UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION

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

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

RESPONDENT'S SUPPLEMENTAL BRIEF

Respondent ECM BioFilms, Inc. ("ECM") hereby files its Supplemental Brief answering the questions posed in the Commission's May 29, 2015 Order.

Summary

As explained in Dr. David A. Stewart's attached affidavit and below, no survey in the record is causal or experimental with appropriate test and control groups. To satisfy their burden in support of the alleged implied rate claim, Complaint Counsel had to introduce into evidence a valid causal or experimental survey with proper controls, or at least a valid descriptive survey with open-ended questions that allowed respondents to answer in their own words. Complaint Counsel did neither. Dr. Stewart's descriptive survey is the only reliable survey of record. Data from that survey reveals that no significant minority of consumers infer from the unqualified "biodegradable" claim that an ECM plastic will completely decompose within any fixed time period. Moreover, there is no "convergence" among the APCO, Synovate, and Frederick

surveys, and none between them and Dr. Stewart's study. Without valid and reliable surveys confirming any set rate, let alone the alleged implied rate claim, there is no evidence capable of upsetting the ALJ's well-reasoned decision that there is no implied rate claim.

A. No surveys in the record are causal or experimental.

To constitute a valid causal or experimental survey, a survey must have: "a well-defined independent variable (or treatment); a well-defined and sensitive dependent variable (a measure of outcome); a treatment group (that receives the treatment); a control or comparison group (that does not receive the treatment); random assignment of respondents to the treatment and control groups; identical measures of outcome for both the treatment and control groups; comparability in the treatment and control groups on all factors other than the presence or absence of the treatment, and a representative sample of a relevant population." Exh. A (Stewart Affidavit) at ¶ 1; *see Cumberland Packing Corp. v. Monsanto Co.*, 32 F. Supp. 2d 561, 574 (E.D.N.Y. 1999) (explaining that "appropriate use of controls is crucial" for a survey to be "causal"); *Wells Fargo & Co v. WhenU.com, Inc.*, 293 F. Supp. 2d 734, 769 (E.D. Mich. 2003) (citing 3 J. McCarthy on Trademarks & Unfair Competition § 32:187 (4th ed. 2003) (explaining that surveys must include proper controls to make "causal inferences")).

None of the surveys of record possess those requisite elements. Exh. A at ¶ 2. That is because all surveys of record were "designed as descriptive surveys with the objective of determining how consumers understand the meaning of the term 'biodegradable' in general and in specific contexts." Exh. A at ¶ 5. The Commission earlier acknowledged that the APCO and Synovate surveys "may be faulted for lacking control groups…" RX 195 at 121 n.409.

Dr. Frederick's "survey"[1] was not causal with appropriate test and control groups. He lacked, *inter alia*, a well-defined and sensitive measure of outcome. Exh. A at ¶ 11. That element is critical because, for a valid causal survey, the surveyor must eliminate threats to valid inference making, which requires assurance that manipulations of particular variables actually represent what they are presumed to represent. *Id.* at ¶ 4. For example, if a question asks, "how long does this product take to biodegrade?" and is accompanied by an image of a bag with the word "biodegradable" in green font, and a respondent answers "one year," without a follow up question determining why the respondent answered "one year" we cannot know the true reason: whether, e.g., the respondent answered that way because he or she presumed green font indicative of rapid biodegradation or because he or she thought the bag depicted was of a certain composition (e.g., compostable), a small size or thinness deemed more rapidly biodegradable. The Commission cannot reliably determine *why* Dr. Frederick's respondents answered that certain products would biodegrade within one year absent that additional data because "[t]he design of Dr. Frederick's survey allowed only one question per respondent and did not permit follow-up questions that would provide a means for examining such interaction effects." Exh. A at ¶ 4.

Dr. Stewart explains that "the existence of pre-existing and scientifically incorrect beliefs among some consumers that untreated plastics biodegrade very rapidly serves to bias the use of any control that is a plastic product." *Id.* at ¶ 21. Frederick's data did not reveal each respondent's baseline understanding of plastics biodegradability. Therefore, Dr. Frederick cannot know whether it is the ECM logo, the bag depicted, a part of his question, or another factor, that actually caused any single respondent to answer one year or less to any question.

[1] Dr. Frederick's survey is wholly unreliable and invalid. ALJID at 189–202; ECM Answering Brief at § IV(E).

"Valid inferences about the generalizability of the findings of an experiment" are only appropriate where the "experiment is representative of what actually transpires in the marketplace." Exh. A at ¶ 4; *see also* E. Deborah Jay, *Ten Truths of False Advertising Surveys*, 103 THE TRADEMARK REPORTER 1116, 1148 (2013) (explaining that "surveys have been discredited for showing test group respondents an advertisement that has a different 'graphic representation' from the challenged advertisement or an advertisement that is not the same as the challenged advertisement"); *L&F Prods. V. Procter & Gamble Co.*, 845 F. Supp. 984, 996 (S.D.N.Y. 1994), *aff'd* 45 F.3d 709 (2d Cir. 1995). "Dr. Frederick's survey makes no effort to replicate the information characteristics of the environment in which the ECM product is sold." Exh. A at ¶ 4. Frederick admitted that he never saw an actual product containing ECM's logo and that the images he used were fabricated, not actual images of marketed products. Frederick, Tr. 1265–66; ALJFF ¶¶ 443–47, 453. They thus fail to provide a true assessment of what transpires in the marketplace.

Moreover, Dr. Frederick's survey is not causal because "the responses obtained from survey participants [do] not provide for qualifications and contingencies that would change the very meaning of respondents' answers." *Id.* at ¶ 7. Without qualifications and contingencies, a surveyor cannot discern respondents' true beliefs. For example "1 year" is not the same as "maybe 1 year, it depends." *Id.* at ¶ 31. However, respondents to Frederick's survey were not permitted to add the "it depends" or "maybe" to their answers. Frederick summarily dismissed qualified answers, refusing to code answers like "I don't know," but coding responses like "1 nanosecond," all in an avowed attempt to bolster the APCO survey results. ALJFF ¶¶ 353, 393, 401.

Even if Frederick's survey was valid and causal (it is neither), his data nevertheless fails to support his conclusion that a significant minority of consumers were misled by an unqualified "biodegradable" claim. The delta between Frederick's so-called test (Questions 3H and 3I) and control (Questions 3O and 3P) questions was just 6–7%, well below the threshold required to determine that a communication created an implied marketing claim. Exh. A at ¶ 10.

Complaint Counsel's attempt to argue *post hoc* that the "test" questions were actually questions 3J and 3K is improper. Questions 3J and 3K are different from the alleged "control" questions, 3O and 3P, and are biased by over-emphasizing the term "biodegradable." *See* CCX 860 and *compare* Questions 3J and 3K *with* 3O and 3P. Dr. Stewart explains that:

> [T]here is an 18% greater response of one year or less to the question that explicitly refers to biodegradability as part of the question. This is a clear and unambiguous measure of the degree to which a question that specifically draws attention to biodegradability is a leading question.

Exh. A at ¶ 6 at n.7.

Courts draw no conclusions from demonstrably leading questions. *See, e.g.*, *Novartis Consumer Health, Inc. v. Johnson & Johnson-Merck Consumer Phram., Co.*, 290 F.3d 578 (3d Cir. 2002) (quotations omitted) ("A survey is not credible if it relies on leading questions which are inherently suggestive and invite guessing by those who did not get any clear message at all."); *Scotts Co. v. United Indus. Corp.*, 315 F.3d 264, 277 (4th Cir. 2002) (same).

In sum, no survey of record is causal or experimental. Exh. A at ¶¶ 3, 5, 11–12. The Frederick survey is entirely unreliable. ALJID at 189–202. At hearing and in his attached affidavit, Dr. Stewart explained that Frederick's survey lacks the requisite elements of a valid descriptive survey, let alone a causal survey. Exh. A at ¶¶ 3–10. But even if the Frederick survey is somehow heroically rescued and deemed causal, his own data reveal no significant

minority of consumers believes "biodegradable" means the product will decompose within one year after customary disposal. Exh. A at ¶ 10.

B. Dr. Stewart's Descriptive Survey Shows that Complaint Counsel Did Not Meet Their Burden

The relative value of descriptive surveys compared to causal or experimental surveys "is highly dependent on the state of existing knowledge and the presenting research question." Exh. A at ¶ 19; *see also Johnson & Johnson * Merck Consumer Pharms. Co. v. Smithkline Beecham Corp.*, 960 F.2d 294, 300 (2d Cir. 1992). To meet their burden, Complaint Counsel had to present evidence demonstrating, through closed-ended questions with appropriate controls or open-ended questions allowing respondents to answer in their own words, that a significant minority of consumers interpret the unqualified claim "biodegradable" to mean complete decomposition within one year after customary disposal. *See In the Matter of Telebrands Corp.*, 140 F.T.C. 278, *318 (2005). Complaint Counsel presented no such evidence.

Before a causal survey is appropriate, the surveyor must first know "the current state of consumer's knowledge, understanding, beliefs, attitudes, and behavior." Exh. A at ¶ 19. At trial, Dr. Stewart explained that:

> When you're exploring something that's relatively new and unexplored, it's desirable not to impose too much structure. What one wants to do is to understand the phenomena, understand consumers' perceptions, understand consumers' behavior. And in order to do that, you really have to give license to consumers to express their opinion.

Stewart, Tr. 2510. "For example, if a descriptive survey indicates that the majority of consumers understand that the rate of biodegradability depends on materials and environmental conditions,

any measure of consumer belief that is ultimately employed in a causal survey must reflect those contingencies. To do otherwise results in a biased and invalid research design." Exh. A at ¶ 12.

Moreover, there must be an accepted scientific standard (a scientifically accepted time within which biodegradation of plastics occurs) before causal survey data would be reliable in this case. Exh. A. at ¶ 12. There is none. "Without such a standard there is no basis for concluding that some number of respondents have been misled by a test stimulus, such as the word 'biodegradable,' and there can be no valid basis for comparing the responses of survey participants in the test condition with the responses of survey participants in the control condition." *Id.* A causal survey is premature given the limited understanding of consumer beliefs, and the lack of a scientifically accepted time within which biodegradation of plastics should occur.

Dr. Stewart therefore chose not to perform a causal study, performing instead a survey designed "to understand the perceptions of consumers with respect to biodegradability, what the meaning of the term was, complete with any contingencies, dependencies, context effects that they might bring to bear." Stewart, Tr. 2531; RX 856 at 15. Only with that information can a surveyor properly design a causal survey, because without that information, the surveyor cannot know what controls would be appropriate. Exh. A at ¶ 18.

That critical point notwithstanding, Complaint Counsel theorizes that the simple use of the word "biodegradable" connotes the implied rate claim. When attempting to prove that an implied claim exists, "courts have widely recognized the need for consumer surveys to adjust for so-called 'background noise,' *i.e.*, extrinsic factors, pre-existing beliefs, general confusion or other factors, other than the stimulus at issue, that contribute to a survey's results." *Wells Fargo*, 293 F. Supp. 2d at 768; *Proctor & Gamble Pharm, Inc. v. Hoffman-LaRoche Inc.*, 2006 WL

2588002, *25 (S.D.N.Y. Sept. 6, 2006); *Pfizer, Inc. v. Miles, Inc.*, 868 F. Supp. 437, 447 (D. Conn. 1994); *Procter & Gamble Co. v. Ultreo, Inc.*, 574 F. Supp. 2d 339, 351 (S.D.N.Y. 2008); *SmithKline Beecham Consumer Healthcare L.P. v. Johnson & Johnson-Merck Consumer Pharms. Co.*, 2001 WL 588846, at *2 (S.D.N.Y. June 1, 2001), *aff'd*, 19 Fed. Appx. 17 (2d Cir. 2001). The *Wells Fargo* decision explained that:

> [A] survey design must include a control group in order to account for the effects of "noise." The control group functions as a baseline and provides a measure of the degree to which respondents are likely to give an answer not as a result of the thing at issue, but because of other factors, such as the survey's questions, the survey's procedures or some other potential influence on a respondent's answer such as pre-existing beliefs. By adding an appropriate control group, the survey expert can test exactly the influence of the stimulus. Had [the expert] used a control group, he might have been able to make a "causal inference" that was clear and unambiguous.

Id. at 768–69 (internal citations and quotations omitted).

The lack of causal data here means Complaint Counsel has not proven the existence of implied claims. Complaint Counsel had to prove that "at least a significant minority of reasonable consumers" were misled by an implied advertising claim. *In the Matter of POM Wonderful*, 155 F.T.C. 1, *13 (2013); *see also* ALJID at 222 (collecting cases); Exh. A at ¶ 20 ("Complaint Counsel needed to offer a valid causal survey"). They failed to do so. Exh. A at ¶ 20.

In *Thompson Medical*, the Commission relied on surveys that had proper controls when finding that the respondent made implied claims. *In the Matter of Thompson Med.*, 104 F.T.C. 648, at [39] (1984). In *Kraft*, the ALJ relied on Dr. Stewart's copy tests to deduce "which messages the respondents saw in the advertisements tested," but only because Dr. Stewart used proper controls. *In re Kraft, Inc.*, 114 F.T.C. 40, *107 (1991). As the ALJ explained, "[t]he

Commission recognizes that because of pre-exiting bias, control advertisements should be used…" *Id.* at *110.

Thus, controls are required for closed-ended questions, but not for properly formatted open-ended questions. *In re Stouffer Foods Corp.*, 118 F.T.C. 746, *808 (1994). Open-ended questions do not require controls because "open-ended questions properly attempt[] to elicit unprompted responses in a consumer's own words describing what he or she took away from the ad." *Id. In Stouffer*, for example, the open-ended questions "properly continued to probe for more responses." *Id.* In *Telebrands*, the Commission reiterated that controls are necessary to find an implied claim unless the survey uses "[o]pen-ended questions allow[ing] survey participants themselves to articulate the central claim of the ad – those that first come to mind." *Telebrands*, 140 F.T.C. at *318. The Commission again explained that "closed-ended questions require the use of some type of control mechanism." *Id.* at *319; *see also Procter & Gamble*, 2006 WL 2588002, at *23 (the "Commission has long recognized that a control of some kind is necessary for closed-ended questions and that ... there is a potential for yea-saying inherent in the closed-ended question format").

FTC jurisprudence therefore mirrors the federal courts' standards for survey evidence; where a party bears the burden of proving that consumers are deceived by an implied claim, that party must submit consumer survey evidence demonstrating a causal connection between the claim and the confusion, either through closed-ended questions with proper controls, or "[o]pen-ended questions allow[ing] survey participants themselves to articulate the central claim of the ad – those that first come to mind." *Telebrands*, 140 F.T.C. at *318.[2] Without knowing the

[2] During oral argument, Commissioner Wright observed that the Commission "should be … comparing the consumer perception with the biodegradability claim or label to the baseline perception in its absence." Tr. 67:5–9.

percentage of consumers who believe that an unlabeled plastic would biodegrade within one year, the Commission cannot reach any conclusion as to how many consumers were affected by the unqualified ECM biodegradable claim. Absent an appropriate baseline number and an appropriate open-ended question, nothing connects the belief that a product will biodegrade within one year to ECM's unqualified biodegradable claim.

Dr. Frederick's survey did not include those questions (he asked only one question per respondent). Almost all of his questions assumed a bias, that the word "biodegradable" connoted a rate or time for biodegradation.[3] In fact, when respondents tried to articulate an answer with contingencies, e.g., that "it depends," Dr. Frederick refused to code those answers. ALJFF ¶¶ 371, 393. Frederick only coded answers that included *both* a numeric specification and temporal unit. ALJFF ¶ 392. His coding rendered his entire survey closed-ended by limiting response options to those that included a numeric specification and a temporal unit. RX 856 at P. 10 (explaining that closed-ended questions are those where respondents are "given a limited number of options for response"). Under FTC precedent, Frederick's survey cannot be used to prove the existence of an implied claim.

The only survey question in the record that allowed respondents "to articulate the central claim" in their own words was number 1 in Dr. Stewart's survey: "When you hear the word biodegradable, what does that mean to you?" RX 605 at 7. Although that question did not elicit "causal data," it is the type routinely relied upon by the Commission to determine whether an implied claim exists. *Telebrands*, 140 F.T.C. at *318; *Stouffer*, 1118 F.T.C. at *807. Therefore,

[3] Of the 63 questions Frederick asked, 52 included "how long," "how much time," "how many months," "how many years," "period of time," "took longer than," "amount of time," "how much longer," "how much more quickly," "faster," "take longer," "more quickly," or a temporal unit and a numeric specification. CCX 860 at 27–45. The remaining 11 asked variants of the seemingly irrelevant question, "Will this product break down into elements found in nature?" CCX 860 at 37–43.

Dr. Stewart's question 1 is entitled to great weight when determining whether the term "biodegradable" implied to a significant minority of reasonable consumers complete decomposition into elements found in nature within one year after customary disposal. Fully 82% of respondents thought "biodegradable"—the *only* word at issue here—was "something about disintegration, decomposition or breakdown." Exh. A at ¶ 15. Just three percent (3%) equated the term "biodegradable" with a rate of biodegradation. RX 605 at 7.[4]

Question 4 of Dr. Stewarts' survey asked: "If something is degradable, how long do you think it would take for it to decompose or decay?" Exh. A at ¶ 15. That question cannot be used to prove the existence of an implied claim because it was not an open-ended question that "allow[ed] survey participants themselves to articulate the central claim of the ad." *Telebrands*, 140 F.T.C. at *318. That question required an answer with a length of time, even though most respondents had already stated that the word "biodegradable" did not connote a rate or time. That question contrasts with the open-ended questions the Commission relies upon to find an implied claim. *See Stouffer*, 1118 F.T.C. at *807 (giving weight to the question: "What point or points does the ad [] make about the product?"); 118 F.T.C. at *807; *Telebrands*, 140 F.T.C. at *448 ("what does the Ab Force commercial say, show, or imply about Ab Force?").

Any attempt to excerpt and view in isolation the results of Question 4 (to favor a fixed year term as implied by "biodegradation") without regard to, or based on a discounting of, responses to open-ended questions in the Stewart survey results in an unprecedented, unrepresentative, and biased determination. That bias is "indefensible" because the totality of Dr. Stewart's data "clearly demonstrates otherwise – 98% of respondents believe that there is variation in the amount of time required for a material to biodegrade." Exh. A at ¶ 16.

[4] Respondents could have provided more than one response to Question 1. Exh. A at ¶ 15 n. 18.

C. The degree of convergence among surveys in the record cannot be quantified

There is no precedent supporting the proposition that flawed surveys which share "similar" results can collectively validate results of any one of those flawed surveys. ALJID at 211–12. Dr. Frederick premises his convergence validity theory, for which there is no foundation in the statistics literature, on the assumption that his Google survey somehow cures the APCO and Synovate surveys.[5] *Id.* at 211. "However, the Google survey is itself so seriously flawed that no valid conclusions can be drawn from it." ALJID at 211; *see also* ALJID at § II.D.4.b.iv. As the ALJ explained, "it defies logic to contend that three flawed surveys can somehow rehabilitate one another and create probative weight that otherwise does not exist, on the ground that the results are 'fairly similar.'" *Id.*

Dr. Stewart explains: "It is not possible to quantify the degree of convergence among the studies in the record because the four surveys have different questions, different responses, different samples, different methodologies, different times of data collection, different approaches to coding, and different analyses." Exh. A at ¶ 30. Moreover, the APCO, Synovate, and Frederick surveys are "methodologically flawed," so "[e]mploying a 'convergence' analysis of all studies [is] improper under the relevant scientific and academic authorities." *Id.* at ¶ 30. Dr. Stewart further explains:

> [E]ven assuming that [the surveys other than Stewart's] were reliable (they are not), the only point of convergence among the four [inclusive of Stewart's] is the conclusion that consumers exhibit considerable variability in how they define the length of time it takes for something to biodegrade. Even on that point any superficially apparent convergence is limited by the narrow, and leading set of questions offered and/or responses thereto considered in the APCO, Synovate, and Frederick surveys.

To the extent that the APCO, Synovate, and Frederick surveys "converge," that convergence

[5] Dr. Frederick based his novel 'convergence' theory on the results of the APCO, Synovate, and Google surveys, and not on the Stewart survey. ALJID at 208 at n. 34.

results from the sharing of biased results: all three used closed-ended questions. All three required respondents to answer in absolutes, without allowing contingencies (e.g., "it depends"). ALJID at 204; Exh. A at ¶ 7. Only Dr. Stewart's survey "provided an opportunity for consumers to offer contingencies and qualifications in their responses." Exh. A at ¶ 30.

Complaint Counsel has not shown that at least a significant minority of *reasonable* consumers interpret the claim "biodegradable" to mean complete decomposition into elements found in nature within one year.[6] The ALJ correctly found that Complaint Counsel failed to meet that burden. ALJID at 223.

The Commission must find substantial evidence to overturn the ALJ's well-reasoned decision. *POM Wonderful, LLC v. F.T.C.*, 777 F.3d 478, 490 (D.C. Cir. 2015). The Commission has conceded that the APCO and Synovate surveys are flawed. RX 348 at 121 n.409. Dr. Frederick's survey is also flawed and invalid. ALJID at 189–202. "[I]nterpret[ing] the results of [Dr. Stewart's] survey as though they support a specific belief among consumers that there is a specific rate of degradation that defines biodegradability" is "indefensible." Exh. A at ¶ 16. No evidence shows that a significant minority of reasonable consumers associate the claim "biodegradable" with complete biodegradation within any fixed term or years, let alone within one year, after customary disposal.

[6] Significantly, believing that a plastic product will biodegrade completely within one year without qualification is unreasonable because it is scientifically invalid. ALJID at 233–34.

Respectfully submitted,

s/ Eric Awerbuch
Jonathan W. Emord
Peter A. Arhangelsky
Bethany R. Kennedy
Eric J. Awerbuch
EMORD & ASSOCIATES, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Telephone: 202-466-6937
Facsimile: 202-466-6938

DATED: June 22, 2015

CERTIFICATE OF SERVICE

I hereby certify that on June 22, 2015, I caused a true and correct copy of the foregoing to be served as follows:

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

Donald Clark, Secretary
Federal Trade Commission
600 Pennsylvania Ave., NW, Room H-159
Washington, DC 20580

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

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

One electronic copy to **Counsel for the Federal Trade Commission:**

Katherine Johnson
Complaint Counsel
Federal Trade Commission
kjohnson@ftc.gov

Elisa Jillson
Complaint Counsel
Federal Trade Commission
ejillson@ftc.gov

Date: June 22, 2015

Eric Awerbuch
Attorney

EXHIBIT A

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.,** **a corporation, also d/b/a** **Enviroplastics International,** **Respondent.**	**Docket No. 9358** **PUBLIC DOCUMENT**

DECLARATION OF DR. DAVID W. STEWART IN SUPPORT OF RESPONDENT'S SUPPLEMENTAL BRIEF

1. I am David W. Stewart and I have previously provided an expert report, deposition testimony, and trial testimony in the matter of the Federal Trade Commission v. ECM BioFilms, Inc. My prior expert report included statements of my qualifications and described and provided the results of a survey of consumers' understanding of the meaning of the term biodegradable. My earlier report also included a copy of my *curriculum vitae*.

2. I have been asked by counsel for ECM Biofilms to provide responses to the following three questions posed by the Federal Trade Commission. Below I present each question and immediately thereafter my response.

A. Can the survey evidence in the record be interpreted as causal or experimental surveys with appropriate test and control groups? Would it be appropriate to do so? If so, please explain what inferences can be drawn from such an interpretation in light of relevant legal authority and statistical methods. If not, please explain why not.

3. None of the surveys offered in the present matter may be properly interpreted as a causal or experimental survey with appropriate test and control groups. In order to constitute a valid causal or experimental survey, a survey must have the following elements: a well-defined independent variable (or treatment); a well-defined and sensitive dependent variable (a measure of outcome); a treatment group (that receives the treatment); a control or comparison group (that does not receive the treatment); random assignment of respondents to the treatment and control groups; identical measures of outcome for both the treatment and control groups; comparability in the treatment and control groups on all factors other than the presence or absence of the treatment, and a representative sample of a relevant population.[1] None of the surveys conducted in this case possess all of these requisite elements for a causal survey or experiment.

4. The design of a valid causal survey or experiment requires the control or elimination of numerous threats to the validity of the design and the inferences that can be drawn from the results.[2] There are threats to valid inference making. Elimination of such threats requires assurance that the manipulations of particular variables actually represent what they are assumed to represent. For example, if prior beliefs are evoked by a stimulus, those prior beliefs, rather than the stimulus itself, may be responsible for any results obtained. In the context of the Frederick studies prior beliefs about biodegradability in general or the biodegradability of

[1] See William R. Shadish, Thomas D. Cook and Donald T. Campbell (2002), *Experimental and Quasi-experimental Designs for Generalized Causal Inference*, (New York: Houghton Mifflin). There is no simple checklist of the characteristics of a causal research design because implementation of a characteristics is as important as the presence or absence of that characteristic.

[2] Roger E. Kirk (2013), *Experimental Design: Procedures for the Behavioral Sciences*, 4th Edition, (Thousand Oaks, CA: Sage); Shari Seidman Diamond and Jerre B. Swann (2012), *Trademark and Deceptive Advertising Surveys: Life, Science and Law*, (Chicago: ABA Publishing).

plastics in particular may interact with the content of any label to produce the response of a survey participant. For example, a respondent might believe that all plastic biodegrades but that a plastic bag or container that is labeled as biodegradable will degrade more rapidly than a bag or container that is not so labeled. On the other hand, another respondent may believe that the color green is associated with environmentally friendly products and base their response on the color rather than the wording. Such interactions would be particularly problematic when survey respondents differ in their prior beliefs, as is clearly the case based on both the Frederick and Stewart data. The design of Dr. Frederick's survey allowed only one question per respondent and did not permit follow-up questions that would provide a means for examining such interaction effects. Similarly, valid inferences about the generalizability of the findings of an experiment are contingent on whether what is manipulated in the experiment is representative of what actually transpires in the marketplace.[3] Dr. Frederick's survey makes no effort to replicate the information characteristics of the environment in which the ECM product is sold. There are threats to statistical conclusion validity and external validity, which include failure to use reliable measures and random heterogeneity among respondents.[4] In the case of the Frederick survey, the only measures that are used are time estimates that are insensitive to respondents' understanding of the contingent nature of such time estimates. Measures that do not provide for responses that are contingent on other factors, such as type of material and the environment, severely limit the validity of any conclusions that may be drawn from an experiment. There are threats to internal validity,[5] which in the case of the Frederick survey would include the question

[3] See Kirk, p. 16.
[4] See Kirk, pp. 17, 19; Shari Seidman Diamond (2012), "Control Foundations: Rationales and Approaches," in Shari Seidman Diamond and Jerre B. Swann (2012), *Trademark and Deceptive Advertising Surveys: Life, Science and Law*, (Chicago: ABA Publishing), pp. 201 – 216.
[5] See Kirk, p. 18.

of the direction of causality, that is, whether the stimuli are responsible for any observed beliefs or whether pre-existing beliefs drive the observed results.

5. The APCO, Synovate, Frederick, and Stewart surveys were all designed as descriptive surveys with the objective of determining how consumers understand the meaning of the term "biodegradable" in general and in specific contexts. Such an objective is consistent with the use of descriptive surveys. Appropriately designed descriptive surveys can provide insights about how consumers understand and use terms in the context of marketplace decisions or other contexts.[6]

6. In the present matter the complainant appears to suggest that a portion of Professor Frederick's survey represents a causal design. That conclusion is in error. The Frederick survey design suffers from all of the following problems: a failure to provide measures or stimuli that account for pre-existing beliefs, contingent responses, and heterogeneity among respondents, and a failure to provide representation of a reasonable facsimile of market conditions. Any effort to use any portion of the Frederick survey to make causal inferences is, thus, invalid. Complainant also appears to have some difficulty identifying exactly what constitutes the test condition. Professor Frederick originally compared responses of questions 3O and 3P (the controls) to responses to questions 3H and 3I (the test stimuli). Complainant has changed the questions they say represent a response to the test stimuli from 3H and 3I to questions 3J and 3K on grounds that the pictures associated with questions 3H and 3I are hard to read. However, questions 3J and 3K are different from the questions used with the control stimuli and the questions themselves draw specific attention to biodegradability in the context of

[6] Paul J. Lavrakas (2008), "Content Analysis," *Encyclopedia of Survey Research Methods*, (Thousand Oaks, CA: Sage), pp. 140 – 141; Janice Ballou (2008), "Open-ended Question," *Encyclopedia of Survey Research Methods*, (Thousand Oaks, CA: Sage), pp. 547 – 549; Patricia Labow (1980), *Advanced Questionnaire Design*, (Cambridge, MA: Abt Books), p. 134.

questions about the amount of time it would take for the stimuli to biodegrade. Questions 3J and 3K are clearly leading and are certainly not comparable to the questions used for the control products (3O and 3P).[7] In sum, no portion of the Frederick survey meets the conditions required for a valid causal or experimental survey.

7. Frederick's survey additionally cannot be interpreted as a causal or experimental survey because the responses obtained from survey participants did not provide for qualifications and contingencies that would change the very meaning of respondents' answers. There is also no scientific standard for the arbitrary conclusion that respondents who state that a biodegradability claim implies degradation in a year or less have been misled, especially in the absence of the types of qualifications that respondents might attach to a response (For example, Professor Frederick did not accept "it depends" as a valid response even though such a response is an accurate reflection of belief).

8. Even if Frederick's survey could somehow be interpreted as a causal survey (it is not a causal survey), his survey was still invalid, incapable of rendering reliable results. His analyses of the survey discarded almost 30% of the answers because they were not given in an absolute, time specific manner. In addition, clearly nonsensical responses were coded as consistent with the conclusion that respondents' understanding of biodegradability was that the process occurs in one year or less. Such responses take the form of "blah" or "momma," "chair," and even "go away" and "I don't care."[8] Such responses are readily found in Professor

[7] Comparison of the responses to 3H and 3I versus 3J and 3K provides an estimate the effect of the leading questions: 14 – 18%. While one might argue that this difference is the result of differences in the readability of the stimuli, examination of the questions and associated stimuli make clear that labels associated with question 3I and 3K are quite readable, yet there is an 18% greater response of one year or less to the question that explicitly refers to biodegradability as part of the question. This is a clear and unambiguous measure of the degree to which a question that specifically draws attention to biodegradability is a leading question.

[8] See column labeled 'Raw Answer" in the spreadsheet labeled "Concatenated Frederick Data 6-29-14." CCX 863.

Frederick's survey.[9] It is for this reason, in part, that Professor Frederick refers to "codeable" responses, that is, responses that bear some relation to the question asked. Even if responses seem related to the questions asked and are therefore "codeable," many of the responses are still silly or nonsensical. For example, Professor Frederick includes such answers as 1 second, 1 nanosecond, 1 "sec," 1 week, 1 "season," 2 minutes, 2 days, 2 weeks, 10 minutes, 10 hours, 10 days, 12 minutes, 12 hours, 12 days (and 122 minutes) as meaningful and acceptable responses that suggest a belief that biodegradation occurs in less than a year. Professor Frederick indiscriminately accepts them all and codes them as 0.5 year.[10] By my count more than 800 responses were in terms of seconds, minutes, hours, days or weeks. By counting such responses he substantially inflates the number of respondents he counts as having given a response of one year or less to questions related to the amount of time consumers believe it takes for something to biodegrade.

9. Professor Frederick also did not code responses that suggest the respondent does not know, such as "don't know" or "have no idea." Such responses are very likely honest admissions of a lack of knowledge on the part of a respondent. In addition, numerous respondents gave a response such as "it depends," which is arguably the most correct response. Yet, Professor Frederick failed to include those responses in his results. The failure to include "don't know" and "it depends" responses in the description of the results is problematic because

[9] As I noted in my earlier report and testimony, the very nature of Google Consumer Surveys creates incentives for respondents to offer nonsense answers because the survey question interrupts the respondent's effort to read editorial content. Thus, the questions are at best a distraction and barrier to respondents whose objective is to access information, not complete a survey. This type of disruptive questioning creates a disinterest bias (Katrina Lerman (2013), Google Survey: Friend or Foe?, *Greenbook*, March 25, http://www.greenbookblog.org/2013/03/25/google-consumer-surveys-friend-or-foe/); see also Jon A. Krosnick and Stanley Presser (2010), "Question and Questionnaire Design," in *Handbook of Survey Research*, (Bingley, UK: Emerald Group Publishing), p. 265. Many respondents will simply offer a random or nonsensical response in order to move through the questions and get to the content in which they are interested.

[10] Even if one accepts the responses as a serious effort to answer the question, such responses would more appropriately be interpreted as an indication of a lack of knowledge.

it reduces the denominator in the percentages that he reports, which has the effect of inflating the percentages he reports. Much like the APCO and Synovate surveys, Professor Frederick's survey(s) sought to force fit survey respondents into pre-determined categories while ignoring evidence that many respondents had more nuanced opinions or no opinion at all.

10. Finally, even assuming, arguendo, that a portion of Professor Frederick's survey can be interpreted as a causal design and suffers no other flaws, his results are inconsistent with the conclusion that the presence of the ECM logo and the term biodegradable on a plastic product creates any appreciable false or misleading beliefs. In response to his "control" products, a plastic container and a plastic bag, Dr. Frederick finds that 16% and 13% of respondents respectively believe they will biodegrade in one year or less.[11] In contrast, in response to his "test" products, a plastic container and a plastic bag that include a picture of the ECM logo and the word biodegradable, he finds that 22% and 20% of respondents respectively believe they will biodegrade in one year or less.[12] Thus, the net is only 6 – 7%, well below the threshold that is usually required for a determination that a communication created an implied marketing claim.[13]

11. In our reports and testimony, Professor Frederick and I both agree that the APCO and Synovate surveys are of little value. Neither survey is a causal or experimental survey because they do not possess the characteristics of a causal research design described above: a well-defined independent variable (or treatment); a well-defined and sensitive dependent variable (a measure of outcome); a treatment group (that receives the treatment); a control or comparison group (that does not receive the treatment); random assignment of respondents to the treatment

[11] Frederick Report, Appendix at 34 reporting results for questions 3O and 3P.
[12] Frederick Report, Appendix at 31-32 reporting results for questions 3H and 3I.
[13] Gerald L. Ford (2012), "Survey Percentages in Lanham Act Matters," in Shari Seidman Diamond and Jerre B. Swann (2012), *Trademark and Deceptive Advertising Surveys: Life, Science and Law*, (Chicago: ABA Publishing), pp. 311 – 326.

and control groups; identical measures of outcome for both the treatment and control groups; and comparability in the treatment and control groups on all factors other than the presence or absence of the treatment.

12. Like the APCO, Synovate, and Frederick surveys, my survey is not a causal or experimental survey. At this point, a causal study on the issues present in this litigation would be infeasible and improper. There is no generally accepted scientific standard establishing an expected time within which biodegradation of plastics will occur.[14] Such a standard is a necessary precondition to the design of a valid causal or experimental survey with test and control groups. Without such a standard there is no basis for concluding that some number of respondents have been misled by a test stimulus, such as the word "biodegradable," and there can be no valid basis for comparing the responses of survey participants in the test condition with the responses of survey participants in the control condition. Even if differences exist between respondents in a test and a control condition, the absence of any standard for determining what response(s) are indicative of a false belief, makes comparisons between the groups meaningless. Indeed, a descriptive survey would be a necessary step for informing the design of a causal study because a descriptive survey would provide a baseline for what consumers believe in the absence of any specific marketing communications. For example, if a descriptive survey indicates that the majority of consumers understand that the rate of biodegradability depends on materials and environmental conditions (as respondents to my survey revealed), any measure of consumer belief that is ultimately employed in a causal survey must reflect those contingencies. To do otherwise results in a biased and invalid research design.

13. The absence of a scientific standard against which to evaluate the truth or falsity of consumer beliefs, coupled with little history of prior research on public perception of

[14] Initial Decision at pp. 224–34.

biodegradability, make the design of any "causal" study premature at best. Such research would require the establishment of a "standard" for the truth or falsity of a belief. There is no generally accepted scientific standard here. In my response to Commission Question 2, I provide additional explanation of why a causal or experimental survey is inappropriate in the present context.

14. In contrast to the APCO, Synovate and Frederick surveys, my own survey provided an opportunity for respondents to answer in their own words with appropriate follow-up questions (probes) by live telephone interviewers. Abstract terms, like biodegradability, often mean very different things to different consumers.[15] For example, one consumer may define and evaluate quality in terms of quantifiable measures of reliability, such as mean time to product failure, while another consumer may define and evaluate quality in terms of how well a product delivers a certain benefit sought by the consumer. Yet another consumer may define quality in terms of conformity to some standard of design or conformity to particular manufacturing requirements. My survey reveals similar differences in how consumers understand biodegradability. The approach I used to elicit verbal responses is quite similar to that used in other research settings.[16] The type of interviewing employed was typical of what has been characterized as a "probing interview," a type of in-depth interview, which is used when the purpose of the interview is to obtain accurate and complete information in a respondents' own words.[17]

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[15] John R. Hauser and Don Clausing (1988), "The House of Quality," *Harvard Business Review*, (May – June), 63-73.

[16] Charles J. Stewart and William B. Cash, Jr. (2003), *Interviewing: Principles and Practices*, 10th Edition (New York: McGraw-Hill)

[17] Charles J. Stewart and William B. Cash, Jr. (2003), *Interviewing: Principles and Practices*, 10th Edition (New York: McGraw-Hill), p. 105. Robert M. Groves, Floyd J. Fowler, Jr., Mick P. Couper, James M. Lepkowski, Eleanor Singer, and Roger Tourangeau (2004), *Survey Methodology*, (New York: Wiley), p. 222.

15. In response to my question "when you hear the term 'biodegradable' what does that mean to you," respondents offered a range of responses but 82% of the respondents mentioned something about disintegration, decomposition or breakdown. Twenty-six percent of the respondents mentioned something about safety but the majority of those also mentioned something about breaking down or decomposition.[18] Thus there is a general understanding of biodegradability, at least at a conceptual level, that it means disintegration, decomposition or breakdown. Such understanding is important, because without it, subsequent answers to more specific questions must be treated with caution. When respondents in my survey were asked "if something is degradable, how long do you think it would take for it to decompose or decay?" this question elicited a very wide range of responses though the most common answer, offered by 39% of the respondents was that it depends on the material or type of product. No other single response was offered by more than 6% of the respondents. However, even among these other responses there are statements related to differences in materials or context: 6% stated that paper degrades faster, 6% stated that plastic does not degrade or takes a long time to degrade, 5% indicated that it depends on conditions or how the product is disposed, 3% indicated that vegetation decomposes more quickly, and 3% stated that it depends on size. Thus, 68% of the respondents gave answers to a very general question about time to biodegradability that indicate recognition of differences in the rate of decomposition related to type of material and/or the context. Among respondents who gave a specific time frame, the most common single response was one to five years. That response was offered by 6% of the survey respondents. Only seventeen percent of the respondents offered a specific time frame of one year or less. In

[18] Respondents could offer more than one response, an advantage of open-ended question, so responses may total more than 100%.

contrast, 24% of the respondents offered answers of one year or longer. Fourteen percent of the responses gave a time frame of five years or more and 7% answered ten or more years.

16. The survey results make very clear that the vast majority of consumers have an understanding that the process of biodegradability is highly varied and that it is not always, or even often, a rapid process. Consistent with this conclusion, when survey respondents were directly asked whether they thought there were differences in the amount of time it takes for different types of products to biodegrade, decompose or decay, 98% of the respondents answered "yes." The reasons respondents gave for this belief included the type or size of material, the context, and the environment. These results offer unambiguous evidence that consumers' common understanding of the meaning of biodegradability recognizes significant time variance in the decomposition process. There is little evidence that consumer understanding of the term biodegradability is restricted to decomposition processes that occur within one year or less. This is a very important finding because it demonstrates that any effort to arbitrarily establish a single, hard, date certain criterion for consumers' understanding of a claim on biodegradability, as Dr. Frederick attempts to do, is inconsistent with consumer understanding and necessarily interjects bias. Thus, neither scientific evidence nor consumer perceptions are consistent with the criterion for deception apparently adopted by Dr. Frederick. That fact alone invalidates any conclusion(s) related to deception or causality based on Dr. Frederick's survey. The finding that 98% of the respondents in my survey recognize that the rate of biodegradability over time varies by type and size of material and the environment in which degradation occurs also makes it indefensible to interpret the results of my survey as though they support a specific a belief among consumers that there is a specific rate of degradation that defines biodegradability. My results clearly

demonstrate otherwise – 98% of respondents believe that there is variation in the amount of time required for a material to biodegrade.

17. In contrast to the results of the APCO, Synovate, and Frederick surveys, my survey offers a picture of knowledgeable consumers with very sophisticated views of what biodegradation means. Plastic is just one more type of material that consumers are likely to understand exhibits the same variability as other materials. Any measure of consumer beliefs that fails to incorporate such consumer understanding, and Professor Frederick's survey does not (in fact, he ignores the evidence of such understanding in his own survey), is both invalid and highly biased.

B. In light of relevant legal authority and statistical methods, what weight should the Commission give to the results of descriptive surveys, which measure an attitude, characteristic, or belief that survey respondents hold, relative to the results of causal surveys or experimental surveys, which use test and control groups to measure the effect of a specific variable?

18. The creation of knowledge is a cumulative process that requires multiple and complementary methods of research. The conduct of valid and informative research requires a great deal of knowledge: (1) who to survey, (2) what questions, using which words, to ask, and (3) which kind of response types (open-ended or close-ended) and responses (alternative answers to close-ended questions).[19] The design of causal or experimental surveys requires even more information than the design of a descriptive survey. There is the need to establish a reliable and sensitive measure of the effect of any treatment. There is the need to clearly define and operationalize a "treatment." There is the need to assure a fair and valid "control." While it is possible to suggest that these characteristics are present, as Dr. Frederick appears to do,

[19] Such information is often obtained by observational studies, in-depth personal interviews, or focus groups. Prior research may also inform the design of studies but there is little such research relevant to the present matter.

assertion is not the same as fact or proof. The data Dr. Frederick offers in his survey does not remotely meet the requirements for a causal survey. As I observed earlier, his measures are insensitive and inappropriate. His "treatment" condition does not address any of the specific claims in the present matter. His "control" is not informed by consumer perceptions. Indeed, at this point, any effort to design an "experiment" is at best premature.

19. The relative value of descriptive surveys, such as my own survey, compared to causal or experimental surveys is highly dependent on the state of existing knowledge and the presenting research question. Appropriately designed descriptive surveys can inform of the current state of consumer's knowledge, understanding, beliefs, attitudes and behavior. Such information is requisite to the design of a valid causal or experimental survey. For example, if some consumers' pre-existing belief, based on prior exposure to media stories, courses in school, or other sources, is that conventional plastics very rapidly biodegrade, the use of a plastic product as a control in an experiment designed to assess the impact of the term "biodegradable" on a plastic product might produce misleading results.[20] That is because such beliefs, even among a modest number of respondents, will increase the number of respondents who indicate that the control stimulus will rapidly biodegrade without a short time period, which, in turn, will inflate the net number of respondents who believe the test stimulus will biodegrade very rapidly.

20. In this situation, Complaint Counsel is attempting to prove that, through the use of the word "biodegradable" on a product, Respondent is making an implied claim that the product will decompose into elements found in nature within one year after customary disposal. It is well accepted that, unless the existence of the implied claim is obvious from the face of the advertisement, a party can only prove the existence of an implied claim through the use of a

[20] Mike Rappeport (2012), "Design Issues for Controls," in Shari Seidman Diamond and Jerre B. Swann (eds.), *Trademark and Deceptive Advertising Surveys: Life, Science and Law*, (Chicago: ABA Publishing), pp. 217 – 239.

causal study.[21] To prove that ECM, through the use of the word "biodegradable," is making the implied claim, Complaint Counsel needed to offer a valid causal survey. No survey in the record is a valid causal survey. Consequently, no reliable evidence exists that ECM was responsible for, contributed to, or took advantage of the scientifically inaccurate understanding of a small minority of consumers with respect to plastics biodegradation.

21. Even if a substantial minority of consumers possessed some mistaken belief about the biodegradability of plastics made with the ECM Biofilms product that would not in and of itself indicate that any particular claim is deceptive. As my survey makes quite clear, consumers have many varied beliefs about biodegradability. There is no evidence that erroneous beliefs are the result of any marketing communications. It is well-established that many consumers possess false beliefs for reasons completely unrelated to any marketing communication.[22] This is the reason that control conditions that correct for pre-existing false beliefs that are not attributable to marketing communications are required for a demonstration that a claim is misleading.[23] In the present matter, there is no basis upon which to establish that consumers considered rate, rather than the fact of biodegradation, when making a purchasing decision. There is no foundation for a finding of deception based on the survey evidence. Rather, the existence of pre-existing and scientifically incorrect beliefs among some consumers that untreated plastics biodegrade very rapidly serves to bias the use of any control that is a plastic product. My survey makes very clear that some consumers possess an array of incorrect beliefs that do not appear to be based on

[21] Bruce P. Keller (2012), "Survey Evidence in False Advertising Cases," in Shari Seidman Diamond and Jerre B. Swann (eds.), *Trademark and Deceptive Advertising Surveys: Life, Science and Law*, (Chicago: ABA Publishing), pp. 167 – 197.

[22] Jacob Jacoby, Wayne Hoyer and David A. Sheluga (1980), *Miscomprehension of Televised Communications*, (New York: Advertising Education Foundation of the American Association of Advertising Agencies); Jacob Jacoby and Wayne Hoyer (1987), *The Comprehension and Miscomprehension of Print Communication*, (New York: Routledge).

[23] Shari Seidman Diamond (2011), "Reference Guide on Survey Research," in *Reference Manual on Scientific Evidence*, Third Edition, (Washington, DC: National Academies Press), pp. 359 – 423.

claims made by ECM Biofilms. Thus, my survey makes clear that two of three criteria required for a finding of deception are not present: (1) a false belief that is (2) attributable to actions of the marketer.[24] At the same time, it is also quite clear based on the results of my survey that consumers understand that there is no absolute definition for biodegradability and no set rate or time period within which products can be expected to biodegrade.

22. As explained above, none of the surveys in this record can be interpreted as causal or experimental surveys. Furthermore, only my survey is a valid descriptive survey for reasons discussed throughout this affidavit.

23. The APCO and Synovate surveys appear to have used closed-ended questions, that is, survey respondents were asked questions and given a limited number of options for response. While closed-ended questions can be quite useful when there is a well-established, limited set of potential answers, they are unhelpful, and can be potentially misleading, when there is considerable heterogeneity among potential responses, e.g., many possible answers, and where answers may include nuances, qualifications and contextual boundaries.[25] Indeed, it is well recognized that the use of open-ended questions, which allow respondents to answer in their own words, "is an absolutely essential tool when you are beginning work in an area and need to explore all aspects of an opinion area."[26]

24. A critical limitation of closed-ended questions is that they tend to suggest greater homogeneity within a sample of respondents than may actually exist. In a world in which there are only four or five possible responses that exist without qualification or context,

[24] See Jef Richards (1990), *Deceptive Advertising: Behavioral Study of a Legal Concept*, (New York: Routledge) for a discussion of the legal definition of deception and its behavioral science foundations.
[25] David A. Aaker, V. Kumar, and George S. Day (2004), *Marketing Research*, Eighth Edition, (New York: John Wiley and Sons), pp.315 -316.
[26] Seymour Sudman and Norman M. Bradburn (1982), *Asking Questions: A Practical Guide to Questionnaire Design*, (San Francisco: Jossey-Bass), p. 151.

survey participants will appear to agree more often. Even when there is maximum disagreement it will still appear as though sizeable portions of the sample agree with each of the limited number of responses. This problem of apparent, but false, homogeneity is exacerbated when potential responses are excluded and when respondents are forced to select an answer that may be only a best approximation of their real answer (or the least objectionable of alternatives with which they are presented).

25. An example of misleading homogeneity is found in the APCO survey question regarding how long it should take for something to decompose if it is labeled biodegradable. Four of the six response options are a year or less while only two response options are longer than 2 years. Dr. Frederick agrees that this is a problem with the APCO survey. Given the lack of balance in the answers available to the respondents, it is not surprising that 60% of the respondents selected an answer of one year or less. Random responses spread among six options, four of which are one year or less, would result in 66% of the responses falling in one of the four response options related to one year or less. This is just what one might expect when consumers are asked factual questions about which they have little or no knowledge. Indeed, one of the responses, one month or less, is not even likely as a matter of fact but the presence of this response, coupled with the disproportionate number of other short term responses, serves to signal to the respondent that biodegradability should be associated with very short time frames. Indeed, it is well recognized that the context of closed-ended responses, even when otherwise balanced, may be leading and influence survey respondents' answers to a question because the

scales used tend to shift responses and the questions misrepresent or omit material facts, among other reasons.[27]

26. The use of closed-ended questions is a problem in the APCO and Synovate surveys – they suggest greater agreement among respondents than may actually be the case. In addition, these two surveys may have excluded important answers from available response alternatives and neglected to capture important nuances, caveats, and qualifications that might substantially change the interpretation of a response. To illustrate, consider the fact that many respondents in my own survey, which used open-ended questions that allowed respondents to answer questions in their own words, offered responses that indicated the time to biodegrade depends on the materials and the environment in which the degradation might occur. In the absence of evidence that the response categories offered to respondents in the APCO and Synovate surveys include most of the potential answers to the relevant questions, and that respondents would have a reasonable basis for offering an opinion on such factual matters, the results from those surveys must be interpreted with extreme caution.

27. Even greater caution is required when using the results of these two surveys to inform policy-making decisions. Respondents in these two surveys are being asked for their opinions or beliefs. Indeed, as phrased, the relevant questions appear to ask for aspirational or hopeful responses (i.e., what the respondent would like to see rather than what the respondent believes actually exists). Respondents are thus not being asked about "facts" and many (most) respondents would not have the expertise to provide a factual response. Neither can their answers be regarded as a preference since realistic options, which would require qualification,

[27] Jacob Jacoby (2012), "Are Closed-ended Questions Leading Questions?," Shari Seidman Diamond and Jerre B. Swann (2012), *Trademark and Deceptive Advertising Surveys: Law, Science and Design*, (Chicago: ABA Publishing), pp 261 - 284.

are not provided. Such opinion data may be useful for understanding what people desire to see in future but it is not a justifiable basis for a finding that a claim is deceptive. Indeed, to the extent that some consumers have "learned" that plastic never biodegrades this prior belief will influence their answers to surveys. For example, after years of being told that fat in the diet is linked to heart disease the vast majority of Americans believe they should avoid or at least substantially reduce fat in their diet. Yet, there is substantial evidence that such beliefs are not supported by any science and that low fat diets are actually harmful for most people.[28] Thus, the APCO and Synovate surveys have little probative value beyond suggesting that there is variability in what consumers understand about biodegradability. Even here, the design of these two surveys ensures findings of greater homogeneity than likely exists in the market. It was for this reason that in my own survey I chose to use open-ended questions.

28. Like the APCO and Synovate surveys, the Frederick survey is unhelpful in this case. Adding to the limitations of Professor Frederick's "experiment" is the arbitrary nature of the criterion variable (the dependent variable), which assumes that any belief that biodegradation, whether plastic or some other product, requires more than a year is false and misleading. That definition is arbitrary and inconsistent with both science[29] and the beliefs of 98% of the respondent in my survey. The present matter is about whether consumers are or have been deceived by claims made by ECM Biofilm. The arbitrary criterion used in the Frederick survey ironically applies a deceptive standard to the determination of deception.

29. Even if Professor Frederick's data were not fatally flawed he cannot draw any conclusions with respect to the source of consumers' beliefs, assuming any defined beliefs even exist beyond general recognition that biodegradation means disintegration, decomposition, or

[28] Nina Teicholz (2014), *The Big Fat Surprise: Why Butter, Meat and Cheese Belong in a Healthy Diet*, (New York: Simon & Schuster).
[29] *See* Initial Decision at pp. 224–34.

breakdown. His results suggest that there is considerable diversity among respondents in terms of their claimed knowledge about biodegradable products, their interest in the topic of biodegradability, and their views about the time it takes various materials to biodegrade. There is no reason to assume that any of these beliefs are the result of exposure to any marketing communications. It is certainly the case that in the absence of appropriate controls, and different types of questions, Professor Frederick can draw no conclusions about either the source of consumers' beliefs or the influence of those beliefs on consumer behavior. Therefore his survey(s) have no probative value with respect to whether the claims in the present matter are deceptive.

C. Is it possible to quantify the degree of convergence among the consumer surveys in the record in this case (APCO, Synovate, Frederick, and Stewart) or within any single survey? If so, please calculate the degree of convergence, if any, of these surveys. If not, please explain the significance of the inability to quantify convergence to an issue or issues on appeal.

30. It is not possible to quantify the degree of convergence among the studies in the record because the four surveys have different questions, different responses, different samples, different methodologies, different times of data collection, different approaches to coding, and different analyses. The Frederick, APCO, and Synovate surveys were methodologically flawed and unreliable. Employing a "convergence" analysis of all studies would be improper under the relevant scientific and academic authorities. Even assuming that the APCO, Synovate, and Frederick surveys were reliable (they are not), the only point of convergence among the four surveys is the conclusion that consumers exhibit considerable variability in how they define the length of time it takes for something to biodegrade. Even on that point any superficially apparent convergence is limited by the narrow, and leading set of questions offered and/or

responses thereto considered in the APCO, Synovate, and Frederick surveys. Only my survey provided an opportunity for consumers to offer contingencies and qualifications in their responses. Those contingencies and qualifications are critical for understanding consumers' response to biodegradation given that 98% of respondents to my survey understand that there are differences in the amount of time it takes for different types of products to biodegrade, decompose or decay and that many consumers also understand that the environment in which biodegradation occurs influences the rate of biodegradation.

31. The four surveys use different questions, different responses, different samples, different methodologies, different times of data collection, different approaches to coding and different analyses. Only my survey afforded respondents an opportunity to offer a response such as "it depends," which was by far the most common response. It would be inappropriate and wholly arbitrary to suggest that the response "1 to 5 years" is the same as the response, "it depends, maybe 1 to 5 years," especially when the former response was offered in the absence of any opportunity for the respondent to offer contingencies and qualifications or where such contingencies and qualifications are ignored.

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Dr. David W. Stewart

Executed on: June 17, 2015