APCO and Synovate Studies, Taken Together, Establish that Consumers Infer Short Biodegradation Times.

Contrary to the ALJ's finding that the APCO and Synovate studies, which the Commission evaluated in issuing the Green Guides, had little probative value, (ID 207-208), the studies provide reasonably reliable and valid evidence of significant consumer inference of short biodegradation timeframes.

The APCO study, a 1000-respondent telephone survey, focused primarily on plastic products. (CCFF ¶¶ 194-195.) Sixty percent of respondents stated that packages labeled "biodegradable" should biodegrade within one year or less and 65% believed such packages

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assessment, which was based on expert's breadth of knowledge rather than his courtroom demeanor).

should biodegrade within four years. (CCFF ¶¶ 195, 209.) Additionally, EcoLogic, a manufacturer of an additive similar to ECM's, engaged a survey firm (Synovate) to conduct a 2000-respondent Internet panel survey. (CCFF ¶ 196.) In that study, 25% of respondents stated that "less than one year" was a reasonable amount of time for a "biodegradable" package to decompose in a landfill, and 45% thought "less than five years" was a reasonable time. (CCFF ¶¶ 197, 211.)

Neither the APCO nor the Synovate study is perfect (as, the experts in this case agree, no study is). (Tr. 2766; CCFF ¶ 215.)[9] For example, both Dr. Frederick and Dr. Stewart explained that APCO's answer choices suggested to respondents shorter biodegradation times, and Synovate's choices suggested longer ones. (CCFF ¶ 372.) However, Dr. Frederick explained that, notwithstanding these imperfections, the APCO and Synovate studies are reasonably reliable and valid because of their sample size and use of accepted methodologies. (CCX-890 at 7-11; Tr. 1180.) Dr. Stewart agreed that they "appear to have been well designed and executed on a number of dimensions." (RX-856 at 6.) Importantly, the studies' opposing biases confirm the convergent validity of their similar conclusions. (CCFF ¶¶ 371-374.) In other words, it is significant that the studies led respondents in opposite directions but both found the same results (*i.e.*, that large percentages of consumers take away a five-year or less timeframe from an unqualified biodegradable claim). (*Id.*) As Dr. Frederick explained, taken together, the studies reliably establish that it is more likely than not that substantial percentages of consumers believe plastic products labeled "biodegradable" will biodegrade within a short period of time (five years or less). (CCFF ¶ 370.)

[9] *Accord* ID 190 (quoting *Stouffer Foods*, 118 F.T.C. 746, 808 n.27 (1994) ("No survey is perfect.")).

3. Dr. Frederick's Methodologically-Sound Study Convincingly Demonstrates Significant Consumer Inference of Short Biodegradation Times and Bolsters APCO and Synovate's Similar Conclusions.

The ALJ not only erred in discounting Dr. Frederick's testimony about the convergent validity of the APCO and Synovate studies, but also in impugning and ignoring Dr. Frederick's methodologically-sound Google Consumer Survey (GCS) study. Dr. Frederick's study, on its own, more than meets the legal standard, demonstrating that it is more likely than not that reasonable consumers think an unqualified biodegradable claim means a product will completely biodegrade in a landfill in five years or less. Combined with the APCO and Synovate studies, Dr. Frederick's study presents overwhelming evidence that ECM made the Implied Claim.

Like the APCO and Synovate surveys, Dr. Frederick's survey demonstrates that consumers infer short timeframes from an unqualified biodegradable claim:

- For nine of the twelve open-ended questions, more than 50% of respondents understood that a plastic product labeled "biodegradable" would biodegrade within five years. (CCFF ¶ 213.) For the remaining three, at least 40% shared this understanding. (CCX-860, App. at 30-32.)
- For nine of the twelve open-ended questions asking consumers to estimate biodegradation times for plastic labeled "biodegradable," at least 30% of respondents estimated the product would biodegrade within one year. For the remaining three questions, at least 20% gave a one-year estimate. (CCFF ¶ 298.)
- Depending on the question's phrasing, majorities ranging from 53%-68% would consider it misleading if a plastic product labeled "biodegradable" did not biodegrade within one year. (CCFF ¶ 299.) For instance, when asked: "A company should be allowed to label its plastic packaging material as 'biodegradable' if it biodegrades within what amount of time," **68%** responded with one year or less, and **91%** said within five years. (CCFF ¶ 300.)
- Dr. Frederick compared ECM's prior claim of biodegradation in "nine months to five years" to its current claim of biodegradation in "some period greater than a year". Significantly, nearly half, between 40 and 50%, of consumers construe "some period greater than a year" as implying faster biodegradation than "nine months to five years." (CCFF ¶ 304.)

When evaluating consumer perception evidence, the Commission weighs "reliable results from methodologically sound consumer surveys." *POM*, No. 9344, 2013 FTC LEXIS 6, at *45, quoting *Kraft*, 114 F.T.C. at 121. In other words, "[t]he Commission does not require methodological perfection . . . but looks to whether such evidence is reasonably reliable and probative." *Id.* at *49.

The ALJ's conclusion that Dr. Frederick's survey was not methodologically sound is grossly flawed. (ID 191, 201.) To the contrary, Dr. Frederick's GCS study is "reasonably reliable and probative evidence" that is entitled to significant evidentiary weight because it drew valid samples from the appropriate population, asked appropriate questions, minimized bias, and correctly analyzed results. (ID 189, citing *POM*, No. 9344, 2013 FTC LEXIS 6, at *49).

a. Dr. Frederick's Study Drew Representative Samples from the Appropriate Population: American Consumers.

The first step in evaluating a consumer survey is to consider whether it drew valid samples from an appropriate population. (*Id.*) The evidence demonstrates that Dr. Frederick's GCS study drew valid, psychographically[10] and demographically representative samples from the appropriate population, American consumers. The ALJ's contrary findings—based largely on speculation—are irreconcilable with the evidence.

i. End-Use Consumers Are the Appropriate Population.

Dr. Frederick's GCS study was directed at members of the general public who would see ECM's "biodegradable" claims on a variety of plastics products. (ID 197.) The ALJ suggested that end-use consumers were the wrong study population, believing ECM's business customers

[10] "Psychographic representativeness" means the sample reflects a population's psychological characteristics. (CCFF ¶ 221.) A sample may match consumers' demographics without necessarily matching their beliefs and attitudes. (CCFF ¶ 222.)

were the correct group. (ID 197.) This is wrong, for two reasons. First, ECM made its Implied Claim to end-use consumers by providing its business customers with marketing materials to pass deceptive claims to other companies and end-use consumers. (ID 292; CCFF ¶¶ 59-70.) Second, as the ALJ correctly found, ECM's customers are no more sophisticated in their understanding of biodegradation than ordinary consumers. (ID 290.) The population of direct customers is, therefore, identical to the end-use consumer population.

ii. *The GCS Study Drew Representative Samples.*

The ALJ ignored (or did not understand) clear evidence that Dr. Frederick's GCS study drew a representative sample of end-use consumers. (ID 197-200.) Dr. Frederick—by far the more qualified expert on the subject[11]—explained that the data collected through GCS is "highly representative both demographically and psychographically." (CCFF ¶ 260.) He explained that GCS pays approximately 340 mainstream Internet content providers to present survey questions to Internet users who otherwise must pay to receive the content. (CCFF ¶ 218.)[12] GCS uses dynamic imputation algorithms to ensure demographic representativeness of each survey sample based on five data points gleaned from two pieces of functionality: IP addresses provide information about geographic region and urban density; and browsing history provides information about gender, age, and income. (CCFF ¶¶ 218, 273-275.) GCS reports this demographic information, with the survey's results, to the researcher. (*Id*.)

[11] Dr. Frederick, unlike Dr. Stewart, not only uses traditional survey methodologies, but also uses GCS and similar methodologies in his research, including in a recently published, peer-reviewed article. (CCFF ¶¶ 263-265.)

[12] Data collector interviews are a standard method of assessing reliability of data-gathering techniques. (CCFF ¶ 253.) Dr. Frederick used this technique, via telephonic interviews with Google representatives, to assess GCS's methodology. (*Id*.) ECM's expert, Dr. Stewart, agreed that it is customary in the survey research field to rely "on the belief that a survey research firm is operating as you would expect them to." (CCFF ¶ 254.)

Dr. Frederick explained that although GCS's demographic inferences are highly reliable in the aggregate, demographic information for individual respondents may be unknown or inaccurate. (CCFF ¶¶ 276-277.) For example, if the user has disabled "cookies," GCS cannot use browsing history to infer gender or age. (CCFF ¶ 277.) Alternatively, as the ALJ noted, GCS's inferences about gender, age, or income could be incorrect if one family member used another's computer. (ID 198.) The ALJ seized on Dr. Frederick's acknowledgment of these imperfections, (*id.*), but ignored his testimony that imperfections with respect to individual respondents do not compromise the reasonable representativeness of the enormous 29,000-respondent sample. (CCFF ¶¶ 271-272, 287.) Tellingly, when Dr. Stewart, ECM's own expert, acknowledged the demographic gaps in his own sample, see note 14, he also opined that individual imperfections do not matter if the overall sample is representative. (CCFF ¶ 286.)

iii. *GCS's Sampling Is More Representative Than Traditional Methodologies Like Telephone Surveys.*

Significantly, Dr. Frederick explained that GCS is more demographically and psychographically representative of American consumers than traditional survey methods, including litigation mainstays such as telephone landline surveys (like Dr. Stewart's), "mall intercept" interviews, or Internet panels. (CCFF ¶ 224.) Dr. Frederick testified that given the choice of using GCS or a landline survey to achieve valid results, he would choose GCS. (Tr. 1104.)[13]

[13] The ALJ disregarded this testimony to reach the incorrect and insulting conclusion that Dr. Fredrick "was motivated to use a Google survey for this litigation" because he was paid a flat fee and "the less [he] had to pay for a survey…the more money he would net as compensation for his work in this case." (ID 201.) Dr. Frederick received $40,000 for his work (including the GCS study). (Tr. 1102.) After costs for GCS and research assistants, he earned approximately $32,000—for 300-400 hours of work. (Tr. 1102-03, 1203) In other words, he received between $80 and $110 per hour. By contrast, Dr. Stewart, whom the ALJ described as making "a living as an expert," was paid $750 per hour, in addition to the costs of his study. (Tr. 2632, 2627-28.)

Dr. Frederick explained that there are three reasons why GCS is more representative than landline surveys. First, GCS gathers five types of demographic information about respondents (age, geographic region, gender, income, and urban density). Landline surveys like Dr. Stewart's only gather two (age and gender).[14] (CCFF ¶¶ 279-280.) This difference is particularly significant because geographic region and urban density can be very useful proxies for respondents' beliefs on many subjects. (CCFF ¶ 278.) Second, GCS's study mechanism is less intrusive. (CCFF ¶ 225.) Dr. Frederick's study involved typing an answer to a single question; Dr. Stewart's involved, on average, a twelve-minute phone call (with times ranging from five to 20 minutes). (CCFF ¶ 223.) The level of intrusiveness influences the psychographic profile of respondents. (*Id.*) As Dr. Frederick explained, people willing to answer a landline call and participate in lengthy surveys (such as Dr. Stewart's) likely have different beliefs and attitudes than the population at large. (CCFF ¶¶ 223, 390-391.) In addition, the level of intrusiveness affects the response rate, *i.e.*, the willingness of respondents to answer (rather than close the web page or hang up the phone). (Tr. 1120.) Most response rates to Dr. Frederick's questions were over 20%.[15] Dr. Stewart's callers spoke to more than 4,000 people

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If Dr. Frederick had been as motivated by money as the ALJ found, he simply would have done less analysis (or charged an hourly rate, like Dr. Stewart). Further proof of Dr. Frederick's confidence in GCS is the fact that he uses GCS in his research, including in a recently published, peer-reviewed article in a prestigious academic journal. (CCFF ¶¶ 263-265.)

[14] The ALJ speculated about potential flaws in GCS's inferred data, ignoring evidence that demographic information—no matter the type of survey—is never perfect, and imperfections about individual respondents do not compromise the sample overall. For example, landline surveys like Dr. Stewart's rely on self-reports regarding age; lying about age would obviously affect the data. (CCFF ¶ 285.) Callers in landline surveys typically assess gender based on the respondent's voice, and are supposed to ask about gender only if it is unclear. (CCFF ¶ 282-284.) But the error rate in collecting gender data can be as much as 5%. (CCFF ¶ 283.) Nevertheless, as Dr. Stewart explained, despite these imperfections, telephone surveys can obtain reasonably representative samples. (CCFF ¶ 286.)

[15] Response rates ranged from 15% to 48%, with most over 20%. (Tr. 1322-23.)

(after making more than 17,000 calls) to obtain a sample of just 400 respondents. (CCFF ¶ 390; Tr. 2701.) Finally, GCS is more representative than other survey media because it has access to the enormous percentage of the population that uses the Internet (85% in 2013). (CCFF ¶¶ 224-225.) In contrast, only 60% of the American population has a landline, (CCFF ¶ 226), and this group tends to be older and disproportionately white. (CCFF ¶¶ 392, 395.)

And, in fact, Dr. Stewart's survey had precisely this over-representation problem. Fifty-eight percent of Dr. Stewart's respondents were age 50 and older, (CCFF ¶ 393), even though only 40% of persons age 15 and above are 50 and older. (CCFF ¶ 394, citing 2010 census data.) This means that Dr. Stewart oversampled older Americans and under-sampled minorities. (CCFF ¶ 395.) Tellingly, Dr. Stewart explained that the lack of perfect representativeness in his sample (the lack of any information about income, geography, urban density; potential flaws in gender and age, see note 14) did not negate the reasonable representativeness of his study. (CCFF ¶ 286.)

iv. *Other Undisputed Evidence Further Demonstrates the Validity of GCS's Demographic Information.*

The ALJ disregarded three pieces of evidence that further support the validity of the GCS sample. First, Google's undisputed diligence confirmed the representativeness of GCS samples. Google compared GCS and Internet panel results to benchmarks, *i.e.*, results from clearly representative samples of the American public. (CCFF ¶ 249.) As benchmarks, Google used media usage data from a 200,000-respondent survey and health data from a Center for Disease Control survey with an 80% response rate. (*Id.*) It then administered questions 13 times through GCS, and engaged two survey research firms to administer the same questions to Internet panels designed to be representative of American adults. (CCFF ¶¶ 248-249.) The comparisons were striking. Most significantly, the GCS studies performed as well as—or even better than—the

Internet panel surveys, deviating from the benchmarks by only about 4%. (CCFF ¶ 250.) The ALJ discounted this compelling evidence because of what he called "Google's obvious economic interest in the results." (ID 200.) This conclusion is nonsensical. The fact that Google has incentives to develop an effective survey tool and to infer demographics accurately (not only for GCS but also for its advertising business) only bolsters the credibility of GCS.

Second, a comparison of GCS with telephone surveys further supports GCS's ability to match the representativeness of more traditional methodologies. Dr. Frederick gave undisputed testimony that, shortly after Google introduced GCS in 2012, the independent Pew Research Center ("PEW") compared the results of its own telephone survey of Internet users with GCS respondents. (CCFF ¶ 227.) PEW found little difference. For 43 results, the median difference was only three percentage points and the mean was six points. (CCFF ¶ 232.)

Third, Dr. Frederick gave undisputed testimony regarding Nate Silver's study of GCS's performance relative to traditional pollsters in predicting the 2012 presidential election results. (CCFF ¶¶ 241, 247.) Mr. Silver compared the accuracy of 23 polling entities that conducted at least five polls before the 2012 election. (CCFF ¶ 242.) GCS tied for second place (ahead of CNN, Reuters, and Gallup), conducting 12 pre-election polls with an average error (relative to the actual results) of only 1.6%. (CCFF ¶¶ 243-244.) As Dr. Frederick explained, it is truly remarkable that GCS outperformed venerable pollsters like Gallup. (CCFF ¶ 246.) The ALJ disregarded this evidence because the election concerned "a binary question on a matter of public debate," which is "not comparable to the type of open-ended questions that are appropriate to determine consumers' interpretation of the term 'biodegradable.'" (ID 199.) The ALJ did not explain how GCS provided a reasonably representative sample for a "binary question on a matter

of public debate" but allegedly did not provide such a reasonably representative sample for the questions at issue here. Indeed, this conclusion makes no sense.

Each of these pieces of evidence further supports the reasonable representativeness of Dr. Frederick's GCS study. Disregarding this evidence, as the ALJ did, improperly holds GCS to a standard of methodological perfection that no survey could meet and the law does not require. *See POM*, 2013 FTC LEXIS 6, at *49.[16] Accordingly, the Commission should set aside the ALJ's unsupported findings, and consider the evidence actually presented, which indisputably demonstrates the validity of Dr. Frederick's GCS sample.[17]

b. Dr. Frederick's Study Asked Appropriate Questions—Including the Central Question in this Case.

The second step in assessing survey methodology is analyzing the appropriateness of the survey's questions. (ID 189, citing *POM*, No. 9344, 2013 FTC LEXIS 6, at *49). To ensure the

[16] *See also Stouffer*, 118 F.T.C. at 807 ("A study may be flawed, that is, harbor one or more sources of potential error or bias, and still be probative."); *Kraft*, 114 F.T.C. at 126-27 n.13 ("Although we agree with respondent that the design of the MOR survey questionnaire is not without flaws, and that alternative or additional means could have been used to better minimize the potential for yea-saying bias inherent in using a closed-ended question format, on balance, we find the MOR survey results to be of some probative value."); *Thompson*, 104 F.T.C. at 796-97 (survey that has "several potential sources of bias" nonetheless deemed to be "reasonably reliable extrinsic evidence").

[17] Substantial evidence establishes GCS's representativeness. But, to the extent that the Commission requires additional evidence, it should reverse the ALJ's improper denial of Complaint Counsel's Motion For Leave To Call Rebuttal Fact Witness Paul McDonald, GCS Product Manager. Under the Commission's Rules of Practice, a party may submit rebuttal evidence "as, in the discretion of the Commission or the Administrative Law Judge, may be required for a full and true disclosure of the facts." 16 C.F.R. § 3.43(d)(1). During trial, ECM, for the first time, challenged GCS based on new theories that GCS respondents employ various IP address and cookie "masking" techniques, and that Google fails to reach respondents on mobile devices and appropriately-distributed websites. Complaint Counsel offered Mr. McDonald's testimony (one hour of rebuttal testimony) to ensure a full and true disclosure of the facts (not speculation) about GCS. The ALJ incorrectly rejected the proffer. *See* Order Denying Complaint Counsel's Motion for Leave to Call Rebuttal Fact Witnesses and Respondent's Request to Bar Rebuttal Witness, entered September 5, 2014.

propriety of his questions, Dr. Frederick asked the relevant question—how much time does it take a plastic product labeled biodegradable to biodegrade—dozens of different ways. (CCFF ¶ 218; CCX-890, App. at 27-37.) The ALJ disregarded this evidence and incorrectly found that the question "design" was not appropriate. (ID 193.) As explained below, the ALJ findings are irreconcilable with the actual evidence.

According to the ALJ, Dr. Frederick should have asked what biodegradation means, rather than "assum[ing]" the relevance of time by asking questions such as "how much time" it will take for a plastic product labeled biodegradable to biodegrade. (ID 194, 218.) This conclusion, however, is nonsensical because rate is embedded in the concept biodegradation, a process that, by definition, occurs over time. Indeed, the Merriam-Webster dictionary definition the ALJ cited as evidence that time is not an element of biodegradation expressly incorporates time. *See* ID 184 (citing *Merriam-Webster.com* dictionary defining "biodegradable" as "capable of being slowly destroyed or broken down into very small parts by natural processes, bacteria, etc.) (emphasis added).

To illustrate this point further, an analogy is useful. It is likely that few consumers would mention time when defining "aspirin," but the vast majority likely understand that aspirin will relieve a headache within a certain amount of time. The fact that consumers may not initially define "aspirin" in terms of time does not mean that consumers do not believe that, to be effective, aspirin should relieve a headache within a reasonably short period of time (*e.g.*, half an hour). It is highly likely that consumers would be deceived by "aspirin" that took days to work. Similarly, the fact that some consumers may not immediately define biodegradation in terms of time does not mean that they do not believe that a "biodegradable" plastic product will biodegrade within a certain timeframe. Indeed, it is unlikely that consumers think a

biodegradable advertising claim means that the product will biodegrade in 100 million years. It is essential to ask about time precisely because it is not necessarily the first thing that pops into consumers' minds.

The ALJ also inexplicably faulted Dr. Frederick's surveys because of their "'single-question' design" and alleged lack of open-ended questions. (ID 193-195.) These critiques grossly mischaracterize the actual questions. As his expert report clearly shows, Dr. Frederick asked more than sixty different questions, most of which were open-ended. *Compare* CCX-890 at 27-36 (open-ended questions) *with* 37-41 (binary questions). Some questions involved the "ECM Biodegradable" logo, some involved other "biodegradable" logos, and some involved only words. (CCFF ¶ 294.) Significantly, ECM's expert did not challenge the wording or structure of any question Dr. Frederick asked. (CCFF ¶ 288.)

Asking similar questions in different ways to multiple groups of respondents yielded three distinct benefits. First, asking each group a single question enabled Dr. Frederick to avoid influencing respondents' answers to later questions with the phrasing of earlier questions. As discussed *infra* at 29-30, Dr. Stewart's "multiple-question design" study suffered from precisely this flaw, with early questions suggesting variability in biodegradation and priming respondents to be vague when answering questions about ECM's claims. (CCFF ¶¶ 379-386.) Indeed, Dr. Stewart admitted that "information conveyed to respondents earlier in a survey can affect their answers to later questions[.]" (CCFF ¶ 472.)

Second, Dr. Frederick's questioning mimicked the varying ways ECM's "biodegradable" claims reach consumers—*e.g.*, via a biodegradable label, an eco-friendly label that mentions "biodegradable," or the "ECM biodegradable" logo. *Compare* CCX-890, App. at 27-30 ("biodegradable" label) *with* App. at 30-31 (eco- label) *with* App. at 31, 36, 38, 40, 41, 43, 44

(ECM logo). By contrast, Dr. Stewart's study did not ask respondents about the "ECM Biodegradable" logo, any other biodegradable logo—or any biodegradable labeling at all. (CCFF ¶ 353.)

Third, asking each question in different ways to different groups enabled Dr. Frederick to have confidence in the results. As Dr. Frederick explained, arriving at "the same result despite asking questions in different ways" is a good indication of the "robustness" or "convergent validity" of the results. (CCFF ¶¶ 291-92.)[18]

c. There Is No Credible Evidence of "Disinterest Bias."

When courts and the Commission assess survey questions, they consider whether questions were asked to minimize bias. (ID 189, citing *POM*, No. 9344, 2013 FTC LEXIS 6, at *49.) Completely misunderstanding the evidence, the ALJ found that the GCS study was tainted with a "disinterest bias." (ID 192.)

Dr. Frederick explained that any "disinterest bias"—Dr. Stewart's notion, borrowed from a Google competitor's blog post, not any academic literature (CCFF ¶¶ 329-330)—did not materially affect the reliability of the survey results, for several reasons. First, the number of obviously disinterested "protest" responses (*e.g.*, "go away") was *de minimis*—less than 1% of an enormous sample (N>20,000). (CCFF ¶ 324.) Second, there is no reason to believe that this one

[18] Contrary to the ALJ's findings, the absence of "screening questions" did not undermine the reliability of Dr. Frederick's study. (IDFF 47-48.) The ALJ disregarded evidence that screening questions can do as much harm as good, so it is reasonable not to use them. For example, screening respondents, as Dr. Stewart did, by asking if they are over 18 years of age and if they are knowledgeable about plastics, skews the population; the relevant population is all consumers, including consumers who are only 17 or knowledgeable about plastics. (CCFF ¶¶ 348-350, 406, 409.) Moreover, the absence of a screening question to exclude respondents who do not have a base knowledge about biodegradation is not significant, because, as part of Dr. Frederick's bright-line coding rules, *see infra* at 26, he "screened" "I don't know" answers after the fact. (CCFF ¶ 315.)

percent's views are different from the remaining 99%. (*Id.*) Tellingly, Dr. Stewart did not contradict this point. (CCFF ¶ 325.) Third, there is no greater reason to disbelieve the genuineness of the 99% of facially meaningful answers simply because respondents wanted access to Internet content than there is in a telephone survey, where respondents may answer in order to conclude the conversation, to have someone to talk to, or for any other reason. (CCX-890 at 5.) Finally, Google takes steps to validate respondents' willingness to provide meaningful answers by periodically asking questions with obvious answers (*e.g.*, how many states are there in the United States?), and ensuring that persons who respond incorrectly do not receive future surveys. (CCFF ¶ 326.)

In fact, Dr. Frederick explained that the 1% of "protest" answers provides evidence of the validity of the remaining 99% of answers. (CCFF ¶ 331.) Obviously, "protest" was an option—but an option that 99% of respondents did not elect. *Id.* The fact that average response times were generally above 20 seconds suggests that the 99% gave thoughtful answers. (CCFF ¶ 332.) In fact, as Dr. Frederick testified, and Dr. Stewart conceded, a question in which the consumer gives a response after 20 seconds much better replicates the actual consumer experience when confronted with a "biodegradable" claim on a store shelf than a telephone interview taking twelve minutes. (CCFF ¶ 336.) Finally, even if some respondents took 20 seconds or more because they were distracted by another activity (as the ALJ posited (ID 193)), as Dr. Frederick explained, with respect to most respondents, "[i]t wouldn't make any sense . . . for someone to see a question, to sit there and do nothing, and then key in a nonsense response [after] 22 seconds" when he or she could do so immediately. (CCFF ¶ 333.)

d. Dr. Frederick Correctly Analyzed the Results of His Study in Bias-Minimizing Ways.

The final step in assessing the soundness of survey methodology is considering whether the survey results are analyzed correctly. (ID 189, citing *POM*, No. 9344, 2013 FTC LEXIS 6, at *49.) The evidence unambiguously establishes that Dr. Frederick's analysis of the results was correct. The ALJ, however, either misunderstood or ignored each piece of evidence, concluding that Dr. Frederick "'force-fit'" data into preconceived categories. (ID 195.) This erroneous finding mistakes the evidence, in two ways. First, the ALJ simply misunderstood Dr. Frederick's "bright-line" coding rules, incorrectly believing them to introduce coding bias, when, in fact, they minimize it. Second, the ALJ improperly disregarded Dr. Frederick's testimony that his exclusions do not meaningfully affect the results.

As explained *supra* at 22, Dr. Frederick asked dozens of variants of the question "how much time would it take a plastic product labeled biodegradable to biodegrade?" (CCX-890, App. at 27-37.) Dr. Frederick explained that he applied a "bright line" coding rule to the responses. (CCFF ¶ 313.) According to this rule, "any response containing both a numeric specification and an accompanying temporal unit" (*e.g.*, "6 months") was coded and, thereby, included in his analysis of GCS's results. (CCFF ¶ 314.) Other responses were not coded (and, therefore, not included in the study's results), because there was no way to translate them into a specific amount of biodegradation time. (CCFF ¶¶ 316.) Specifically, Dr. Frederick excluded five types of responses:

- numeric responses lacking a temporal unit (*e.g.*, "1");
- responses lacking a specification of quantity (*e.g.*, "months");
- responses indicating unwillingness to answer without further clarification (*e.g.*, "it depends");
- responses indicating an unwillingness to respond because of reported uncertainty (*e.g.*, "I don't know"); and
- "protest" responses intended to circumvent the survey (e.g., "go away").

(CCFF ¶ 315.) Dr. Frederick explained that he used this "bright line" rule to avoid any "value judgments [by the coders] about which responses are 'too inaccurate' to count." (CCFF ¶ 313.) For example, without the rule, a coder would have to make a value judgment about whether to include an answer such as "10 days," which could be either an absurd or a genuine response. With the rule, such problematic value judgments are not necessary. (*Id.*; *see also* CCFF ¶ 341 (ECM cannot explain why such value judgments are appropriate—even though Dr. Stewart's opinions reflect such judgments)).

The ALJ misunderstood this concept, believing that any valid survey must have "blind coders" to minimize bias. (IDFF ¶ 408; ID 196 n. 30.) Dr. Frederick's bright-line coding rules, however, rendered any rule-following coder virtually bias-free. The ALJ appears to have conflated coding bias with the notion of a "double-blind" study, and, therefore, found that because Dr. Frederick and his graduate student participated in the coding, the study was not "double blind." (*Id.*) In fact, the coding was not biased ("blind" in the ALJ's parlance) because of the bright-line rule, and the GCS study was "double blind," because neither GCS respondents (who provided data) nor GCS itself (which collected the data) knew who sponsored Dr. Frederick's study. (CCFF ¶ 344.)

Dr. Frederick explained that omitting the responses identified above was entirely appropriate and did not skew the data. (CCFF ¶ 317.) In fact, omitting the responses would only have affected the results if respondents who gave them, as a group, hold different views concerning biodegradation time than the rest of the population. (*Id.*) As Dr. Frederick explained, there is no reason to believe there is any such difference. (CCFF ¶¶ 317, 322-323.)

The academic literature on "I don't know" responses (which ECM's own expert acknowledged) supports this point. (CCFF ¶ 319.) Survey respondents who answer "I don't

know" often do have a view on the subject; their "I don't know" response simply denotes an unwillingness to guess on the survey. (CCFF ¶¶ 318-319.) As Dr. Frederick explained, there is no reason to believe that these respondents, as a group, hold different views than those who are sufficiently confident in their opinion to venture a guess. (CCFF ¶ 317.) Dr. Stewart admitted that "by preventing people from saying 'I don't know,'" "generally . . . you don't change the distribution of responses." (CCFF ¶ 319.)[19]

In short, the evidence demonstrates that Dr. Frederick correctly analyzed the results. Therefore, the Commission should set aside the ALJ's erroneous findings, and consider the evidence presented, which demonstrates that the GCS study and Dr. Frederick's testimony are not only reliable and probative but also convincing—either alone or in conjunction with the other three studies.

4. ECM's Own Study Further Demonstrates that Consumers Infer a Short Timeframe for Biodegradation.

The APCO, Synovate, and GCS studies are not the only surveys in the record that establish significant consumer inference of a short timeframe from biodegradable claims. The survey that ECM commissioned for litigation, and which its expert testified was valid, also shows that a significant minority of consumers infer a short timeframe from unqualified biodegradable claims.

ECM's expert, Dr. Stewart, supervised a 400-participant telephone landline survey on ECM's behalf. (CCFF ¶ 352.) Tellingly, Dr. Stewart did not ask respondents how much time it would take plastic products labeled "biodegradable" to biodegrade—the central question in this

[19] The ALJ misunderstood the expert testimony, and, therefore, incorrectly found that "[i]t defies logic to assert that, as a group, those asserting no knowledge of how long a 'biodegradable item takes to biodegrade have the same views as those expressing a specific time." (ID 196.)

case. (CCFF ¶ 353.) Instead, he asked: "If something is biodegradable, how long do you think it would take for it to decompose or decay?" (CCFF ¶ 354.) In other words, ECM avoided eliciting consumers' understanding about how quickly a plastic product advertised as "biodegradable" would biodegrade.

Nonetheless, over half (206) responded with a number and unit of time. (CCFF ¶ 355.) Of these 206, 33% gave estimates of one year or less and 58% gave estimates of five years or less. (CCFF ¶¶ 210, 355.) The ALJ faulted Complaint Counsel for considering 206 of the 400 responses. (ID 214-215.) However, responses without a number and unit of time are irrelevant. *See supra* at 25. Nevertheless, even improperly considering all 400 responses, ECM's survey still supports Complaint Counsel's point. Seventeen percent of respondents estimated less than a year and nearly 30% estimated five years or less. (Tr. 2790-91.) In other words, Dr. Stewart's results, like the results of APCO, Synovate, and GCS, show that significant minorities (and probably majorities) of consumers believe that biodegradation occurs within a reasonably short period of time of five years or less.

Dr. Stewart's callers tested ECM's "biodegradable in some period greater than a year" disclaimer. Specifically, they asked: "In your own words, what does this claim mean to you?" (CCFF ¶ 206.) Even though the question did not ask respondents to estimate biodegradation time, over a third (150 of the 400) responded with a number and unit of time. (CCFF ¶ 207.) Of those respondents, at least 50% (75 or more)[20] gave estimates of a year or less. (*Id.*) Thus, Dr. Stewart's data, unsurprisingly, is consistent with all the other studies demonstrating that at least a

[20] Although Dr. Stewart's coders reported 95 responses as falling within the category "gone/decomposed/biodegrade in one year," Complaint Counsel could only locate 75 such responses. (CCFF ¶¶ 360-361.) Dr. Stewart refused to admit that his coders were wrong, (CCFF ¶ 362), but we adopt the lower number (which favors ECM) because that is what the record reflects.

significant minority of consumers believe plastic labeled "biodegradable" will biodegrade in one year or less—even when they hear a disclaimer of a year or more.

The ALJ disregarded this compelling evidence (as well as Dr. Frederick's similar results) because he found it "absurd to suggest that reasonable consumers would infer that a claim that a product is 'biodegradable in some period greater than one year,' means that a product will completely biodegrade . . . in less than one year." (ID 220 n.37.) In fact, the evidence he ignored explains why this result was not "absurd" and, in fact, was predictable. Dr. Frederick, an expert in the heavily-studied area of cognitive bias known as "anchoring," explained, "[t]he specified minimum value ('one year') likely functioned as a numeric referent towards which some respondents' subsequent estimates assimilate."[21] (CCFF ¶ 308.) In other words, when consumers see (or hear) "one year," many of them rely heavily on that piece of information (*i.e.*, that "anchor") when making subsequent judgments or interpretations. (CCFF ¶ 309.) Significantly, Dr. Stewart did not contradict this testimony. (CCFF ¶ 310.) It was an obvious error for the ALJ to use his own "facial analysis" in the face of undisputed scientific evidence.

The fact that Dr. Stewart's research supports Complaint Counsel's position is especially significant because his study was designed to maximize respondents' uncertainty about time for biodegradation—and, thereby, lead them away from estimating short times. Specifically, the order of Dr. Stewart's questions prompted respondents to think about variability in biodegradation time for different items—immediately before they were asked what ECM's

[21] Dr. Frederick is a leading expert in this field, having recently published a number of papers in leading journals on anchoring, including *Elaborating a Simpler Theory of Anchoring* in JOURNAL OF CONSUMER PSYCHOLOGY, *A Scale Distortion Theory of Anchoring* in JOURNAL OF EXPERIMENTAL PSYCHOLOGY: GENERAL, *Anchoring in Sequential Judgments* in ORGANIZATIONAL BEHAVIOR & HUMAN DECISION PROCESSES, and *The Role of Inference in Anchoring Effects* (working paper).

"biodegradable in some period greater than a year" claim means.[22] After respondents had already answered several questions about biodegradation, Dr. Stewart's researchers asked a final series of questions. (CCFF ¶ 379.) First, they were asked: "Do you think that there are differences in the amount of time it takes for different products to biodegrade, decompose, or decay?" (CCFF ¶ 380.) Unsurprisingly, almost everyone (98%) answered affirmatively. (CCFF ¶ 381.) Next, those 98% were asked to expound on those differences: "What differences exist in the time for different types of products to biodegrade, decompose, or decay?" (CCFF ¶ 382.) Immediately after, respondents were asked to give their impressions of claims similar to ECM's. (CCFF ¶ 383.)

It was entirely predictable, given the order of the questions, that a high percentage of respondents would answer "it depends" rather than giving a timeframe.[23] Thus, the fact that such high percentages of respondents gave the same answers as respondents in the other three studies is particularly significant. In short, ECM's own study supports the conclusion that a significant minority (and likely majorities) of consumers believe that biodegradation happens within a reasonably short period of time.

5. Evidence that ECM Intended to Make the Implied Claim Further Supports the Conclusion that ECM Made the Claim.

In addition to ignoring this compelling survey evidence, the ALJ disregarded clear evidence of ECM's intent to make the Implied Claim. "[I]t is . . . well established that a

[22] Dr. Stewart admitted that "information conveyed to respondents earlier in a survey can affect their answers to later questions[.]" (CCFF ¶ 472; *see also* CCX-874 at 2 (PEW analysis observing that "earlier questions may influence those asked later in the survey").)

[23] In his deposition (but not at trial), Dr. Stewart admitted: "Well, I hope we did put that in their minds because we're asking them whether or not they think there are those differences, yes or no." (CCFF ¶ 386, emphasis added.)

showing that an advertiser intended to make particular claims can help demonstrate that the alleged claim was in fact conveyed to consumers." *POM*, No. 9344, 2013 FTC LEXIS 6, at *51. *Accord Novartis Corp.*, 127 F.T.C. 580, 683 (1999) ("[E]vidence of intent to make a claim may support a finding that the claims were indeed made."); *Telebrands*, 140 F.T.C. at 304 (finding support that claims were made in "ample evidence that respondents intended to convey the challenged claims"); *Thompson*, 104 F.T.C. at 791 ("Thompson intended to make these claims . . . [and] [t]herefore, it is reasonable to interpret the ads as making them[.]").

There is overwhelming evidence that in making unqualified "biodegradable" claims, ECM intended to imply that its additive would make plastic completely break down into elements found in nature in a landfill in a reasonably short period. Repeatedly, ECM defined "biodegradable" for its customers: ECM's standard sales pitch—presented in a host of marketing materials and customer communications—stated that its additive made plastic "fully biodegrade" (or "break down") "in landfills" in "nine months to five years." (ID 175-177.) Even when ECM began using the "some period of time" disclaimer, it continued to tell customers to expect complete landfill biodegradation in nine months to five years. (CCFF ¶¶ 37-41.)

In short, ECM intended to make the Implied Claim—and a significant minority (if not a majority) of consumers in fact perceived that claim.

B. The ALJ Erred in Not Finding Liability for ECM's Implied Claims.

The ALJ incorrectly found that ECM substantiated its unqualified "biodegradable" claim. He determined that, according to scientists, "biodegradable" means a process not cabined by any timeframe—an interpretation that would render ECM's claims meaningless because all things (including conventional plastics) biodegrade eventually. This definition is legally irrelevant and scientifically inaccurate. Although not entirely clear, the ALJ then appears to hold that ECM

substantiated its claim by demonstrating ECM Plastic to be more susceptible to the biodegradation process. In reaching this result, however, the ALJ grossly misunderstood the scientific testimony. Substantial evidence shows that ECM's claim that ECM Plastic biodegrades in any meaningful way is both false and unsubstantiated.

1. The ALJ's Interpretation of Biodegradable Renders ECM's Implied Claims Meaningless.

The ALJ found that an unqualified biodegradability claim does not convey that the product will biodegrade "completely" or in any specific time period. Instead, he contends, based on his interpretation of the "scientific" meaning of the term, ECM's Implied Claims conveyed nothing more than the ability of ECM Plastic to undergo a biodegradation process that has no clearly defined end-point. (ID 247-248.)

This interpretation is absurd. Because all things biodegrade eventually (given hundreds of millions of years), this definition would permit marketers to advertise every product as "biodegradable," including conventional plastic. If ECM's customers had this understanding, they would have no reason to buy the Additive; they could simply label their conventional plastic "biodegradable" without the extra expense. Of course, neither consumers (as explained *supra* at 6-30) nor scientists share this understanding. At a minimum, ECM's unqualified claim must convey something more than the inherent ability of all things to eventually biodegrade. It must convey at least a fundamental change in the biodegradable properties of conventional plastic that is meaningful and relevant to consumers. Although the ALJ never makes a specific finding that ECM Plastic is less resistant to biodegradation than conventional, untreated plastic, including in a landfill, he appears to implicitly recognize this point by finding ECM substantiated the legally irrelevant scientific definition. As discussed below, incontrovertible scientific evidence contradicts this finding.

2. ECM Plastic Cannot Be Biodegradable.

ECM's claim that the ECM Additive can change the fundamental non-biodegradable nature of conventional plastic is completely at odds with overwhelming, well-established scientific opinion. In finding otherwise, the ALJ incorrectly failed to evaluate the type of substantiation the relevant scientific community would consider appropriate. Instead, he relied heavily on the opinions of scientists who are not experts in relevant fields of study. However, the evidence demonstrates a strong scientific consensus that conventional plastics are not biodegradable. Accordingly, the scientific community requires a high level of substantiation to support ECM's radical claims, consisting of reliable, confirmatory tests demonstrating either some minimal threshold of biodegradation or biodegradation of the high-molecular weight plastic in the relevant disposal conditions. ECM's testing satisfies none of these requirements.

1. The ALJ Erred By Not Considering The Amount Of Substantiation Experts In The Field Believe Is Reasonable.

Claims are deceptive if they are false or lack a reasonable basis. *Daniel Chapter One*, No. 9329, 2009 FTC LEXIS 157, at *99 (F.T.C. Aug. 5, 2009); *see also* ID 234. "To determine what constitutes a reasonable basis, the Commission considers the '*Pfizer* factors.'" *POM*, No. 9344, 2013 FTC LEXIS 6, at *17-18 (2014) (*citing Pfizer Inc.*, 81 F.T.C. 23 (1972)); FTC Policy Statement Regarding Advertising Substantiation, 104 F.T.C. 839, 840 (1984) (appended to *Thompson*, 104 F.T.C. 648) ("Substantiation Statement"). The *Pfizer* factors require evaluation of "the type of claim, the product, the consequences of a false claim, the benefits of a truthful claim, the cost of developing substantiation for the claim, and the amount of substantiation experts in the field believe is reasonable." *Substantiation Statement*, 104 F.T.C. at 840 (emphasis added). Implicitly considering the first several factors, the ALJ correctly found that ECM must substantiate its biodegradability claims with competent and reliable scientific

evidence.[24] However, he critically failed to determine "the amount of substantiation experts in the field believe is reasonable."

The ALJ relied heavily on the testimony of two ECM experts, Drs. Sahu and Burnette, neither of whom has relevant expertise, and rejected the testimony of extremely qualified relevant experts and the consensus of the relevant scientific community. (*Compare* IDFF 122-130 (Sahu) and 140-143 (Burnette) *with* IDFF 107-111 (McCarthy) and IDFF 117-121(Michel).)

Dr. Sahu is a general-purpose environmental law consultant, without experience, training, or knowledge in the relevant fields of polymer science or plastics engineering. (*See, e.g.*, Tr. 1738-41 (no experience with polymers other than fuel and fuel containment systems); Tr. 1747 (appeared as expert only for "air quality" environmental matters).) Dr. Sahu has not performed an ASTM D5511 test (the type of tests upon which ECM relies). Nor does he understand how the ECM Additive affects plastic on a molecular level. (Tr. 1949-52.) His review of "hundreds of papers" about plastic biodegradability formed the basis of his opinions. (*See* Tr., 1754-55; 1791; 1849.) However, in his report and testimony, Dr. Sahu simply pulled large block quotes, out of context, from scientific articles. Each of these articles is either inapposite or directly

[24] The type of claim and product at issue weigh in favor of requiring "a high level of substantiation." *Thompson*, 104 F.T.C. at 822 . The potential harm to consumers in allowing false claims also weighs in favor of requiring competent and reliable scientific evidence. Environmentally conscious consumers are likely to pay higher prices for the perceived environmental benefit of "biodegradable" plastics. (CCFF ¶ 14); *see Thompson*, 104 F.T.C. at 824 (significant economic harm "result[s] from the repeated purchase of an ineffective product by consumers who are unable to evaluate" the efficacy claims"); *FTC v. Pantron I Corp.*, 33 F.3d 1088, 1102 (9th Cir. 1994) ("[A] major purpose of the Federal Trade Commission Act is to prevent consumers from economic injuries.").

contradicts Dr. Sahu's position. (CCX-892 at 4-8.) If anything, his mis-citation of these articles demonstrates his lack of expertise in the relevant field.[25]

Dr. Burnette's expertise as a microbiologist has focused not on biodegradation, anaerobic biodegradation, or even degradable plastics, but on environmental remediation and "biosafety." (*See* RX-840, Dep. 142; and IDFF 142-143). Beyond a general knowledge of "polymers," Dr. Burnette's knowledge about plastics in general and degradable plastics in particular is extremely limited. Admittedly, ECM did not offer Dr. Burnette as an expert in polymer science or plastics chemistry, or as a polymer engineer (RX-840 at 204-205.) Like Dr. Sahu, Dr. Burnette has not performed an ASTM D5511 test and does not know how the ECM Additive affects plastic on a molecular level. (CCFF ¶ 176; Tr. 2449.) Tellingly, neither could identify a single peer-reviewed paper to support the radical notion that mixing one percent of biodegradable plastic with conventional plastic enhances biodegradability. (*See* CCX-892 at 8.)

In marked contrast, Drs. McCarthy and Michel are highly qualified scientists with expertise directly relevant to the biodegradability of plastics. Dr. McCarthy has a master's degree in chemical engineering from Princeton University, and a Ph.D. in polymer engineering from Case Western Reserve University. (IDFF ¶ 107.) He has been a professor of plastics engineering at the University of Massachusetts Lowell for 30 years, where he teaches graduate level courses in plastics engineering, including the mechanical behavior of polymers, and polymers and the environment. (IDFF ¶ 108.) He is the inventor on seven patents related to polymers or plastics engineering and is the editor of the *Journal of Polymers and the*

[25] Dr. Sahu is, basically, a gun for hire. (RX-855 at 63-71(identifying "expert litigation support" entries spanning from (a) to (iiiii)). He consults for Kelley, Drye & Warren, LLP, which represented ECM during the investigation and settlement discussions. http://www.kelleydrye.com/attorneys/ron_sahu

Environment. (IDFF ¶ 109.) Moreover, he has authored or co-authored more than a hundred publications about polymer or plastics engineering, including peer-reviewed articles on biodegradable blends. (IDFF ¶ 110.) Not surprisingly, a number of the papers cited by ECM's so-called experts relied on materials written or co-authored by Dr. McCarthy. (*See, e.g.*, RX-360 at 9; RX-365 at 1; RX-581 at 14; RX-584 at 12.)

Dr. Michel explained that his whole career has involved polymer conversion in compost systems and anaerobic digesters. (Tr. 2836.) He has a Ph.D. and M.S. in Chemical Engineering from Michigan State University. (IDFF ¶ 119.) For the past 25 years, Dr. Michel has conducted research on the biodegradation of plastics, bioplastics, biofoams, and natural fiber materials in anaerobic digesters, composting systems and in soils. (IDFF ¶ 119.) Dr. Michel has authored over 40 peer-reviewed publications in the areas of composting and anaerobic biodegradation of polymers. (IDFF ¶ 119.) Since 2007, he has served as the Editor of Compost Science and Utilization Journal, an international peer reviewed scientific journal, and as an Associate Editor for the Biological Engineering division of the American Society of Agricultural and Biological Engineers. (IDFF 120.) Importantly, Dr. Michel is author of the only published, peer-reviewed scientific literature evaluating whether ECM Plastic is biodegradable. (CCX-880.) Notably, this peer-reviewed paper found that ECM Plastic does not biodegrade in any environment. (CCX-880.)

The ALJ made no findings that either Dr. McCarthy or Dr. Michel based their opinions on anything other than their scientific knowledge. Nor did he explain why he failed to give adequate weight to their testimony. Instead the ALJ adopted the uninformed opinions of ECM's far less qualified consultants who opine without any scientific support that conventional plastic is

biodegradable, mixing 1% biodegradable additive can weaken the plastic and increase susceptibility to biodegradation, and that ECM's ASTM D5511 tests prove as much.

2. ECM Must Substantiate Its Radical Claims with a High Level of Substantiation.

Experts in the relevant scientific community—degradable polymer scientists—explain that they require a high level of proof to substantiate ECM's claims. These experts explain that conventional plastics are highly resistant to biological attack (mostly due to their high average molecular weight), and neither the mechanism (formation of a biofilm) nor the technology (1% biodegradable additive blend) can alter this immutable scientific fact. Thus, to prove radical claims not otherwise supported by the relevant scientific community, ECM must present confirmatory tests, not screening tests such as ASTM D5511.

a. The Relevant Scientific Community Considers Conventional Plastics Non-Biodegradable.

Drs. Barlaz (ECM's expert), Michel, Tolaymat, and McCarthy all testified that conventional plastics are not biodegradable, as the relevant scientific community uses the term (CCFF ¶ 6.). The scientific literature supports this position, including many of the sources cited by Drs. Sahu and Burnette. *See, e.g.*, RX-581 at 2 ("Plastics are resistant against microbial attack. . . . ."); RX-586 at 3 ([conventional plastics] are generally "inert" and "not susceptible to microbial attack"); RX-764 at 1 ("Traditional plastics are very stable and not readily degraded in the ambient environment."); RX-766 at 1 (polyethylene popular due in part to its "biological inertness"); CCX-1002 at 1-2 ("most conventional plastics . . . are non biodegradable"); CCX-945 at 64 ("synthetic polymers historically have been classified as nondegradable and recalcitrant."); CCX-880 at 2 ("most plastics are xenobiotic" meaning "the evolution of metabolic pathways necessary for their biodegradation, a process that takes millions of years.,

has yet to occur."). Conventional plastic polymers are composed primarily of polymer chains with molecular weights typically ranging from the hundreds of thousands to millions. (CCX-891 ¶ 30.) Their enormous average molecular weight makes them inherently extremely difficult to break down. (CCFF ¶ 9.)

Microorganisms secrete enzymes that adhere to the surface of organic materials and cause fissures in the molecular chain (also called hydrolysis). (CCX-891 ¶ 22.) These cleavages make long-chain molecules shorter, resulting in the release of carbon and energy (heat). (CCX-891 ¶ 22; *see also* RX-584 at 4-5.) It is widely accepted that known microorganisms do not secrete enzymes that can bind to commercial conventional plastics.[26] (*See* CCX 891 ¶ 22, ¶¶ 32-35 and ¶ 74; RX-581 at 1 ("Plastics are resistant against microbial attack, since during their short time of presence in nature evolution could not design new enzyme structures capable of degrading synthetic polymers."); RX-584 at 4 (same).)

Existing microorganisms can ingest polymers with a molecular weight below 500, where they can be "depolymerized" and used for energy (also known as mineralization). (CCX-891 ¶ 86; CCX-892 ¶ 12; RX-584 at 4.) Over time (perhaps millennia), new microorganisms may evolve that can either secrete enzymes that break down high molecular weight plastic or perhaps even ingest conventional plastics—but such an event is speculative and far distant. Until then, conventional plastic must be broken into *much* shorter chains through abiotic processes before it will biodegrade. Unaided by chemical or mechanical means, this process could span tens of thousands of years. (*See* CCX-895 at 12 ("without these abiotic and chemical and physical modifications, the extent of PE biodegradation is essentially nil.").) Even chemical and

[26] Some microorganisms secrete enzymes that can break down naturally occurring polymers, like starch and cellulose, and some synthetic polymers that closely resemble them. (CCX-891 ¶¶ 33-34; CCFF ¶ 8.)

mechanical processes may not enhance ultimate biodegradability. (CCX-891 ¶¶ 26-27 ("[A]lthough degradation (or disintegration) may change the plastic's physical form, it does not involve microorganisms, nor does degradation necessarily mean that the plastic will degrade into natural elements."); *see also* CCX-895 at 12.)

b. There Is No Scientific Basis to Believe ECM's Purported Technology Could Possibly Work.

Dr. McCarthy explains that there is no reason to believe that ECM's purported technology could possibly work. (CCX-891 ¶¶ 64-65; CCX-892 ¶¶ 15-16.) The ECM Additive is a pelletized, mostly synthetic biodegradable polymer that is added to the hopper when a plastic is melted down to be formed into sheets or molds. (CCFF ¶¶ 129, 171; *see also* Tr. 1813.) ECM recommends that its customers add a small concentration, about 1%, of its Additive to the non-biodegradable conventional plastic, much as they would a colorant. (CCFF ¶ 129-131.) ECM contends that its Additive promotes the formation of a biofilm that can produce enzymes capable of biodegrading conventional plastic. (*See* CCX-4.)

As Drs. Michel and McCarthy explain, physically blending 1% additive to conventional plastic cannot accomplish the reduction of molecular weight necessary to enhance biodegradability. (CCX-891 ¶ 74; CCX-895 at 13.) Therefore, conventional plastic is no more susceptible to biodegradation after blending than it was before. (CCFF ¶¶ 130-131.)

Despite this clear evidence, the ALJ adopts Drs. Sahu and Burnette's inapposite citations to the scientific literature about blends of <u>non-conventional plastics</u>, and mistakenly finds that ECM's Additive could change the recalcitrance of conventional plastics. But none of the scientific literature demonstrates this. Rather, these articles clearly show that blending even large proportions—30 times the amount of ECM Additive—at best facilitates <u>fragmentation.</u> (RX-925 at 13) ("[a] large amount of starch of the order of 30% by volume needs to be blended

for improving the accessibility of the whole system to degrading factors.") (emphasis added); CCX-895 at 13-14 (discussing studies in which as much as much as 80% starch blended with polyethylene showed no improvement in biodegradation of the polyethylene).) In fact, these studies directly contradict the premise for which Drs. Sahu and Burnette cite them, finding that even at extremely high concentrations, only the lowest weight pieces (a tiny fraction of the overall conventional plastic)[27] will biodegrade after fragmentation. (RX-360 at 14 ("despite all these attempts to enhance the biodegradation of PE blends, the biodegradability with microorganisms on the PE part of the blends is still very low.").) The blending process does not and cannot change the ability of the conventional plastic to biodegrade and nothing relied on by the ALJ or in the record supports otherwise.[28]

ECM's fantastical "mechanism of action" is similarly unsupported. There is no evidence to support ECM's assertion that the biofilm that purportedly forms on the surface of ECM Plastic makes biodegradation more likely. (CCX-895 at 16 ("biofilms . . . can form on surfaces that are not biodegradable").) As further illustrated by Dr. Michel, biofilms form inside bathroom

[27] The molecular weight of a conventional plastic represents an average molecular weight. (RX-855 at 15 ("there will be a distribution of chain lengths, including some very small chains (sometimes referred to as oligomers) and some longer chains. Thus, "[E]xcept for a few cases, the molecular weight represents an average; almost all polymers have a molecular weight distribution.").) Given the massive average weight of the polymer chains, only a very small percentage will have a low enough molecular weight to be ingested or broken down by known biological agents. Indeed, even with a non-random distribution of polymer chain weights that maximized the number of low-weight chains, it is mathematically impossible for more than half of the total molecular weight of a conventional plastic to consist of chains small enough to be biodegraded. Of course, the distribution is random and much, much less than half of conventional plastic is susceptible to biodegradation.

[28] Moreover, Dr. McCarthy's patent is not evidence that a blend can affect the recalcitrance of conventional plastic. (*See* IDFF ¶¶ 659-664.) Dr. McCarthy's research and patent studied how blending of two known biodegradable polymers affects brittleness and biodegradation rates. (Dep. 684-686.) Completely unlike this technology, ECM Plastic is a blend between a biodegradable polymer and an inert plastic.

drainpipes, "[b]ut they're not breaking down the pipe itself. If they would be breaking down the pipe itself, then you wouldn't be using those materials to make the pipe . . . . their understanding of biofilms, just because a biofilm forms that it's biodegrading the material to which it's attached, is incorrect." (Tr. 2865.) ECM's own expert, Dr. Burnette, concedes that the presence of a biofilm does not indicate microorganisms are using the plastic as a food source. (CCFF ¶ 179.)

In short, there is no known, or plausible theoretical, mechanism that could cause the ECM Additive to work. At best, and there is no evidence of this, it may help the plastic fragment and possibly expose some of the very small percentage of shorter chains of conventional plastic to biological agents. But even accepting this unsupported assumption, the Additive still does not alter biodegradability in any meaningful way. (CCFF ¶ 132.) The conventional plastic remains chemically unaltered. ECM Plastic still consists of 99% chemically unaltered conventional plastic, which could take as long, or longer to biodegrade. (CCFF ¶ 133.)

c. ECM Does Not Have Tests the Relevant Scientific Community Would Require to Support its Extraordinary Claim that ECM Plastic Is Biodegradable in a Landfill.

The ALJ improperly concluded that because the scientific community routinely uses "gas evolution tests" like ASTM D5511 to assess biodegradability, and some tests showed biodegradation rates above the 1% load rate of the ECM Additive, it must be efficacious. The scientific community demands more than minimal methane production in anaerobic conditions to support ECM's unorthodox claim that the ECM Additive renders conventional plastic biodegradable after disposal. Instead, before concluding that a material (not already known to be biodegradable) is "biodegradable" in a waste stream, scientists would require both screening and confirmatory tests. ECM's substantiation includes no confirmatory testing. (CCX-891 ¶¶ 44-45;

¶ 67.) Moreover, the ASTM D5511 screening tests of ECM Plastic were neither well-controlled nor well-designed studies. (*See infra* at 46-47.) Consequently, the data from ECM's screening level tests does not support even a claim that ECM Plastic is "intrinsically" biodegradable, let alone a claim of complete, or even substantial, decomposition in a landfill.

i. ***Recalcitrant Non-Biodegradable Materials Require Confirmatory Testing to Establish Biodegradability in a Waste Stream.***

Experts in the field require competent and reliable scientific evidence for ECM's biodegradability claims in the form of appropriately-analyzed results of independent, well-designed, well-conducted, well-controlled testing. (CCFF ¶ 135.) The testing should use the appropriate plastic application, load rate, inoculum, test conditions, and sample weight, over an appropriate duration of time. (CCFF ¶ 135.)

The scientific community generally uses three tiers of tests to determine whether biodegradation of plastic occurs. First, an initial screening test, such as ASTM D5511, can show whether any biodegradation is occurring (*i.e.*, whether any component of the test material is biodegrading).[29] Second, level-1 confirmatory tests can determine whether the conventional

[29] As further explained in the leading treatise on solid waste:

> Screening-level evaluations of materials do not provide definitive evidence of biodegradation. [] The possibility of overestimation of biodegradation potential exists if the "priming effect" occurs [] If material transformations are due to microbial attack on additives [] rather than mineralization of a polymeric component of material, or if a material is exposes to microbial cultures that are not representative of the environment in which the material will be disposed. Alternative, the presence of pro-oxidants or starches in a material may facilitate major physical changes (i.e., disintegration) that could be misinterpreted as evidence of complete biodegradation []. Weight loss and tensile strength changes may be due to partial hydrolysis or abiotic hydrolysis caused by interaction of the polymer with the medium. Thus, more definitive biodegradations tests simulating the environment in which the polymer will ultimately reside are required to

plastic is in fact biodegrading and whether and to what extent it will biodegrade under specific (*e.g.*, real-world) conditions. Third, level-2, field-scale tests that are *in situ* can be used to evaluate whether biodegradation has adverse environmental effects.[30] (CCX-891 ¶ 43; *see also* CCX-945 at 65-66 (Barlaz waste treatise discussing a three-tiered approach to assessing biodegradability of plastics); RX-767 (same).)

Thus, screening tests, like the ASTM D5511, alone cannot establish the extent or rate of biodegradation in specific disposal conditions. (CCX-891 ¶ 44; CCFF ¶ 139; *see also* CCFF ¶ 175.) To substantiate its claims regarding the purported biodegradability of ECM Plastics in landfills and the role of the ECM Additive, ECM must have both screening and confirmatory tests. (CCX-891 ¶ 45; *see also* CCX-945 at 72.) Confirmatory testing is essential to establish that the conventional plastic itself is biodegrading, and whether and to what extent it will biodegrade under real-world disposal conditions. (*See* CCFF ¶¶ 147-148; CCX-891 ¶¶ 44-45.) Two types of confirmatory tests are reliable: (1) a gas-evolution test that reaches a minimum threshold of biodegradation in a specified time under specified disposal conditions; or (2) a radiolabeling test using C14. (CCX-891 ¶¶ 58-59.) Both are available at several major testing labs and are not cost prohibitive. (*Id.*)

(1) Minimum Threshold Gas-Evolution Tests

The relevant scientific community would accept testing showing a material achieved a minimum threshold of biodegradation under appropriate conditions in a specific time-period.

> determine the practical biodegradability of polymeric materials in MSW waste treatment and terrestrial environments.

(CCX-945 at 72, internal citations omitted.)

[30] Although field-scale tests are required to determine whether there would be adverse environmental effects, Dr. McCarthy would not require such tests to substantiate ECM's efficacy claims.

For example, in a source cited by Dr. Sahu, the author explains, "[a] demonstrated potential of a material to biodegrade does not say anything about the time frame in which this occurs, nor the ultimate degree of degradation." (RX-584 at 2-3.) If degradation rates are slow, or degradation is incomplete, the polymer will accumulate in the environment. (RX-584 at 2-3.) Therefore, scientists have adopted a definition of biodegradable that includes "specified periods of time, specific disposal pathways, and standard test methodologies." (RX-584; *see also* RX-767 (describing same criteria); *see also* RX-787 at 1 (same); CCX-945 at 72 (same); RX-776 at 11 (same).)[31] Dr. Michel reiterates this concept in both his peer-reviewed published paper and his expert report. (CCX-895 at 11; CCX-880 at 3.) Dr. McCarthy explained that the ASTM is currently implementing a standard specification for biodegradable plastics under anaerobic conditions, which would require treated plastics reach 60% biodegradation in 18 months. (CCX-891 ¶ 56.) Thus, a minimum threshold of biodegradation in a specified time and disposal condition is one commonly accepted standard for assessing biodegradability.

(2) Radiolabeling

Alternatively, the relevant scientific community would accept radiolabeling (C14 tests). (CCFF ¶ 455.) Radiolabeling involves tagging radioisotopes of carbon, C14, to a high-molecular weight plastic, such as polyethylene, before conducting a gas evolution test. If the radiolabeled carbon is detected in biogas, then the conventional plastic polymer is undergoing a material transformation through biodegradation. If not, then other factors must explain any observed biogases, *e.g.*, biodegradation of the additive or the inoculum. (CCX-891 ¶ 59; *see also* CCX-

[31] The compostability standard specification, ASTM D6400, also employs this requirement. A material must reach 90% biodegradation within 180 days in aerobic conditions to be deemed compostable in a municipal composting facility. (CCX-91.)

945 at 72-73.) Radiolabeling is particularly useful for technologies where the observed biodegradation would happen over a period of years. (CCX-945 at 72-73; CCX-895 at 12.)

Drs. Michel and Barlaz likewise explained that to "obtain accurate evidence of biodegradation" a C14 test is necessary. (*See* CCX-895 at 12; Tr. 2224.) Indeed, Dr. Barlaz has not only performed C14 tests, but wrote the ASTM specification on how to do so. (CCX-943 (Dep. 67).) In fact, Dr. Barlaz testified that C14 tests are "well-suited" to "very, very small amounts" of biodegradation, and for slowly degrading materials.[32] (Tr. 2244.)

The ALJ erroneously rejected C14 tests as "not the industry standard or reasonably required by any expert in the field." (ID 244.) However, C14 is routinely used for unorthodox claims that conventional plastic can undergo biological transformation. (*See, e.g.*, Eastman Study (Tr. 650-51; CCX-841, Dep. 149-151); and Albertsson Study (CCX-897-898). ECM conducted neither confirmatory test, despite ample opportunity and ability to do so.[33]

[32] If a C14 test shows sufficient biodegradation of the high-weight conventional plastic component, it could substantiate a claim that the Additive increases a plastic's susceptibility to biodegradation in a landfill. If it were to show 60% biodegradation of the plastic, it could substantiate a rate claim.

[33] ECM has known for years that ASTM D5511 tests are insufficient to support its claims (*see, e.g.*, CCX-963 at 5-6), and since at least 2009, that C14 tests would provide the requisite substantiation in the scientific community. (CCX-310 (email from American Radiolabeled Chemicals to A. Poje explaining how it would prepare C14 labeled polyethylene for a test of ECM Plastic conducted under ASTM D6776); CCX-311 (email from A.Poje to Dr. Barlaz discussing conducting a radiolabeled test under ASTM D6776);.CCX-314 (Email from Moravek Biochemicals to A.Poje providing a quote for the synthesis of radiolabeled polyethylene.) Dr. Michel (who has practical experience conducting C14 tests and whose university is licensed to conduct such tests) testified that "it would be a rather straightforward matter to mix ECM additive with ^{14}C labeled polyethylene" and would not have been prohibitively expensive. (CCX-895 at 15, 23.)

ii. *ASTM D5511 Does Not Rise to the High Level of Substantiation Required by the Scientific Community.*

The relevant scientific community does not consider ASTM D5511 adequate substantiation to support ECM's unorthodox claims.

(a) To Substantiate its Claims, ECM Must Test Under Typical Landfill Conditions.

The finding that ASTM D5511 simulates landfill conditions is simply wrong.[34] The ALJ found that the ASTM represents a microcosm of conditions potentially found in some landfills. (IDFF 778.) However, ECM's sales spanned the U.S., its promotional materials are available nationally through ECM's website, and there was no limitation or qualification of the claim with respect to disposal conditions. (*See* IDFF ¶¶ 4, 9, 14, 23, 32, 37, 53, 78 (ECM's customers' locations); CCFF ¶¶ 24-25 (reached millions of consumers); IDFF ¶ 206 (advertises through website); IDFF ¶¶ 245-246, 258 (claims conveyed "landfill" generally'); CCFF ¶ 112.) ECM represented that ECM Plastic biodegrades in landfill conditions available to all consumers, and thus must substantiate efficacy in the landfills used by those consumers. ASTM D5511 does not replicate the temperatures and moisture levels typical of U.S. landfills.

Landfills are anaerobic, highly heterogeneous waste containment systems. (IDFF ¶ 570; CCX-893 ¶ 20.) Drs. Tolaymat and Barlaz, the only two experts in solid waste management, both testified that typical landfills operate in the mesophilic temperature range, *i.e.*, 37ºC. (CCX-

[34] The ASTM D5511 test protocol clearly explains that "it is not intended to resemble any particular high-solid anaerobic digester" rather merely the anaerobic-digestion process under "optimum" conditions. (CCX-85.) Anaerobic digesters are not landfills. (CCX-891 ¶ 52; CCX-893 ¶ 77.)

943, Dep. 69.) In contrast, ASTM D5511 tests are conducted at 52ºdegrees.[35] Altering the temperature changes the bacteria present, speeds rate of biodegradation, can promote abiotic changes in the material, and, most importantly does not represent temperatures landfill experts consider typical. Therefore, a test conducted at 52ºC is not competent and reliable scientific evidence simulating typical landfill conditions. (CCFF ¶ 154-156; CCFF ¶ 138; *see also* CCFF ¶ 136.)

The vast majority of landfills operate between 15-30% moisture. (CCFF ¶ 423.) The experts agree that conducting a test at higher moisture rates affects the rate of biodegradation. Tests to substantiate landfill biodegradability claims must be conducted at less than 30% moisture, but ECM's ASTM D5511 tests were conducted between 60-80% moisture.

(b) ECM's ASTM Data Is Unreliable.

The ALJ erroneously disregarded Drs. McCarthy and Tolaymat's criticisms regarding the reliability of the ECM's test data. Significantly, both Drs. Tolaymat and McCarthy explain that ASTM D5511 overestimates biodegradation of ECM Plastic. (CCX-891 ¶¶ 84, 90; CCX-893 ¶¶ 80-81.) These "false positives" result from: high temperatures; lack of control for the priming effect[36] (because no test ran a separate concurrent control for the ECM Additive); and the large inoculum to substrate ratio, among other things. Even Dr. Barlaz acknowledges that the priming effect and abiotic degradation can result in overestimation of biodegradability potential. (CCFF

[35] Four BMP tests of ECM Plastic run by Dr. Barlaz's lab and one run by Dr. Michel's lab, all conducted prior to their involvement in this case, were conducted at 37ºC and show negligible to no biodegradation. (CCFF ¶¶ 157, 168-169, 172-173, 450; CCX-880.)

[36] Dr. McCarthy explains the "priming effect" as biodegradation of the additive (which contains organic compounds highly susceptible to biodegradation) and the organic materials of the test medium (the bacteria used for testing) rather than the plastic. (CCX-891 ¶ 19; Dep. 412-413.) The existence of the additive both increases the total amount of material available for biodegradation (compared to the test of the inoculum by itself), and stimulates increased biodegradation of the inoculum. (*See* CCX-162 at 3.)

¶ 155; Tr. 2279.) Consequently, the test results cannot effectively correlate the result (positive methane production) with a particular cause (biodegradation of the conventional plastic versus other potential factors). (CCFF ¶¶ 139-140.)

Additionally, Drs. McCarthy and Tolaymat identify several other flaws specific to the tests conducted that make the data inherently unreliable. The two most significant are the lack of statistical analyses and undocumented deviations from the protocol that likely invalidated the results. (CCFF ¶¶ 142-143.)

C. Substantial Record Evidence Supports a Stronger Remedy.

The ALJ's proposed remedy eliminates those portions of the Order that would (1) require Respondent to substantiate unqualified biodegradability claims with competent and reliable scientific evidence that the product will completely decompose in a landfill within one year, and (2) exclude the ASTM D5511 test as adequate substantiation for unqualified claims. For the reasons explained in Sections III.A and B,[37] eliminating either portion would in effect be a license to deceive.

Moreover, broad fencing-in relief is appropriate because ECM's violations were serious, repeated, blatant, and knowing. *POM*, No. 9344, 2013 FTC LEXIS 6, at *153-54. The ALJ improperly ignored abundant, compelling evidence on each point. First, ECM's claims exploited consumers' environmental consciousness as well as their inability to assess the claims themselves. (CCFF ¶¶ 14, 17, 87-90). *See Stouffer*, 118 F.T.C. at 812-13 (seriousness of violations "enhanced by the fact that consumers cannot readily judge for themselves the truth or falsity of [respondent's] claim"). Second, ECM engaged in a widespread deceptive advertising

[37] In addition to the fact that ASTM D5511 does not replicate conditions in a landfill, the protocol itself prohibits extrapolating its results to calculate a biodegradation rate (*i.e.*, a time to complete biodegradation). (CCFF ¶ 150.)

campaign for nearly a decade, passing its claims to hundreds of business customers and millions of end-use consumers. (CCFF ¶¶ 23, 24, 52, 65, 183.) *See Stouffer*, 118 F.T.C. at 812-13 ("extensiveness" of deceptive ad campaign enhances seriousness of violations); *Kraft*, 114 F.T.C. at 140 ("size and duration of [respondent's] misleading advertising campaign" compound seriousness of violations). Third, ECM told customers that testing proved its claims (CCFF ¶¶ 44-45), even though conventional plastics do not fully biodegrade in a period anywhere close to five years or less, and ECM's "proof" had gross flaws, *see supra* at 32-49. *See Schering Plough Corp.*, 118 F.T.C. 1030, 1121 (1994) (seriousness further enhanced where "claims were consciously made despite flaws in the studies relied upon by [the respondent]").

Finally, Robert Sinclair, ECM's President and CEO, "acted in blatant and utter disregard of the law." *See Standard Oil Co. v. FTC*, 577 F.2d 653, 662 (9th Cir. 1978). Notwithstanding his contrary testimony, there is overwhelming evidence—dozens of emails and testimony from several customers—that Mr. Sinclair was the mouthpiece for ECM's consistently unqualified, deceptive claims. (CCFF ¶ 32.) Significantly, Mr. Sinclair knew about five different adverse adjudications regarding the efficacy of ECM Plastics and multiple bad test results (CCFF ¶¶ 97, 102-103), but concealed this information from customers (CCFF ¶ 99). In fact, he aggressively discouraged his customers from doing their own testing because, according to him, ECM's "proof" was sufficient. (*Id.*) Finally, even after promulgation of the Green Guides, and during an FTC investigation, Mr. Sinclair directed ECM to switch its marketing to the misleading "some period greater than a year claim"—while continuing to communicate the deceptive nine-month-to-five-year claims to customers. (CCFF ¶¶ 37-41.) Given this history, and absent the requested fencing-in relief, ECM is likely to switch to deceptive, unsubstantiated environmental claims for its sole product.

IV. PROPOSED ORDER

Based on the record evidence and the foregoing, Complaint Counsel submits the following proposed order:

ORDER

DEFINITIONS

For purposes of this order, the following definitions shall apply:

1. "Clearly and Prominently" shall mean as follows:

   A. In print communications, the disclosure shall be presented in a manner that stands out from the accompanying text, so that it is sufficiently prominent, because of its type size, contrast, location, or other characteristics, for an ordinary consumer to notice, read and comprehend it;

   B. In communications made through an electronic medium (such as television, video, radio, and interactive media such as the Internet, online services, and software), the disclosure shall be presented simultaneously in both the audio and visual portions of the communication. In any communication presented solely through visual or audio means, the disclosure shall be made through the same means through which the communication is presented. In any communication disseminated by means of an interactive electronic medium such as software, the Internet, or online services, the disclosure must be unavoidable. Any audio disclosure shall be delivered in a volume and cadence sufficient for an ordinary consumer to hear and comprehend it. Any visual disclosure shall be presented in a manner that stands out in the context in which it is presented, so that it is sufficiently prominent, due to its size and shade, contrast to the background against which it appears, the length of time it appears on the screen, and its location, for an ordinary consumer to notice, read and comprehend it; and

   C. Regardless of the medium used to disseminate it, the disclosure shall be in understandable language and syntax. Nothing contrary to, inconsistent with, or in mitigation of the disclosure shall be used in any communication.

2. "Close proximity" means on the same print page, web page, online service page, or other electronic page, and proximate to the triggering representation, and not accessed or displayed through hyperlinks, pop-ups, interstitials, or other means.

3. "Commerce" shall mean as defined in Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44.

4. "Competent and reliable scientific evidence" shall mean tests, analyses, research, or studies that have been conducted and evaluated in an objective manner by qualified persons, that are generally accepted in the profession to yield accurate and reliable results, and that are sufficient in quality and quantity based on standards generally accepted in the relevant scientific fields, when considered in light of the entire body of relevant and reliable scientific evidence, to substantiate that a representation is true. Specifically:

A. For unqualified biodegradability claims, any scientific technical protocol (or combination of protocols) substantiating such claims must assure complete decomposition within one year and replicate, i.e., simulate, the physical conditions found in landfills, where most trash is disposed.

B. For qualified biodegradability claims, any scientific technical protocol (or combination of protocols) substantiating such claims must both:

i. assure the entire product will (1) completely decompose into elements found in nature in the stated timeframe or, if not qualified by time, within one year; or (2) decompose into elements found in nature at the rate and to the extent stated in the representation; and

ii. replicate, i.e., simulate, the physical conditions found in the type of disposal facility or method stated in the representation or, if not qualified by disposal facility or method, the conditions found in landfills, where most trash is disposed.

For example, results from ASTM (American Society for Testing and Materials) International D5511-12, *Standard Test Method for Determining Anaerobic Biodegradation of Plastic Materials under High Solids Anaerobic Digestion Conditions*, or any prior version thereof, are not competent and reliable scientific evidence supporting unqualified claims, or claims of outcomes beyond the parameters and results of the actual test performed.

5. "Customary disposal" means any disposal method whereby respondent's products ultimately will be disposed of in a landfill, in an incinerator, or in a recycling facility.

6. "Degradable" includes biodegradable, oxo-biodegradable, oxo-degradable, or photodegradable, or any variation thereof.

7. "Landfill" means a municipal solid waste landfill that receives household waste. "Landfill" does not include landfills that are operated as bioreactors or those that are actively managed to enhance decomposition.

8. "Means and instrumentalities" shall mean any information, including, but not necessarily limited to, any advertising, labeling, or promotional, sales training, or purported substantiation materials, for use by trade customers in their marketing of any product, package, or service, in or affecting commerce.

9. Unless otherwise specified, "respondent" shall mean ECM BioFilms, Inc., a corporation, and its successors and assigns.

I.

IT IS ORDERED that respondent, and its officers, agents, representatives, and employees, directly or through any corporation, partnership, subsidiary, division, or other device, in connection with the manufacturing, labeling, advertising, promotion, offering for sale, sale, or distribution of any product, package, or service, in or affecting commerce, shall not represent, in any manner, directly or indirectly, expressly or by implication:

A. That any product or package is degradable, or that any product, package, or service affects a product or package's degradability, unless

   i. the entire item will completely decompose into elements found in nature within one year after customary disposal; or

   ii. the representation is clearly and prominently and in close proximity qualified by:

      a. Either (1) the time to complete decomposition into elements found in nature; or (2) the rate and extent of decomposition into elements found in nature, provided that such qualification must disclose that the stated rate and extent of decomposition does not mean that the product or package will continue to decompose; and

      b. If the product will not decompose in a customary disposal facility or by a customary method of disposal, both (1) the type of non-customary disposal facility or method and (2) the availability of such disposal facility or method to consumers where the product or package is marketed or sold

   and such representation is true, not misleading, and, at the time it is made, respondent possesses and relies upon competent and reliable scientific evidence that substantiates the representation.

B. That any such product, package, or service offers any environmental benefit, unless the representation is true, not misleading, and, at the time it is made, respondent possesses and relies upon competent and reliable evidence, which when appropriate must be competent and reliable scientific evidence, that substantiates the representation.

II.

IT IS FURTHER ORDERED that respondent, and its officers, agents, representatives, and employees, directly or through any corporation, partnership, subsidiary, division, or other device, in connection with the manufacturing, labeling, advertising, promotion, offering for sale, sale, or distribution of any product, package, or service in or affecting commerce, shall not provide to others the means and instrumentalities with which to make, directly or indirectly, expressly or by implication, including through the use of endorsements or trade names, any false, unsubstantiated, or otherwise misleading representation of material fact regarding any environmental benefit.

III.

IT IS FURTHER ORDERED that respondent shall, for five (5) years after the last date of dissemination of any representation covered by this order, maintain and upon request make available to the Commission for inspection and copying:

A. All advertisements, labeling, packaging and promotional materials containing the representations specified in Parts I and II;

B. All materials that were relied upon in disseminating the representations specified in Parts I and II;

C. All tests, reports, studies, surveys, demonstrations, or other evidence in its possession or control that contradict, qualify, or call into question the representation, or the basis relied upon for the representation, including complaints and other communications with consumers or with governmental or consumer protection organizations; and

D. All acknowledgments of receipt of this order obtained pursuant to Part IV.

IV.

IT IS FURTHER ORDERED that respondent shall deliver a copy of this order to all current and future subsidiaries, current and future principals, officers, directors, and managers, and to all current and future employees, agents, and representatives having responsibilities relating to the subject matter of this order. Respondent shall secure from each such person a signed and dated statement acknowledging receipt of the order, with any electronic signatures complying with the requirements of the E-Sign Act, 15 U.S.C. § 7001 *et seq.* Respondent shall deliver this order to current personnel within thirty (30) days after the date of service of this order, and to future personnel within thirty (30) days after the person assumes such position or responsibilities.

V.

IT IS FURTHER ORDERED that respondent shall notify the Commission at least thirty (30) days prior to any change in the corporation that may affect compliance obligations arising under this order, including, but not limited to, a dissolution, assignment, sale, merger, or

other action that would result in the emergence of a successor entity; the creation or dissolution of a subsidiary, parent, or affiliate that engages in any acts or practices subject to this order; the proposed filing of a bankruptcy petition; or a change in the business or corporate name or address. Provided, however, that, with respect to any proposed change in the corporation about which respondent learns less than thirty (30) days prior to the date such action is to take place, respondent shall notify the Commission as soon as is practicable after obtaining such knowledge.

Unless otherwise directed by a representative of the Commission in writing, all notices required by this Part shall be emailed to Debrief@ftc.gov or sent by overnight courier (not the U.S. Postal Service) to: Associate Director for Enforcement, Bureau of Consumer Protection, Federal Trade Commission, 600 Pennsylvania Avenue NW, Mail Stop M-8102B, Washington, DC 20580. The subject line must begin: "ECM BioFilms, Inc., File No. _____."

VI.

IT IS FURTHER ORDERED that respondent shall, within sixty (60) days after the date of service of this order file with the Commission a true and accurate report, in writing, setting forth in detail the manner and form in which respondent has complied with this order. Within ten (10) days of receipt of written notice from a representative of the Commission, respondent shall submit additional true and accurate written reports. Unless otherwise directed by a representative of the Commission in writing, all notices required by this Part shall be emailed to Debrief@ftc.gov or sent by overnight courier (not the U.S. Postal Service) to: Associate Director for Enforcement, Bureau of Consumer Protection, Federal Trade Commission, 600 Pennsylvania Avenue NW, Mail Stop 8102-B, Washington, DC 20580. The subject line must begin: "ECM BioFilms, Inc., File No. _____."

VII.

This order will terminate twenty (20) years from the date of its issuance, or twenty (20) years from the most recent date that the United States or the Commission files a complaint (with or without an accompanying consent decree) in federal court alleging any violation of the order, whichever comes later; provided, however, that the filing of such a complaint will not affect the duration of:

A. Any Part in this order that terminates in less than twenty (20) years;

B. This order's application to any respondent that is not named as a defendant in such complaint; and

C. This order if such complaint is filed after the order has terminated pursuant to this Part.

Provided, further, that if such complaint is dismissed or a federal court rules that the respondent did not violate any provision of the order, and the dismissal or ruling is either not appealed or upheld on appeal, then the order will terminate according to this Part as though the complaint had never been filed, except that the order will not terminate between the date such complaint is

filed and the later of the deadline for appealing such dismissal or ruling and the date such dismissal or ruling is upheld on appeal.

IN WITNESS WHEREOF, the Federal Trade Commission has issued this complaint against respondent and has caused it to be signed by its Secretary and its official seal to be hereto affixed, at Washington, D.C. this _____ day of _____, 2013.

By the Commission.

Donald S. Clark
Secretary

SEAL

Respectfully Submitted,

/s/ Katherine Johnson

Dated: February 27, 2015

Katherine Johnson
Elisa Jillson

Federal Trade Commission
Bureau of Consumer Protection
Division of Enforcement
600 Pennsylvania Ave., N.W., CC-9528
Washington, D.C. 20580
Telephone: (202) 326-2185; -3001
Facsimile: (202) 326-3259

Counsel Supporting the Complaint

CERTIFICATE OF SERVICE

I hereby certify that on February 27, 2015, I caused a true and correct copy of the foregoing to be served as follows:

One electronic copy to the **Office of the Secretary**, and one copy through the FTC's e-filing system:

Donald S. Clark, Secretary
Federal Trade Commission
600 Pennsylvania Ave., NW, Room H-159
Washington, DC 20580
Email: secretary@ftc.gov

One electronic copy and one hard 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 the Respondent:**

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Chandler, AZ 85286
Email: bkennedy@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.

Date: February 27, 2015

/s/ Katherine Johnson
Katherine Johnson (kjohnson3@ftc.gov)
Elisa Jillson (ejillson@ftc.gov)
Federal Trade Commission
600 Pennsylvania Ave., N.W. CC-9528
Washington, DC 20580
Phone: 202-326-2185;-3001
Fax: 202-326-3197

Notice of Electronic Service for Public Filings

I hereby certify that on February 27, 2015, I filed via hand a paper original and electronic copy of the foregoing Complaint Counsel's Appeal Brief, with:

D. Michael Chappell
Chief Administrative Law Judge
600 Pennsylvania Ave., NW
Suite 110
Washington, DC, 20580

Donald Clark
600 Pennsylvania Ave., NW
Suite 172
Washington, DC, 20580

I hereby certify that on February 27, 2015, I filed via E-Service of the foregoing Complaint Counsel's Appeal Brief, with:

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