COMMISSIONERS: 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**
	)	
	)	

COMPLAINT COUNSEL'S RESPONSE
TO ECM'S SUPPLEMENTAL BRIEF

In essence, ECM's response to the Commission's first two questions is that because no survey in the record is perfect, Complaint Counsel has not carried its burden of proving that it is more likely than not that ECM made the deceptive implied claim.

This argument fails for two reasons. First, as discussed below, Dr. Frederick's methodologically-sound experimental survey demonstrates that an unqualified biodegradable claim causes a significant minority of consumers to expect reasonably rapid breakdown. Second, Dr. Frederick's survey does not stand alone: as explained in our June 22, 2015 Answer to the Commission's Questions, intent evidence, natural experimental evidence, and observational evidence all support its conclusions.

Finally, in response to the Commission's last question, ECM characterizes convergent validity as Dr. Frederick's creation. To the contrary, survey researchers, courts, and academics routinely use this analytic tool.

ARGUMENT

I.   ECM's Criticisms of the Experimental Evidence Are Unavailing.

Confronted with compelling experimental evidence, ECM attempts to dismiss Dr. Frederick's study by attacking its methodology.[1] Resp. Br. at 1-6. Each attack fails because, as Dr. Frederick explains in the attached declaration, it misstates key facts about his study or incorrectly assumes that anything short of perfection invalidates the entire study.[2]

A. Dr. Frederick Ruled Out Alternative Explanations.

First, ECM argues that Dr. Frederick's studies did not have "appropriate test and control groups," so they cannot reveal "*why* [] respondents answered that certain products would biodegrade within one year." Resp. Br. at 3 (emphasis in original). According to ECM, "pre-existing and scientifically incorrect beliefs" or some other factor could account for respondents' one-year answers. *Id.*

This criticism fundamentally misconceives how experimental research works. *See, e.g.*, Frederick Decl. ¶ 4. The purpose of control questions is to account for alternative explanations, and that is precisely what Dr. Frederick's controls did. *Id.* ¶¶ 31-32. Specifically, by systematically asking the same population of respondents about an item with a biodegradable claim and without (all other factors held constant), Dr. Frederick was able to gauge the effect of

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[1] In our opening appeal brief, we discussed the methodological soundness of Dr. Frederick's GCS studies in detail. *See* CC. App. Br. at 13-25; *see also id.* at 19 n. 17.

[2] Indeed, the Commission has long recognized that no survey is perfect, and inevitable imperfection does not destroy a survey's evidentiary value. *See, e.g.*, CC App. Br. at 13 (quoting *POM Wonderful LLC*, No. 9344, 2013 FTC LEXIS 6, *49 (Jan. 10, 2013) ("The Commission does not require methodological perfection . . . but looks to whether such evidence is reasonably reliable and probative.")); *id.* at 11 n. 9 (quoting *Stouffer Foods*, 118 F.T.C. 746, 808 n. 27 (1994) ("No survey is perfect.")). *Accord* Frederick Decl. ¶ 9 n.7.

the claim: it caused at least a significant minority of consumers to perceive one-year or five-year breakdown claims. *Id.* ¶ 31.[3]

B. Dr. Frederick Reasonably Approximated the Marketplace.

Second, ECM argues that Dr. Frederick should have replicated the marketplace in which ECM products are sold. Resp. Br. at 4. Tellingly, ECM neglects to describe that environment— because there is no such readily-replicable marketplace. ECM tells customers that they can make a biodegradable claim in a variety of ways, on a variety of products—*i.e.*, with ECM's logo, with any type of custom logo, in any color/font/design, on any kind of plastic product, sold in any environment. *See* CC App. Br. at 4-5 (describing how ECM makes and passes on claims). And ECM's customers do in fact make unqualified biodegradable claims in a wide variety of styles, products, and markets. *See id.* at 5 (citing examples of ECM customer products ranging from bags to cutlery to Frisbees bearing unqualified biodegradable claims); CC Answering Br. at 11 n. 9 (same). Because of this huge variation, precise marketplace replication is simply not possible.

Despite this unusual circumstance, Dr. Frederick was able to account for the variation by asking about ECM's logo (questions 3H-3K), other biodegradable logos (questions 3D-3G'), and biodegradable claims in text (questions 3A-3C). Frederick Decl. ¶ 8. In addition, he asked about the most common types of plastic items containing ECM's product: products, packages, bags, containers, and bottles. *Id.* Thus, although Dr. Frederick did not replicate every

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[3] ECM argues that the styling of the claim (*e.g.*, green font) may have had an effect on respondents distinct from the content of the claim ("biodegradable"). Resp. Br. at 3. Styling does matter. *See infra* at 5-6 (explaining the effect of the green tree from ECM's logo). But Dr. Frederick accounted for this effect by asking questions about several biodegradable logos and about the word "biodegradable" without any picture. Frederick Decl. ¶ 8. By asking about the claim in different ways, Dr. Frederick was able to determine that regardless of styling, the claim consistently causes a significant minority of respondents to expect breakdown in one (or five) years. *Id.* ¶ 31.

imaginable biodegradable claim, his questions are sufficiently representative of the ECM

marketplace to draw the key causal inference: biodegradable claims cause perception of short

breakdown timeframes. *Id.* ¶¶ 8, 31.

Significantly, ECM's argument—that, to carry its burden, Complaint Counsel must

replicate every possible biodegradable claim—would essentially immunize ECM from Section 5.

This is not the law. To the contrary, Complaint Counsel must show that it is <u>more likely than not</u>

that ECM made the deceptive implied claim (and gave its customers the means and

instrumentalities to do so). *See* CC. App. Br. at 1 n.1 (citing *Concrete Pipe & Prods. v. Constr.*

Laborers Pension Trust, 508 U.S. 602, 622 (1993)). Complaint Counsel satisfied this burden by

presenting compelling intent evidence, well-controlled experimental evidence, and supporting

observational evidence. *See* CC June 22 Answer at 3 (summarizing evidence).

C. ECM's Rehashed Attack on Dr. Frederick's Coding Fails.

Third, ECM rehashes its objections to Dr. Frederick's coding, arguing that his survey is

not causal because it did not capture "qualifications and contingencies" that comprise

respondents' "true beliefs." Resp. Br. at 4. This argument utterly fails for three reasons. First, it

is simply inaccurate. Dr. Frederick's open-ended questions did capture "qualifications and

contingencies."[4] *See* Frederick Decl. ¶¶ 25-26 (explaining that verbatims capture equivocations

and citing examples). Second, some respondents' lack of complete certainty does not undercut

the significance of their (or others') time estimates. *Id.* ¶¶ 21-28. Third, Dr. Frederick tested the

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[4] There were fewer "qualification and contingencies" in the verbatim answers to Dr.
Frederick's questions because he asked specific questions—about time for biodegradation of
identified items, such as plastic bottles or bags—whereas Dr. Stewart asked a vague question
about how long it takes "something" biodegradable to decompose or decay. *Compare* GCS 3D-
3K *with* Stewart # 4. *See also* Frederick Decl. ¶ 25 n. 19.

effects of many common contingencies (*e.g.*, disposal environment), and concluded that few had a substantial effect on respondents' beliefs about time. Frederick Opening Decl. ¶ 8.

Ultimately, ECM's argument is no more than a distraction from the central issue. Whether consumers have varied beliefs (an obvious point) is not at issue; what matters is whether a significant minority of consumers perceive short breakdown times for plastic advertised as biodegradable. Unlike Dr. Stewart, Dr. Frederick specifically asked this question and analyzed the verbatim responses for this specific information. *Id.* ¶ 25. Dr. Frederick's coding of responses for time was thus not only appropriate but, indeed, <u>essential</u> to answer the relevant question in this case. *See id.* ¶¶ 21-24; *see also* CC App. Br. at 24-26 (explaining the propriety and desirability of Dr. Frederick's "bright-line" rule for coding time-related answers).

D. Dr. Frederick's Questions Were Not Leading.

Fourth, ECM argues that questions 3J and 3K were "leading," because they stated that the illegible logo (or nearly illegible, depending on computer screen) bore the symbol "ECM biodegradable." Resp. Br. at 5. According to ECM, this clarification "over-emphasiz[ed] the term 'biodegradable.'" *Id.*

On the contrary, the clarification did not make the question leading, because it did not suggest anything about time. Frederick Decl. ¶¶ 16-20. Rather, it simply elucidated and emphasized the claim, ensuring that respondents were reacting to the "biodegradable" claim rather than the logo's green tree. *Id.* ¶¶ 19-20. Significantly, once respondents were aware of the claim (thanks to legibility and emphasis), many more expected one- or five-year

breakdown—providing further evidence that the claim causes consumers to expect rapid breakdown. *Id.*[5]

E. Dr. Frederick's Causal Study Built on Descriptive Studies.

Next, ECM argues that "there must be an accepted scientific standard (a scientifically accepted time within which biodegradation of plastics occurs) before causal survey data would be reliable," because without a standard, "'there can be no valid basis'" for comparing responses to test and control questions. Resp. Br. at 7 (quoting Stewart Decl. ¶ 12). According to ECM, any causal study was "premature given the limited understanding of consumer beliefs . . . ." *Id.*

This argument also readily fails, for three reasons. First, and most obviously, an "accepted scientific standard" is neither legally relevant to understanding consumer perception, nor is it useful to interpreting causal data (which simply involves comparing conditions, Frederick Decl. ¶ 4, n. 12). Second, contrary to ECM's argument, the evidence does provide a well-developed understanding of consumers' beliefs about biodegradability. Dr. Frederick's is not the only study in evidence. Two observational studies—APCO and Synovate—preceded his study and provided the very baseline understanding of consumer beliefs that ECM now claims is lacking. *Id.* ¶ 30. Third, Dr. Frederick's causal study was not "premature." To the contrary, it was quite timely, as the most straightforward way to answer the central causal question in this case: what is the effect of a biodegradable claim on consumers' perception of breakdown? *Id.* The causal evidence (bolstered by intent and observational evidence) answers that question: the claim causes a substantial fraction to expect rapid breakdown.

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[5] Even if (incorrectly) only questions 3H and 3I and their controls were considered, the deltas (15-19% for five years), still meet the "significant minority" threshold. And even if this series of questions were disregarded entirely, there is still abundant evidence that consumers perceive the one- (or five-) year claim. *See* Frederick Opening Decl. ¶ 11 (comparing 3D-3G' with 3N, which shows 34-41% deltas for one year and 49-58% deltas for five years); *id.* ¶ 15 (comparing Synovate #8 and 19, with delta of 54% for five years).

F. Questions About Time Were Necessary to Probe the Central Issue.

Finally, ECM argues that Dr. Frederick's questions "assumed a bias, that the word 'biodegradable' connoted a rate or time for biodegradation." Resp. Br. at 10. Asking about time did not bias the results. Frederick Decl. ¶¶ 11-15. As Complaint Counsel discussed in its appeal brief, biodegradation is a process, and, therefore, necessarily has a timeframe.[6] The fact that some respondents did not volunteer answers about time does not mean that they do not hold a belief about time. CC App. Br. at 20-21; *accord* Frederick Decl. ¶ 11-15.[7]

Significantly, the APCO and Stewart studies bear this out. Frederick Decl. ¶ 13 n. 8. In response to open-ended questions about what biodegradation "means" (with no mention of time), respondents in both surveys volunteered time-related answers. Specifically, in response to APCO #1 ("I'd like to discuss what it means to you for something to be 'biodegradable.' Please tell me, in your own words, what you think it means if something is 'biodegradable.'"), about 12% of respondents (123/1003) mentioned time.[8] *Id.* Likewise, in response to Dr. Stewart's first question ("When you hear the term 'biodegradable' what does that mean to you?"), about 35% (140/400) mentioned time. *Id*.

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[6] *See* CC App. Br. at 20 (citing the ALJ's reference to the *Merriam-Webster.com* dictionary definition of biodegradable, which incorporates time: "capable of being slowly destroyed or broken down into very small parts by natural processes, bacteria, etc.") (emphasis added).

[7] In our appeal brief, we drew an analogy to consumer perception of aspirin. CC App. Br. at 20-21. It is likely that few consumers would define aspirin in terms of time. Despite this, it is highly likely that most consumers do hold a belief about aspirin and time—*i.e.*, that it will alleviate a headache in half an hour, not days or months. *See id.*

[8] In *Stouffer Food Corp.*, the Commission recognized that open-ended responses of 8 to 10% are a "meaningful" indicator that consumers perceive an implied claim. 118 F.T.C. 746, 763 (1994). As the Commission noted, "[c]lose-ended questions will generate higher response levels for an implied claim than open-ended ones." *Id.*

Thus, because common sense, two observational studies, and the dictionary definition cited by the ALJ each make clear that time is relevant to consumers, it was appropriate to use experimental questions to assess the effect of a biodegradable label on consumers' beliefs about time.

II.   Convergent Validity Is a Commonly-Used Tool Among Survey Researchers.

ECM also argues that convergent validity is Dr. Frederick's "novel" theory with no academic "foundation." Resp. Br. at 12. This is plainly wrong. Convergent validity is a workhorse concept throughout the social sciences and among survey researchers. Frederick Decl. ¶ 33. Indeed, it has been cited hundreds of times in the academic literature since its introduction in a 1959 article. *Id.* As discussed in our June 22 Answer, federal courts have relied on it, and the Commission and its ALJs have repeatedly applied the principle, if not the technical name. *See* CC Initial Answer at 12 (collecting cases); CC App. Br. at 10 (same).

CONCLUSION

For the reasons stated above, Respondent's practices, as alleged in the Complaint, constitute unfair or deceptive acts or practices, in or affecting commerce, in violation of Sections 5(a) and 12 of the FTC Act. Complaint Counsel respectfully requests that the Commission enter the relief proposed in the Notice Order.

Respectfully Submitted,

/s/ Katherine Johnson
Dated: July 7, 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 July 7, 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 S. Clark, Secretary
> Federal Trade Commission
> 600 Pennsylvania Ave., NW, Room H-159
> Washington, DC 20580
> Email: secretary@ftc.gov

One electronic 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:**

Jonathan W. Emord	Peter Arhangelsky
Emord & Associates, P.C.	Emord & Associates, P.C.
11808 Wolf Run Lane	3210 S. Gilbert Road, Suite 4
Clifton, VA 20124	Chandler, AZ 85286
Email: jemord@emord.com	Email: parhangelsky@emord.com
Eric J. Awerbuch	Bethany Kennedy
Emord & Associates, P.C.	Emord & Associates, P.C.
3210 S. Gilbert Road, Suite 4	3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286	Chandler, AZ 85286
Email: eawerbuch@emord.com	Email: bkennedy@emord.com

Date: July 7, 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

ATTACHMENT A

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.,	)	Docket No. 9358
a corporation, also d/b/a	)	
Enviroplastics International	)	PUBLIC
	)	
	)	

DECLARATION OF DR. SHANE FREDERICK IN
SUPPORT OF COMPLAINT COUNSEL'S RESPONSE TO
RESPONDENT'S SUPPLEMENTAL BRIEF

In accordance with 28 U.S.C. § 1746, I declare under penalty of perjury that the

following is true and correct:

1.   I am over 18 years of age, and I am a citizen of the United States. I previously

prepared a declaration in support of Complaint Counsel's responses to questions presented by the

Commission.

2.   I have personal knowledge of the facts set forth in this declaration, which are

responsive to Respondent's Supplemental Brief and the Declaration of Dr. Stewart in Support of

Respondent's Brief (Stewart Decl.).

I.   SUMMARY

3.   ECM and Dr. Stewart assail my reports with a jumble of unsubstantiated and

illogical critiques. For the reasons I explain below, their strident criticisms have no merit. They

do not undercut the validity of the experimental evidence, nor the conclusion that it

straightforwardly entails: that biodegradable claims made about things that are not traditionally regarded as biodegradable (like plastic) *causes* a substantial fraction of consumers to believe that those things will biodegrade in as little as a year.

II. FREDERICK'S GCS STUDY IS VALID EXPERIMENTAL RESEARCH.

a. <u>Frederick's Study Meets All Criterion for Experimental Research</u>.

4. Dr. Stewart states that none of the surveys in the record satisfies the elements necessary for valid experimental surveys. Stewart Decl. ¶ 3. This is false. As I explained in my previous declaration, my GCS studies are classic experimental surveys. See, e.g., Frederick Opening Decl. ¶¶ 3-4. They unambiguously meet all of Dr. Stewart's listed criteria.

i. **A well-defined independent variable (or treatment):** The independent variables are clearly defined—they are the aspects of the question I manipulated, such as the term used to refer to the process (i.e., biodegrade, decompose, decay); the choice of would vs. should; the presence or absence of various biodegradable claims, and so on.

ii. **A well-defined and sensitive dependent variable (a measure of outcome):** The dependent variable is also clearly defined—it is consumers' perceptions of the amount of time required for something to biodegrade, or their judgment of whether it would break down completely to elements found in nature.

iii. **A treatment group (that receives the treatment) and a control or comparison group (that does not receive the treatment):** The control group is obvious. For

most comparisons discussed, the control group is the group not exposed to a

biodegradable claim and the treatment group is the group who was.[1]

iv. **Random assignment of respondents to the treatment and control groups:**

The sample receiving each question was a random selection from the relevant

population of respondents (Internet users on sites that host GCS).[2]

v. **Identical measures of outcome for both the treatment and control groups:**

This criterion appears redundant with (ii), above, since "measures of outcome" is

the same as dependent variable. And, of course, this was identical for those in the

test condition and control condition.

vi. **Comparability in the treatment and control groups on all factors other than**

the presence or absence of the treatment: The "treatment" is precisely the way

or ways in which the treatment condition differs from the control condition, so

this criterion holds essentially by definition. The only way it could fail to hold is

if something else was done to the treatment group that was unreported (e.g., the

group who received the dietary supplement also received a free treadmill, and the

last "detail" was omitted from the report.) This concern does not apply here. One

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[1] Although naming conventions sometimes apply, it often does not matter which group is called
the "control" and which group is called the "treatment." For instance, I compared the results of
the group who received a question using the word *decompose* with a group who received the
same question except using the word *biodegrade*. Each of these groups functions as a control for
the other, since they are otherwise identical. Assignation of labels is arbitrary.

[2] As explained previously and again herein, Google's dynamic algorithms and demographic
imputations help achieve representative samples. Its ability to achieve representativeness has
been confirmed by several independent sources, which I testified about at trial. Since each study
constituted a single condition, the assignment to each condition is, therefore, random. (It is
vanishingly unlikely that one person would receive both the control and test question.)

can see what did or did not vary between treatment and control conditions simply by reviewing the questions presented in my report.

vii. **A representative sample of a relevant population:** The relevant population here is all Americans who might buy or influence the purchase of a plastic product—functionally, the entire population. The sample is drawn from Internet users who browse the many, varied web sites that participate in GCS—a reasonably representative sample of the entire population. Moreover, one can verify that the demographic characteristics of respondents in the control group are similar to those in the treatment groups by directly comparing them, since Google provides demographic data as part of the CSV output file sent to researchers who use GCS.

5. Thus, all of the studies I conducted using GCS satisfy all of the elements Dr. Stewart lists as desiderata for experimental research—indeed quite straightforwardly (and verifiably).[3] His assertions to the contrary have no scientific merit.

b. **Valid Causal Inferences Can Be Drawn from a Single Question Design.**

6. Dr. Stewart asserts, without support, that experimental studies must ask multiple questions to draw causal inferences. Stewart Decl. ¶ 4. This is demonstrably false. Consider, for instance, (3G') from my report, which asks consumers a single, straightforward question:

(3G') If you saw this label on a plastic water bottle, how long do you think it would take to decompose?

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[3] As I discussed in my prior declaration, Synovate Q8 and Q19 also meet these conditions.

This condition can be compared with other conditions to determine how various manipulations affect responses, including:

- the presence of this biodegradable label (compare with 3N)

- the specific type of label that was used (compare with 3D, 3E, & 3F)

- aspects of question wording (compare with 3G)

- specification of water bottle vs. generic product (compare with 3B) or package (compare with 3C)

Because the conditions are presented to random samples of the same population, they of course permit causal inferences. Use of single question experiments is extremely common, as can be verified by examining any journal in marketing, consumer behavior, judgment and decision making or experimental psychology. For instance, in a past study from ongoing research (Frederick, Read, Bartels & LeBoeuf, 2015) respondents were randomly assigned to receive one of two different versions of a single question, shown below:

Condition "A": Which would you prefer? (check one)
____$3400 in 1 month OR ____$3800 in 2 months

Condition "B": Which would you prefer? (check one)
____$3400 when you are 1 month older OR ____$3800 when you are 2 months older

We found that people are much more likely to choose the later, larger reward in Condition B than Condition A (83% vs. 57%, respectively). From this, we conclude that personal references to time reduces the degree to which people discount the future. No additional questions are needed to draw this conclusion (though additional studies can obviously provide further insight into the scope and limits of this effect). Of course, this personal example was just illustrative. There are literally thousands (quite possibly *tens* of thousands) of peer reviewed published articles using single question studies comparable to those I used in my GCS research.

7.   GCS is not *inherently* limited to asking a single question. Had I thought it essential (or even especially useful), I could have created a multiple question survey.[4] Significantly, the absence of these unspecified (and unnecessary) questions does nothing to invalidate inferences that can be drawn by comparing the results between the various conditions that involved one question surveys.

c. **The Studies Have Ecological Validity (i.e., they replicate actual marketplace conditions).**

8.   Dr. Stewart suggests that my studies are not "representative of what actually transpires in the marketplace."[5] Stewart Decl. ¶ 4. However, my understanding from Complaint Counsel is that ECM's customers made "biodegradable" advertising claims on a variety of products and in a variety of ways. It would not have been feasible to replicate every permutation of every biodegradable claim. However, along with testing the effects of biodegradable claims generally (questions (1A)-(1K); (3A)-(3C)), I used several versions of biodegradable logos (questions (3D)-(3G')), including, in some cases, ECM's logo specifically. Moreover, I asked about three of the most common types of plastic products containing ECM's additive: bags, containers, and bottles. Thus, to the extent that ECM uses (and its customers use) the word "biodegradable" in its marketing claims (reinforced by the logo of a green tree), what I manipulated in my experiment is, in fact, representative of what actually transpires in the marketplace.[6]

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[4] Although I did not see much point in adding additional *items* to a survey, I obviously saw great value in adding additional *conditions*, so as to examine the cause and effect of many different factors (including, but not limited to, the presence of a biodegradable label).

[5] I note that the source cited by Dr. Stewart actually says almost nothing to support this proposition.

[6] Importantly, the studies I ran represent the barest of context for the claims. With a few notable exceptions discussed below, I mostly tested the effect of the word "biodegradable." However, it

d. Frederick's Study Asked Appropriate Test and Control Questions.

9.   Dr. Stewart proposes a number of other alleged "threats" to the validity of the inferences that may be properly drawn from my experimental studies. [7] None withstand scrutiny.

i.   Frederick's GCS asked Valid Test Questions

10.   Dr. Stewart opines that there were two forms of bias embedded in my test questions. He first alleges the question itself introduced bias and further that I injected bias through my coding decisions. Neither of these things is true.

11.   **Asking About Time Does Not Bias responses**: Dr. Stewart asserts that I "assumed [sic] a bias" because the test questions asked (in various ways) about the time required for biodegradation. Stewart Decl. ¶ 16; Resp. Br. at 10. His two-pronged "critique" invokes two separate observations, which I will next address.

12.   Dr. Stewart notes that many respondents in his study, when asked to estimate the amount of time required for an unspecified something to biodegrade say, "it depends" [on what that unspecified something is]. It seems rather obvious that a small shred of lettuce will biodegrade more quickly than a large brick of traditional plastic, so it is unremarkable that people say "it depends" when asked to estimate the biodegradation time of an unspecified thing. Dr. Stewart's repeated complaint that expectations are "contingent on a number of factors" is nothing beyond this banal observation. It obviously does not follow that consumers have no expectations about

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is extremely likely that at least some of ECM's customers (who have paid for the additive) would emphasize the biodegradable attribute by prominently stating it or through the use of other express or implied cues. Thus, my studies may actually be a conservative representation of what would actually transpire in the marketplace.

[7] No studies in the record are flawless. But imperfections do not render a study incapable of yielding valid conclusions.

how long something will take to biodegrade when that something is specified, or that those

expectations are not influenced by an explicit claim that the product in question is biodegradable.

13.   The first non-screening question from Dr. Stewart's survey asks, "When you hear

the term biodegradable, what does that mean to you?" Dr. Stewart claims than only 3% [8] explicitly

mention the words "time" or "rate" and suggests that a correspondingly small percentage would

have any expectations about how much time it would take for a product with a biodegradable label

to biodegrade. This makes no sense. It is analogous to claiming that only 7% of people have an

expectation of how long it would take an ice cube to melt if only 7% happened to use the word time

or rate when asked, "When you hear the term *melt*, what does that mean to you?"

14.   To press this point further, suppose a fertilizer was marketed as *soluble*, with no

specific temporal claim. A farmer purchases it and dumps it in a bucket of water. It does not

dissolve; the pellets remain on the bottom of the bucket. The farmer complains. The company

responds that its use of the word *soluble* did not imply that the product would dissolve in any

particular period of time, and adds: "We asked you what term soluble meant to you, and you never

used the word time or rate in your definition; you just mumbled something about water and

dissolve." Obviously, this is a ludicrous defense.

15.   The Synovate study found (Question 24) that the information customers reported

they would *most like to see* on packages making biodegradable claims was a specification of the

time required for biodegradation. The best and most straightforward way to investigate

consumers' understanding about biodegradation times is to actually ask them about biodegradation

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[8] Though it is beside the point, this calculation is incorrect: more than 12% in APCO and 35% in
Dr. Stewart's study mentioned time.

times. Thus, for good reason, this was a central focus in my GCS studies.[9] Because I specifically

wanted to know whether the presence of a biodegradable claim changes consumers' beliefs about

the time it would take *a plastic bag, container, and bottle* to biodegrade, I asked about those things

and compared the responses to the same items without the claim. Again, the fact that consumers

think that lettuce or paper or cardboard or carcasses would biodegrade more quickly than either

traditional or biodegradable plastic items hardly limits the validity of those comparisons or the

conclusions I draw from them.

      16.   **<u>No Leading Questions</u>.** Dr. Stewart also surmises that by clarifying the claim in

the question stem in certain questions, I over-emphasized "biodegradable," and transformed the

experimental condition into a leading question. Stewart Decl. ¶ 6.[10] I certainly agree with Dr.

Stewart that inclusion of the biodegradable claim in the question stem is a stronger manipulation,

and, correspondingly, larger differences are observed.[11] However, I disagree that this stronger

manipulation is necessarily less appropriate. Dr. Stewart never articulates why is it inappropriate

to explicitly specify a claim that was in fact made, and that ECM's customers would themselves

likely emphasize to end consumers.

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[9] However, not *all* of my questions were open-ended questions soliciting temporal estimates. Some surveys used binary questions that involved simpler YES or NO responses to conceptually related questions, such as whether a depicted product would "break down entirely into elements found in nature."

[10] It is noteworthy that Dr. Stewart affirms the validity of my experimental approach, citing that comparing two conditions provides a "*clear and unambiguous*" measure of the effect of the factor or factors that differ between them (see Stewart Decl. ¶ 6, n.7).

[11] When the claim is called to their attention, a majority of respondents (56% for the container; 57% for the bag) believe the product will biodegrade within five years and a substantial minority (34% for the container; 38% for the bag) believe that it will biodegrade within one year—both much higher than the condition depicting these products, with no claim, and higher than the same products bearing illegible claims or disfluent claims they might not have attended to (though the presence of a green tree has some effect even when the claim cannot be read).

17.   As discussed in my prior declaration, by comparing two conditions, one can evaluate the net effect of whatever thing or things differed between them. I ran *many* studies with the same population of subjects, which permits *many* comparisons. Any set of three conditions permits three comparisons: A vs. B, B vs. C, and A vs. C.[12] The two triplets at issue here are—3O, 3H, and 3J (the Tupperware container) and 3P, 3K, and 3I (the plastic bag)—are reproduced below as respondents saw them.[13]

(3O)

What is your best estimate of the amount of time it would take this container to biodegrade?

Enter your answer

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[12] Assignation of labels "test" and "control" becomes tricky with three or more conditions. But the labels one chooses are irrelevant: if a study includes three conditions, three comparisons can be made.

[13] GCS enables experimenters to see the materials as respondents would, though this differs somewhat across devices and screens. Thus, these conditions would appear slightly differently on a smart phone than a desktop and somewhat differently depending on the resolution of the screen. I have tried to reproduce the best-case scenario (i.e., the most legible version).

(3H)

What is your best estimate of the amount of time it would take this container to biodegrade?

Enter your answer

(3J)

What is your best estimate of the amount of time it would take this container (which bears the symbol "ECM biodegradable") to biodegrade?

Enter your answer

SUBMIT

(3P)

What is your best estimate of the amount of time it would take for this plastic bag to biodegrade?

Enter your answer

(3K)

What is your best estimate of the amount of time it would take for this plastic bag to biodegrade?

Enter your answer
_____

(3I)

What is your best estimate of the amount of time it would take for this plastic bag (which bears the symbol "ECM biodegradable") to biodegrade?

Enter your answer
_____

18.   As noted in my opening declaration, conditions 3J and 3K (which include the claim in the question stem for the plastic container and plastic bag, respectively) were run to ensure that respondents were, in fact, aware that a claim of biodegradability was being made. The difference in comparing the three conditions in these triplets likely reflects both legibility *and* emphasis of the claim. This is borne out in the data.

19.   Unsurprisingly, the clarified claim produces larger effects than the implicit claim (green tree logo) and illegible or disfluent biodegradable claim. It is important to keep in mind that if the biodegradable claim actually had no effect on expectations of biodegradation times, varying degrees of emphasis would not matter. The parenthetical could have clarified or reiterated any number of things (e.g., the word ECM, the red lid, the diameter of the container,

and so on). Emphasis matters to the extent that consumers believe the information emphasized is relevant to the attribute in question.[14]

20.   Thus, Dr. Stewart's interpretation of the difference between conditions as a measure of the "leading" effect of emphasizing the word biodegradable is indeed correct, if by leading he means that when people are made aware that a product is being marketed as biodegradable, they believe it will biodegrade more quickly than the same item bearing no such claim (or just a green tree logo).[15]

21.   **No coding bias.** Dr. Stewart asserts that I "discarded" 30% of the responses to my survey. Stewart Decl. ¶ 8. Not so. None of the data were "discarded." In contrast with Dr. Stewart, I provided *all* of my data—all of the verbatim responses—in the data file I produced. (CCX-863.) He appears to be objecting to the fact that I did not associate a number with "it depends" and "I don't know" responses, or to those who failed to specify the temporal unit they were assuming. (For instance, a respondent who replied 12 could mean 12 months or 12 years, and thus I left such responses uncoded.) Dr. Stewart fails to explain why this would affect the conclusions. Indeed, elsewhere Dr. Stewart essentially concedes that it probably wouldn't, that those who say "I don't know" have the same distribution of beliefs as those who opine. See

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[14] I did not specify that the Tupperware-like container was made from plastic. Most respondents likely made the assumption that it was a plastic container since containers that look like this are typically made from plastic. However, as discussed elsewhere, some may not have, since the question concerned biodegradation times, and many respondents believe (quite reasonably) that plastics do not biodegrade. Moreover, further evidence that some respondents did not interpret the depicted Tupperware-looking container as being composed of plastic can be seen by comparing 8A with 9A. Even though it was clearly thicker and more substantial, respondents were more likely to conclude that the container would break down entirely (18%) than the bag would (11%).

[15] Essentially, the difference between (3H) and (3O) measures of the effect of a logo bearing a green tree.

Stewart, Tr. 2669-2670, in which Dr. Stewart explains that survey research literature on the "I don't know" responses finds that preventing respondents from saying I don't know does not change the distribution of responses. As I explained in my prior report and my testimony at trial, I imposed a bright-line coding rule that allowed me to summarize the data *without* introducing bias. (See e.g., Kassarjian, 1977; Kolbe & Burnett, 1991.) Moreover, as I discussed at trial, there is no compelling reason why the exclusion of these people would bias the data in any particular direction.[16]

22. I did not in fact, treat uncoded responses as "invalid." For instance, the response "it depends" could reflect very *little* knowledge (and the corresponding reluctance to render an estimate that might be very inaccurate), very *much* knowledge (and hence the desire to be asked a more precise question), or just individual differences in respondents' willingness to provide estimates about things for which they have some uncertainty. Though I consider the response "valid," it cannot be expressed as a number, and, thus, these respondents are necessarily excluded from numeric summaries. Importantly, however, there is no good reason to conclude that those who say "it depends" or "I don't know" actually have systematically different beliefs from the rest of the population.

23. Dr. Stewart wrongly concludes that by not coding the "it depends" and "don't know" responses, I inflated the percentages of those who hold the belief that biodegradation will occur within a year. This is mistaken logic. Percentages are not inflated, because uncoded responses are removed from the *numerator* as well as from the denominator. Again, a simple

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[16] Since Dr. Stewart makes so much of the fact that *some* of the answers to open-ended questions were left uncoded (for various reasons I explain in my report), I should point out that for surveys 1I, 1J, and 1K, which involve over 5300 respondents in total, 100% of the responses are coded (as indicated by the "0" subscripts for those surveys). These data yield qualitatively similar results.

hypothetical example is helpful. Suppose, in fact, that 50% of adults have type B blood and that a representative sample of 200 people receive the question, "Do you have type B blood?" 80 say Yes, 80 say No, and 40 say "don't know" or "have no idea." Suppose that the experimenter "fails to include" those 40 people. Because there is no reason to believe these 40 people have a distribution of blood types that differs from the general population, the researcher would *correctly* conclude that 50% of people have type B blood.

24.   Dr. Stewart also objects to my decision *to* code responses in which the temporal units provided are very short (seconds, minutes, hours, days or weeks) and though he does not mention it here, very long (centuries, millennia, epochs, eons, etc.). Aside from the fact that such a tiny fraction of respondents could not affect any conclusions, his assertion that they should be excluded is based only on his unsubstantiated opinion that they are not valid indicators of beliefs. This is precisely the sort of practice that *could* create a bias (albeit a very small one here since there were very *few* such responses).[17] I also note that Dr. Stewart did not apply his proposed rule to his *own* survey, as *many* of the 400 respondents included in his data file also specified biodegradation estimates in hours, days, weeks or months.[18]

25.   **The Test Questions Allowed for "Qualifications and Contingencies."** Dr. Stewart also objects to the fact that my study did not allow for respondents to provide "qualifications and contingencies" to their responses. Again, Dr. Stewart is wrong. I predominantly used open-ended questions and respondents were free to respond as they wished.

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[17] Approximately 26 responses in my GCS studies involving second, minutes, or hours were coded. This is roughly one tenth of one percent of the data collected.

[18] Dr. Stewart also states that I coded protest responses "as consistent with the conclusion that respondents' understanding of biodegradability was that the process occurs in one year or less." This is demonstrably false and does not even make sense. Since the small fraction of protest responses (e.g., "momma" and "go away") were not, in fact, coded, they were neither consistent nor inconsistent with conclusions drawn from the coded data.

Some *did* state that it depends on the material or the environment. Indeed, across my surveys, 302 respondents said, specifically, "it depends" or something close. Of course, 302 responses out of over 20,000 responses in total, represents a much smaller fraction than Dr. Stewart observed in his study. The reason is obvious. He asks respondents to estimate the biodegradation times of an unspecified "something"—failing to specify the nature or composition of the "something" in question, or whether that something bore a biodegradable label. By contrast, my questions essentially replace his "something" with a more precise specification of what the respondent is judging, as I either indicate the object in question, its composition, the label it bears, or some combination of these. Unsurprisingly, when the question is more clearly specified, a much smaller fraction of respondents say "it depends" (though a few still do). I fail to see how this difference can be construed as a criticism of my surveys.[19]

26.   Though respondents in my studies and his study were free to provide contingencies and qualifications (and some did), I can make no sense of Dr. Stewart's suggestion that such qualifications and contingencies somehow function to invalidate common sense inferences. To provide a concrete example, consider respondent # 2E18 (#19645 of the data set I provided) who answered my open ended survey question 3D:

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[19] The more precisely the object in question was specified, the smaller the fraction of respondents who report it depends. Most of the 302 respondents who said, "it depends" or its equivalent came from questions that reference an unspecified package or product that bears a biodegradable label. This response is much rarer for questions which more precisely specify what the respondent is judging. Indeed, **nobody** answered "it depends" when responding to question (3E) (depicted label, described water bottle), (3G) (depicted label, described water bottle), (3G') (depicted label, described water bottle), (3H) (depicted "Tupperware" container); (3J) (depicted "Tupperware" container with clarified claim); (3I) (depicted "Tupperware" container); and (3O) (depicted plastic bag).

If you saw this label on a plastic water bottle, how long would it take to decompose?

That respondent typed in "7 months" and nothing more. Now suppose the respondent was not just *permitted*, but *entreated* to "qualify" his or her answer. I cannot even construct an example of what the respondent *could* say next that would mean the respondent had not been misled if a plastic water bottle bearing that label actually took 3000 years to biodegrade. Dr. Stewart also fails to provide a single example explaining just how the qualifications and contingencies that are present (because respondents provided them) or absent (because they were not prompted assiduously *enough* to provide them) would do that. Essentially, Dr. Stewart is urging the Commission to accept that even if large fractions of consumers expect that biodegradable plastics will biodegrade within a few years, consumers cannot be misled by those biodegradable claims because scientists disagree whether it actually will take 3000 years or 4000 years. See Stewart Decl. ¶ 12. This makes no sense.

27.   Dr. Stewart repeatedly extols his survey because it encouraged respondents to give "qualifications and contingencies" to their responses by asking "appropriate follow up questions." [20] But examining Dr. Stewart's data yields a rather unflattering portrait of the *value* of these probes. First, the probes appeared to be at the discretion of the interviewer and were

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[20] Dr. Stewart asks a vague question and then relies on the resulting confusion in support of his position that respondents have a nuanced understanding of biodegradation that requires the specification of "contingencies and qualifications." Or that they don't, depending on whatever point he is attempting to make at that time. Dr. Stewart vacillates in how he characterizes consumers' state of knowledge, variably averring that they possess "*very sophisticated views of what biodegradation means*" (Stewart Decl. ¶ 17) to suggesting that they have "*an array of incorrect beliefs*" (Stewart Decl. ¶ 21) and "*little or no knowledge*" (Stewart Decl. ¶ 25).

thus inconsistently and selectively applied. For example, though Dr. Stewart's Q4 did not

require the interviewer to probe (see RX-602 at 16), 172 respondents (of the 400 in the data file)

were in fact probed further, as is evident by the (p) in the verbatim (see RX-612). This is poor

survey practice—essentially the *opposite* of a bright line rule. Second, in most instances, these

follow up questions are nothing more than instructing the interviewers to ask "Anything else?" if

the respondent quits speaking. Pressured to say more, some respondents do, but most do not. In

fact, of the 172 respondents that were probed, only 70 said anything beyond "No, that's it."

Thus among the selected subset of respondents given the opportunity to say more, most declined.

Moreover, the small subset who did respond said little that shed additional light on their beliefs.

The following are illustrative. For a full set, see Appendix A.

- (#100397) Depends on what it is. (p) Like I said depends on what it is. Leaves are shorter than plastic. I would need to know what it was.

- (#100271) I don't know. (p) 5 years or less.\

- (#100938) A product/object that can decompose easily. (p) In general, a product or object that breaks down

- (#100438) Uhmmm…it means it can be broken down naturally and decompose (p) no that is really the basic element of it. (p) it can go pack into environment and nature (p) no

    28.   Though Dr. Stewart's Q4 is maximally vague, it illustrates that respondents

appreciate that some things take a very long time to biodegrade (and thus do not even typically

cite plastics here, except as something that takes a long time to biodegrade), while other items,

such as food waste and paper, will biodegrade much faster. Things that take a long time to

biodegrade generally are called non-biodegradable. The following response illustrates this

point. In Dr. Stewart's survey, respondent #100072 is asked "If something is biodegradable,

how long do you think it would take for it to decompose or decay?" and replies "*I would think, I*

*would say fruits and vegetables a few months, plastics I would say a million years **if they are not***

biodegradable." (emphasis mine). Like most people, this respondent recognizes that even

traditional plastics might *eventually* break down, but would not apply the term *biodegradable* to

things that take that long.

ii.   The Controls were Appropriate.

29.   Dr. Stewart's discussion about controls muddles concepts to produce an

incoherent "critique" of my experimental evidence.

30.   **Prior beliefs**: Dr. Stewart asserts that my studies (which investigated the effects

of several independent variables on a few dependent variables of interest) were "premature." (I

must say that I have never before heard scientists aver that we do not know enough about a topic

to begin or continue to research it.) In any case, this novel "critique" is wrong. The APCO and

Synovate studies clearly do establish the "baseline" understanding of consumer beliefs that Dr.

Stewart (inaccurately) claims is a prerequisite for experimental research.[21]

31.   Dr. Stewart's critique that results are biased by consumers' prior beliefs that

"untreated plastics biodegrade very rapidly" misses the whole point of comparing control and

treatment conditions. Although a small minority may believe that traditional plastics will *also*

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[21] Dr. Stewart incorrectly asserts that we agree about the value of the APCO and Synovate
studies. I do **not** agree that this prior research has little value. As noted in my original report,
both APCO and Synovate elicited estimates of biodegradation times using close ended
"multichomous" questions. This has the potential (indeed, the strong likelihood) of biasing
responses high or low (see, e.g., Schwarz, 1990). But as I already discussed in my report, the
Synovate study was biased *against* finding low estimates (*yet still found them*). This is very
strong evidence that respondents associate rapid biodegradation for packages or products
declared to be biodegradable. Moreover, the Synovate study contains an imperfect, but still
telling, "within-subjects" experiment. Questions 8 and 19 are similar, but manipulate whether
the plastic in question is described as biodegradable. The presence of the biodegradable claim
dramatically lowers respondents' expectations of how long it will take for that product to
biodegrade—the percentage who think it will do so within 5 years jumps from 16% to 70%.

rapidly biodegrade (see Table below: Control Questions),[22] this cannot explain *differences* in

responses between control groups (traditional plastic) and treatment groups (biodegradable

plastic) in my studies, in the Synovate study, or in the relevant comparisons between studies.

CONTROL QUESTIONS

Question Type	Wording	% of estimates less than 1 year	% of estimates less than 5 years
Control (no claim)	**GCS (3L)** If a plastic package is NOT labeled "biodegradable," how long will it take to decompose?	13%	17%
Control (no claim)	**GCS (3M)** How long does it take a plastic package to decompose?	14%	22%
Control (no claim)	**GCS (3N)** How long would it take a plastic water bottle to decompose?	11%	18%
Control (no claim)	**GCS (3O)** What is your best estimate of the amount of time it would take for the container below to biodegrade? [blank container pictured]	16%	21%
Control (no claim)	**GCS (3P)** What is your best estimate of the amount of time it would take for this plastic bag to biodegrade? [blank bag pictured]	13%	25%
Control (no claim)	**(Synovate #8)** How many years do you think it takes for traditional plastic products to biodegrade?	≤16%	16%

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[22] The data in my studies (and possibly other studies) likely exaggerate how many people actually believe that *traditional* plastics will rapidly break down. Two different forces work to inflate the numbers in the control group. One of these forces (random responding) also applies to the treatment group, biasing both groups by the same amount, but leaving the *difference* unchanged. The second force, (the fact that the mere query about biodegradability carries the suggestion of biodegradability, see Grice, 1975) applies *only* to the control group, and thus works to *understate* the true effect of the claim on consumer's beliefs.

The only explanation for the frequent and large differences between control and treatment groups (averaging 28% for one year and 42% for five years) [23] is that biodegradable claims *cause* this change in belief.[24] The data are simply not compatible with any other interpretation.

32. Of course, you can sometimes learn more about respondents' beliefs by asking them additional questions. But it does not follow that such questions are *required* to draw valid conclusions, or even that additional questions are always especially useful. If consumers react to the presence of the word "biodegradable," it is obviously because they have prior beliefs about what that word means. And, of course these prior beliefs interact with manipulations. For instance, verbatim responses from both my studies and Dr. Stewart's confirm that some people disbelieve biodegradable claims. Obviously, somebody who disbelieves a claim may disregard it, and that person's responses will not be affected by the (disregarded) claim. That is one sort of interaction effect. There is nothing sinister or problematic about these interaction effects or variations in belief in general. Indeed, I would be highly suspicious of a survey that found that

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[23] 28% and 42% are the average differences between the treatment group (biodegradable claim) and the control group (no biodegradable claim) with regard to the proportion of respondents who expect very rapid (≤1year) or rapid (≤5 years) biodegradation times, respectively. The average is computed across all of the comparisons presented in Appendix C of Frederick's Opening Declaration. (These figures reference only the surveys in which respondents provided a *numeric* estimate, not the surveys involving binary (YES or NO) responses as to whether the depicted product would completely break down.)

[24] The presence of an explicit biodegradable claim significantly increases the fraction of consumers who believe that a specific product will biodegrade within **one year**.

- For a plastic *bag*, that number is increased by 25%.
- For a plastic *container*, that number is increased by 22%.
- For a plastic *water bottle*, that number is increased by over 34%.

The presence of an explicit biodegradable claim significantly increases the fraction of consumers who believe that the product will biodegrade within **five years**.

- For a plastic *bag*, that number is increased by 32%.
- For a plastic *container*, that number is increased by 35%.
- For a plastic *water bottle*, that number is increased by over 49%.

every respondent has identical beliefs about every question asked. But, however much or little

variation exists in the population (regarding plastics or claims of biodegradation or

biodegradable claims on plastic products), this does not alter the conclusions that biodegradable

claims *cause* substantial fractions of consumers to infer that the products so labeled will

biodegrade more quickly.

III.   Convergent Validity

33.   Convergent validity is a form of construct validity (e.g., Cronbach and Meehl,

1955) and means nothing more or less than that a claim or theory gains support to the extent that

diverse methodologies yield similar conclusions. Though ECM suggests that I invented the term

or concept (Resp. Br. at 12), it is well-established and widely referenced, including references

that precede my birth (e.g., Campbell & Fiske, 1959; Rosenthal & Rosnow, 1991; Shadish, Cook

& Campbell, 2002; Waller et al., 2006). This can be verified by typing "convergent validity"

into Google Scholar. It will yield hundreds of studies in the social sciences that reference the

concept—many with that exact term in title of the paper.

Dated: July 7, 2015

Dr. Shane Frederick

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APPENDIX A

caseid	OEQ4
100012	I have no idea. It will decompose or decay like a lot of other stuff (p) I am going to say 1 to 2 years or maybe more, or probably more.
100037	It depends on what the item is. Some plastics take years to decay. Some items take a shorter period. (P) Some lighter plastics take a few months. It depends on how it is composed.
100057	It definitely depends on tje product. I know that some plastic bags can biodegrade in no longer than a year. (P) Where as something heavier would obviously take longer (P) No, that's it.
100064	Most leaves take a couple of years and others a few years. (p) Leaves, small sticks, trees would take a few years, a tin can would take quite a few years, but I don't think that is good for the Earth. (p) Not good for the Earth, they would disintegrate like most man-made things. (p) no.
100072	I would think, I would say fruits and vegetables a few months, plastics I would say a million years if they are not biodegradable. (P) Maybe a year for a piece of plastic.
100081	Depends what it is, like wood, I see it decay quickly. If you bury it, it will take longer. vegetables will decay. (p) I cannot give you a specific time, depends on the product. (p) nope.
100098	How long it takes? I am not sure about the length of the processing time.P) I don't know I have no Knowlege on that P) not too long as soon as it gets to the factory that processes it into something else.
100117	Well i think its up the manufacturer to determine how long its gonna take to biodegrade or up to them to figure out what timeframe to expect. (p) And also you cant really answer that because depending on what it is can take longer to break down. (p) for example soap can probably break down quicker as oppose to a plastic bottle that can take years to break down and biodegrade. (p) thats all i mean i cant really answer that because its up to manufacturer and it depends on what it is.
100118	I would hope it will go into the garbage and I hope they will resell it to someone who will recycle it. (p) I don't think the plastic will decay, I think the company will recycle it, but I am only guessing. (p) no.

caseid	OEQ4
100122	I saw a show about this sometime but I forgot it. I honestly truly don't know. (p) I remember a bottle was so long, if every. (p) no, I think so
100147	Uh-mm something like wood will take a long time unlike vegetables. which would decay in a pile. (P) it depends on what it is, if it's uranium it will take centuries, pumpkins they're ready by next season. things that take a short time to grow take shorter time to degrade.
100148	Well I would think like a small milk carton would probably be gone in a year (p) Other things will last for decades or more (p) No thank you
100152	well it depends on what it is. (p) this like paper will dissolve in water in minutes. plastic bottles god knows how long that would take. (p) i dont know depends on what it is.
100174	depends on the chemical make (p) i'm sure that varies widely
100177	Oh gosh, no idea. I don't know. (P) Longer than it should.
100184	Well it shouldn't take too long. I have no idea, some plastics last forever, but I don't know how long. (P) Probably shouldn't take more than a few years. Whether it does or doesn't I don't know.
100214	Depending on what it is (p) some of these plastics are going to last forever (p) No
100236	i don't know (p) if i had to guess then id say maybe about 2-3 years.
100243	Depending on the product, that's something I don't fully understand. (P) At least three years, depends on what it is.
100247	3 to 5 years (p) That's just what I know and what I've been told (p) no
100268	Depends on the Material of course, something like paper/news paper degrades pretty quickly (P) Well Magazine stock or coding paper takes longer to degrade (P) No.

caseid	OEQ4
100271	I don't know. (p) 5 years or less.
100277	Depends (p) What it's made of. A biodegradable chip bag will take 6 months to biodegrade and a paper bag will take 6 weeks, if the worms get too it. (p) no
100279	I don't have a clue (p) I'm sure it varies (p) Nope
100285	Should be almost instantly (p) A few hours. (p) No.
100301	I don't know, I really don't know. I remember reading about it, but I don't remember. (P) Never thought about it. (P) No.
100317	I wouldn't have any idea. (P) No...I think It would be up to the product you're using. (P) No.
100333	I really don't know. (P) I guess it depends on what it is. Like cardboard, paper, plastics in 5-10 years. maybe. I don't know.
100344	I know that certain items have certain spans of time to decay. I know some have long periods of time. (P) Even though it's biodegradable. (P) for example diapers, even thought it's biodegradable, even thought diapers are biodegradable it takes a long time. I think it depends on the components of the item.
100347	It depends on the product, and what's in it. I think the spectrum can vary widely. (P) Like in the tens of years.
100350	Uh, I really can't give you an answer on that, some longer, some short. (P) A year.
100384	Well probably according to what product it is, if its a paper item it should be shredded and in some instances flushed in the sanitary systems. (p) With the plastics that i don't know. (P) the liquids like water breaks it down, makes it dissipate. (P) That's it.
100393	It would depend on the product. (P) That be it. Basically it would depend on the product and how fast it degrades.
100397	Depends on what it is. (P) Like I said depends on what it is. Leaves are shorter than plastic. I would need to know what it was.

caseid	OEQ4
100416	Uh, is that a food product or a type of cardboard? (P) I'm going to answer that 30-120 days.
100421	Depends on what it is. Can you be more specific? (P) Plastic takes 60-80 years. (P) Paper is only 2 weeks.
100426	Almost forever I think. They don't do that quickly. (p and read question again) I don't know. I've never heard but I think months or so, depending on material (p) Nah baby
100433	I have no idea, maybe a few years. I really don't know. (P) I'll say two years.
100438	Err...uhm I think it depends on it's size. Do you have anything in mind? (p) Anywhere from a few weeks to a couple of years. (p) no
100451	Plastic would take forever, paper would biodegrade fast (p) Wrapping paper will to biodegrade, I know what because of all the inks and dyes. (p) no
100452	um i really cant say . (p) um im guessing about a year. a couple months to a year. (p) that's it
100464	I have no idea. (P) Six months if it's covered in dirt.
100474	I do not have a clue (p) I hear about garbage staying around in the ocean. (p) No I don't know.
100486	It's variable on what the product is, some take longer than others. If you compost it, it will go faster and depends on weather conditions. (p) I don't know the length of time, it's not quick.
100522	Uh-mm, I'm not too sure. (P) Uh-mm I guess it would depend on the product. Ten years.
100565	Eons (p) no... if it's radiation or cigarette butts (p) no.
100579	Depends on what it is Paper not as long as plastic. It would take cans forever P) Never for cans. Paper maybe five years. P) fifteen to 20 years for plastic if its heavy plastic.

caseid	OEQ4
100596	I KNOW THAT VARIES WITH THE TYPE OF PRODUCT BECAUSE EVEN IF IT ISN'T NECESSARILY BIODEGRADABLE WILL EVENTUALLY BREAK DOWN BUT TAKE A LOT LONGER THAN SOMETHING THAT IS BIODEGRADABLE WHICH WOULDN'T TAKE AS LONG. WHICH IS WHY SOMETHING IS CALLED BIODEGRADABLE. IT SHOULD BREAK DOWN IN A RELATIVELY SHORT AMOUNT OF TIME OR ENOUGH TIME SO THAT IT DOESN'T START TO POSE ANY REAL THREAT OR HARM. (P) IF I HAD TO GUESS I WOULD SAY 20 YEARS. BUT IM NOT SURE I CANT REALLY ANSWER THAT. EVERY PRODUCT I'M SURE HAS A DIFFERENT TIME FRAME FOR IT TO BREAK DOWN.
100598	I'm not sure. (P) A few months.
100624	I keep my jars for 5 years to 10 years then I reuse them again. (P) You might get something to last 5 years if you are very careful with it. (P) no
100647	It depends on the product and variabilities (P I don't know if there are standards, I just know that it has to be labeled. I don't know the rules and standards. (p) no.
100660	I have no idea. I'm sure things are different. A metal can will breakdown but it will take centuries. I don't know (p) it depends on the environment that it's in (p) No thank you
100669	I have no clue, never thought about how long it would take. (P) Best guess is 2-5 years.
100680	I guess it depends on the kind of material used or the matter.P) guessing maybe a couple of weeks.
100682	OH! IT DEPENDS WHAT IT'S MADE OF. (P) AS QUICK AS POSSIBLE WOULD BE NICE. (p) WHAT IT'S MADE OF AND WHERE YOU ARE DUMPING IT (p) NOPE
100743	I would say it depends on what it is. (P) Cause most things get broken down, somethings get broken down faster, other things take a little longer. (P) That's it.
100754	That I'm not sure, how long it would take. I don't want to lie to you, you want a straight answer? (P) I wanna say 3-4 hours.

caseid	OEQ4
100762	No idea I assume the difference would be the product is and different materials. (p) I don't, the difference could be a month versus a year. (p) No.
100796	It depends on, if it's solid or liquid. (P) Solid takes longer, not exactly sure how long.
100843	I don't know. paper would take a longer time and food will probably decompose faster. (P) I don't know, anywhere from six months to six year, depends on the item.
100846	Umm...thirty years. (P) Well I want to change that, I'd say a year. (P) No.
100867	Depends on the product (p) They're all different, depending on material, what it is and what it's made of (p) no
100879	Depends on how it's packaged (p) Depends on how it was handled after it was used (p) No.
100885	Depends on the product like a carton of milk to a loaf of bread. (p) Maybe 2 weeks for both. (p) No.
100910	It depends (p) on what its made out of.
100935	I have no idea. (P) Uh-mm, probably ten years or so.
100967	It depends on what it is. (P) Well, food takes a little bit of time, like days or weeks and paper just takes a little longer. It just depends on what it is. (P) No.
100981	I think it varies in the material. I think some things can take up to 100 days, i suppose it could be longer as well (p) In my experience the cloth diapers, companies that make disposable diapers that biodegrade within 30 to 45 days (p) That's good.
100993	Depends on the product. (P) Depends, if it's cardboard, less than a year in the proper setting.
100994	I don't know (p) 10 to 20 years i imagine (p) No.

I hereby certify that on July 07, 2015, I filed an electronic copy of the foregoing Complaint Counsel's Response to ECM's Supplemental 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 July 07, 2015, I served via E-Service an electronic copy of the foregoing Complaint Counsel's Response to ECM's Supplemental Brief, upon:

Jonathan Emord
Emord & Associates, P.C.
jemord@emord.com
Respondent

Peter Arhangelsky
Emord & Associates, P.C.
parhangelsky@emord.com
Respondent

Lou Caputo
Emord & Associates, P.C.
lcaputo@emord.com
Respondent

Katherine Johnson
Complaint Counsel
Federal Trade Commission
kjohnson3@ftc.gov
Complaint

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

Jonathan Cohen
Federal Trade Commission, Bureau of Consumer Protection, Enforcement Division
jcohen2@ftc.gov
Complaint

Joshua Millard
Attorney
Federal Trade Commission
jmillard@ftc.gov
Complaint

Benjamin Theisman
Attorney

Federal Trade Commission
btheisman@ftc.gov
Complaint

Eric Awerbuch
Emord & Associates
eawerbuch@emord.com
Respondent

Arturo DeCastro
Attorney
Federal Trade Commission
adecastro@ftc.gov
Complaint

Bethany Kennedy
Ms.
Emord & Associates, P.C.
bkennedy@emord.com
Respondent

<div align="right">

Katherine Johnson
Attorney

</div>