

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION



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

Docket No. 9358

ORIGINAL

COMPLAINT COUNSEL'S POST-TRIAL BRIEF

TABLE OF CONTENTS

TABLE OF AUTHORITIES iv

STATEMENT OF THE CASE..... 6

STATEMENT OF FACTS 7

I. PLASTICS AND THE ENVIRONMENT 7

 A. Conventional Plastics Do Not Biodegrade. 7

 B. Persistence of Plastic in the Environment..... 8

II. ECM MARKETS ITS “REVOLUTIONARY” ADDITIVE..... 9

 A. ECM’s Express Biodegradable Claims: Complete Biodegradation in 9 months to 5 years in a Landfill. 10

 B. ECM’s Modified Qualified Claims: “Some Period Greater than a Year.” 12

 C. ECM’s Unqualified Claims: “Biodegradable” Advertising..... 14

 D. ECM’s Testing Claim: Proven to Work..... 17

 1. ECM’s Testing. 18

 2. The Ecological Assessment is Unreliable and Irrelevant..... 19

 3. ECM “Certifies” Performance. 22

III. ECM SELLS THE RIGHT TO ADVERTISE THAT ECM PLASTICS ARE BIODEGRADABLE..... 24

IV. NEITHER ECM NOR ITS CUSTOMERS ARE BIODEGRADATION EXPERTS..... 26

 A. ECM Lacks Biodegradation Expertise..... 27

 B. ECM’S Customers Lack Sophistication to Meaningfully Evaluate ECM’s Purported Substantiation..... 28

V. ECM REPEATEDLY IGNORED EVIDENCE THAT ITS ADDITIVE DOES NOT WORK. 31

ARGUMENT..... 31

I. ECM MADE DECEPTIVE ADVERTISING CLAIMS..... 31

 A. ECM Disseminated Advertisements Conveying The Claims Alleged In The Complaint. 32

 1. ECM Made Express Biodegradable Claims..... 33

 2. ECM Also Made Implied Biodegradable Claims. 34

 a. Background Regarding Professor Frederick’s GCS Surveys..... 39

 2. Undisputed Evidence Establishes That GCS Is Reasonably Representative of American Consumers. 40

| | | |
|------|---|----|
| 3. | Both Parties’ Experts’ Testimony Establishes That Demographic Information About Survey Respondents Is Unnecessary if the Overall Sample Is Representative. | 44 |
| 4. | ECM Does Not Challenge Professor Frederick’s Questions. | 45 |
| 1. | Professor Frederick Correctly Employed a Bright-Line Rule..... | 47 |
| 2. | ECM’s Other Challenges To Professor Frederick’s Coding Are Baseless. | 49 |
| 3. | A Tiny Number of “Protest” Responses Among 20,000 Responses To Open-Ended Questions Is Irrelevant. | 50 |
| 4. | There Is No Credible Evidence of “Disinterest Bias.”..... | 51 |
| 5. | The Absence of “Screening Questions” Is Irrelevant..... | 52 |
| 1. | Dr. Stewart Designed His Landline Consumer Study To Create Confusion. | 56 |
| 2. | Dr. Stewart’s Anachronistic Landline Study Was Psychographically and Demographically Unrepresentative. | 57 |
| 3. | Dr. Stewart Readily Admitted That His Ten-Customer Survey Is Useless (Otherwise, It Would Support Complaint Counsel). | 59 |
| II. | ECM’S CLAIMS ARE FALSE AND UNSUBSTANTIATED..... | 59 |
| A. | ECM’s Express and Implied Claims are False. | 59 |
| 1. | ECM’s Experts Concede ECM’s Biodegradation Claims Are False. | 60 |
| 2. | Physical Blends Do Not Affect Plastic Recalcitrance..... | 61 |
| 3. | Tests Show No Biodegradation of ECM Plastic. | 64 |
| B. | ECM Lacks a Reasonable Basis for its Claims..... | 66 |
| 1. | Competent and Reliable Scientific Evidence is the Appropriate Standard of Substantiation for Green Claims..... | 67 |
| 2. | ECM’s “Substantiation” Has Severe Methodological Flaws. | 71 |
| III. | ECM’S CLAIMS ARE MATERIAL. | 81 |
| A. | ECM’s Claims Are Presumptively Material Because They Address the Additive’s Central Characteristic..... | 81 |
| B. | ECM Failed To Rebut the Materiality Presumption. | 82 |
| C. | Regardless of the Presumption, the Evidence Proves Materiality. | 86 |
| IV. | ECM PROVIDED CUSTOMERS THE MEANS AND INSTRUMENTALITIES TO DECEIVE END-USE CONSUMERS..... | 88 |
| V. | ECM’S CONTENTION THAT IT NEVER MADE THE EXPRESS AND IMPLIED CLAIMS SET FORTH ABOVE IS BASELESS. | 91 |

| | | |
|------|---|-----|
| A. | ECM’s Purportedly “Sophisticated Customers” Had the Same Understanding of ECM’s Claims as End-Use Consumers. | 91 |
| B. | ECM’s “Qualifications” Do Not Change the Meaning of its Deceptive Claims. | 93 |
| VI. | ENTRY OF THE NOTICE ORDER IS APPROPRIATE AND NECESSARY..... | 95 |
| A. | The FTC Has Wide Latitude in Crafting Relief..... | 96 |
| 1. | The Notice Order is Clear, Precise, and Easy to Understand..... | 97 |
| 2. | The Proposed Relief Is Needed To Stop Ongoing Deception..... | 99 |
| B. | ECM’s Arguments that the Notice Order Violates Its First Amendment Rights and Federal Environmental Policy Have No Merit..... | 102 |
| VII. | CONCLUSION..... | 105 |

TABLE OF AUTHORITIES

Cases

| | |
|---|------------|
| <i>American Enviro Products, Inc.</i> , 115 F.T.C. 399 (1992)..... | 65 |
| <i>Archer Daniels Midland Co.</i> , 117 F.T.C. 403 (1994)..... | 65 |
| <i>Bates v. State Bar of Arizona</i> , 433 U.S. 350 (1977) | 99 |
| <i>Bolger v. Youngs Drug Prods. Corp.</i> , 463 U.S. 60 (1983) | 98 |
| <i>Brake Guard Prods., Inc.</i> , 125 F.T.C. 138 (1998)..... | 66 |
| <i>Central Hudson Gas & Elec. Corp. v. Pub. Serv. Comm'n</i> , 447 U.S. 557 (1980)..... | 98, 99 |
| <i>Chicago Bridge & Iron Co N.V. v. FTC</i> , 534 F.3d 410 (5th Cir. 2008) | 91 |
| <i>Clear Choices Housewares, Inc.</i> , File No. 122 3288 (2013)..... | 65 |
| <i>Cliffdale Assocs., Inc.</i> , 103 F.T.C. 110 (1984)..... | 27 |
| <i>Continental Wax Co. v. FTC</i> , 330 F.2d 475 (1964)..... | 91 |
| <i>Down to Earth Designs, Inc.</i> , Docket No. C-4443 (2014)..... | 65 |
| <i>Dyna-E Int'l Inc.</i> , File No. 082-3187 (2009) | 65 |
| <i>FTC v. Colgate-Palmolive Co.</i> , 380 U.S. 374 (1964)..... | 91, 92 |
| <i>FTC v. Cruz</i> , No. 08-1877 (JP), 2008 U.S. Dist. LEXIS 103103, at *4-5 (D.P.R. Dec. 18, 2008) | 83 |
| <i>FTC v. Cyberspy Software, LLC</i> , No. 6:08-cv-1872-ORL-31GJK, 2010 U.S. Dist. LEXIS 145969, (M.D. Fla. April 22, 2010)..... | 83 |
| <i>FTC v. Direct Marketing Concepts</i> , 624 F.3d 1, 24 (1st Cir. 2010)..... | 89 |
| <i>FTC v. Five-Star Auto Club</i> , 97 F. Supp. 2d 502 (S.D.N.Y. 2000)..... | 83 |
| <i>FTC v. Magui Publishers, Inc.</i> , No. 91-55474, 1993 U.S. App. LEXIS 28684, at *10 (9th Cir. Oct. 6, 1993) | 83 |
| <i>FTC v. National Lead Co.</i> , 352 U.S. 419 (1957)..... | 91 |
| <i>FTC v. Norvergence, Inc.</i> , No. 04-5414 (DRD), U.S. Dist. LEXIS 40699, at *7-8 (D.N.J. July 18, 2005) | 83 |
| <i>FTC v. Pantron I Corp.</i> , 33 F.3d 1088 (9th Cir. 1994)..... | 28, 29, 86 |
| <i>FTC v. Ruberoid Co.</i> , 343 U.S. 470 (1952) | 91 |
| <i>FTC v. USA Beverages, Inc.</i> , No. 05-61682-CIV, 2005 U.S. Dist. LEXIS 39075, at *16-17 (S.D. Fla. Dec. 5, 2005);..... | 28 |
| <i>FTC v. Winstead Hosiery Co.</i> , 258 U.S. 483 (1922) | 83 |
| <i>In re Chrysler Corp.</i> , 87 F.T.C. 719, 1976 FTC LEXIS 397, *59 (Apr. 13, 1976)..... | 88 |
| <i>In re Daniel Chapter One</i> , No. 9329, Initial Decision, at *99 (F.T.C. Aug. 5, 2009)..... | 54, 61 |
| <i>In re Litton Indus., Inc.</i> , 97 F.T.C. 1 (1981) | 83 |
| <i>In re N.E.W. Plastics Corp.</i> , 2014 FTC LEXIS 71, at *8 (Apr. 3, 2014) | 83 |
| <i>In re Nonprofit Mgmt. LLC</i> , 151 F.T.C. 144 (2011)..... | 83 |
| <i>In re POM Wonderful LLC</i> , No. 9344, 2013 FTC LEXIS 6 (FTC Jan. 10, 2013) | passim |
| <i>In re R. M. J.</i> , 455 U.S. 191 (1982)..... | 98 |
| <i>In re Raymond Lee Organization, Inc.</i> , 92 F.T.C. 489, 618-19 (1978) | 88 |
| <i>In re Schering Plough Corp.</i> , 118 F.T.C. 1030, 1121 (Oct. 21, 1994) | 95 |
| <i>In re Shell Oil Co.</i> , 128 F.T.C. 749 (1999) | 83 |
| <i>In re Stouffer Foods Corp.</i> , 118 F.T.C. 746 (1994)..... | 95 |
| <i>In re Telebrands Corp.</i> , 140 F.T.C. 278 (2005), <i>aff'd</i> , 457 F.3d 354 (4th Cir. 2006) | 30 |
| <i>In the Matter of Am. Home Prods.</i> , 98 F.T.C. 136,..... | 33 |
| <i>In the Matter of Bristol-Myers Co.</i> , 85 F.T.C. 688, 744 n.2 (1975) | 33 |
| <i>Jacob Siegel Co. v. FTC</i> , 327 U.S. 608 (1946)..... | 92 |

| | |
|--|----------------|
| <i>Kmart Corp.</i> , File No. 0823186 (2009) | 65 |
| <i>Kraft, Inc. v. FTC</i> , 970 F.2d 311 (7th Cir. 1992)..... | 27, 30, 76, 95 |
| <i>Mobil Oil Corp.</i> , 116 F.T.C. 113 (1993)..... | 65 |
| <i>Niresk Indus. Inc. v. FTC</i> , 278 F.2d 337 (7th Cir. 1960)..... | 90 |
| <i>North Texas Specialty Physicians v. FTC</i> , 528 F.3d 346 (5th Cir. 2008)..... | 91 |
| <i>Pearson v. Shalala</i> , 165 F.3d 650, 658 (D.C. Cir. 1999) | 97, 99 |
| <i>Porter & Dietsch, Inc. v. FTC</i> , 605 F.2d 294, 307 (1979)..... | 91 |
| <i>Regina Corp. v. FTC</i> , 322 F.2d 765 (3d Cir. 1963)..... | 83 |
| <i>Removatron Int’l Corp.</i> , 111 F.T.C. 206, 884 F.2d 1489 (1st Cir. 1989)..... | 63, 66, 88, 89 |
| <i>Sears, Roebuck & Co. v. FTC</i> , 676 F.2d 385 (9th Cir. 1982)..... | 91 |
| <i>Telebrands Corp. v. FTC</i> , 457 F.3d 354 (4th Cir. 2006) | 76, 91, 92 |
| <i>Tender Corp.</i> , File No. 082-3188 (2009)..... | 65 |
| <i>Thompson Medical Co.</i> , 104 F.T.C. 648 (1984), <i>aff’d</i> , 791 F.2d 189 (D.C. Cir. 1986), cert. denied, 479 U.S. 1086 (1987) | 27, 33, 76, 91 |
| <i>Virginia State Bd. of Pharmacy v. Virginia Citizens Consumer Council</i> , 425 U.S. 748 (1976) .. | 98 |
| <u>Statutes</u> | |
| 16 C.F.R. § 260.8 | 7 |
| 16 C.F.R. Part 260..... | 7 |
| <u>Other Authorities</u> | |
| <i>FTC Policy Statement on Deception</i> , 103 F.T.C. 174 (1984)..... | 27, 47 |

STATEMENT OF THE CASE

This is a straightforward deceptive advertising case. ECM Biofilms, Inc. (“ECM”) sells an additive that it contends makes conventional plastic biodegradable. For almost a decade, ECM has claimed that mixing 1% of its additive with any conventional, non-degradable plastic will make it completely biodegrade in nine months to five years in a landfill. Since the FTC revised its Guides for Environmental Marketing in October 2012, ECM has also claimed that its additive enables plastic to completely biodegrade in a landfill “in some period greater than a year.”

ECM’s claims are false and unsubstantiated. ECM’s own experts concede that ECM’s nine-month-to-five-year claim is false. ECM’s expert opines that it would take at minimum 30 years for the thinnest of treated plastics to completely biodegrade—nowhere near the five years claimed by ECM. Another ECM expert acknowledges that complete biodegradation “within one or even five years of disposal is not consistent with even the highest rates of biodegradation” expected in landfills. Additionally, a plastics expert, a landfill expert, and an expert in biochemistry all explained that most conventional plastics do not biodegrade at all, let alone in landfills, and mixing the ECM additive with conventional plastic does nothing to change this scientific fact. The minimal biodegradation that results from using ECM’s additive (which ECM peddles as “proof”) happens for a very simple reason: the ECM additive is itself biodegradable.

Unable to meaningfully dispute the science or defend its “testing,” ECM offers a number of specious defenses about consumer perception of biodegradable claims, the purported sophistication of its customers, the alleged bias of Complaint Counsel’s experts, and the supposed impropriety of FTC regulation of deceptive speech for environmental marketing

claims. Each defense is no more than a distraction from the fundamental issue: ECM's claims are false and unsubstantiated.

STATEMENT OF FACTS¹

I. PLASTICS AND THE ENVIRONMENT

Plastic is a generic term used to describe a class of high-molecular weight polymers.

FOF ¶ 1. There are various plastics, but synthetic (laboratory-made), petroleum-based plastics are by far the most common. FOF ¶ 2. Plastics derived from petrochemicals are strong, durable, and inexpensive to manufacture, which make them ideally suited for commercial applications. These petroleum-based plastics (“conventional plastics”) represent over 90% of the commercial plastic market. FOF ¶ 3.

The most common types of conventional plastic are high-molecular weight *polyethylene* (PE), used to manufacture plastic bags, packaging material, and bottles; and *polyurethane* (PUR), used in medical and industrial applications such as adhesives and paint. Also common is *polypropylene* (PP), used for disposable cups, clothing, storage containers, and DVD covers; and *polystyrene* (PS), which is used to make disposable cutlery and cups, foam packing peanuts, insulation, and fast food containers. FOF ¶ 4.

Unfortunately, the characteristics that make these plastics commercially useful—strength and durability—make them highly resistant to biological attack. FOF ¶ 5.

A. Conventional Plastics Do Not Biodegrade.

Generally, biodegradation is the chemical process by which microorganisms such as bacteria and fungi use the carbon found in organic materials as a food source. FOF ¶ 6.

¹ Attached hereto is Complaint Counsel's Findings of Facts (“FOF”), which includes citations to exhibits (denoted as “CCX” or “RX”) admitted as evidence at the evidentiary hearing and citations to the trial record.

Microorganisms cannot metabolize all organics, however. Conventional plastics are a prime example—they are organic (*i.e.*, carbon-based), but not biodegradable.² FOF ¶ 7. The high-molecular weight and chemical structure of most conventional plastics³ prevent naturally-occurring microorganisms from using them as food. FOF ¶ 9. Petroleum-based conventional plastics have only existed for a hundred years or so, not long enough for microorganisms to have evolved to degrade them. FOF ¶ 10.

B. Persistence of Plastic in the Environment.

Americans generate about 32 million tons of plastic waste every year, more than half of which ends up in landfills. FOF ¶ 11-12. Due to their recalcitrant nature, plastics pose a growing disposal and environmental pollution problem. FOF ¶ 13. Many consumers are concerned about such environmental harms: in a relatively recent survey, 62% of consumers said that they would be willing to pay a higher price for a product that is less burdensome on the environment. FOF ¶ 14; *see also* FOF ¶ 387 (Dr. Stewart, ECM’s consumer perception expert reported results showing that whether a package or product is biodegradable is important to 71% of respondents). In response to this consumer demand, marketers have introduced various materials they claim improve the biodegradability of plastics. These include conventional plastics amended with additives meant to enhance biodegradability (*e.g.*, photodegradable,

² Given enough time, all things are “biodegradable.” FOF ¶ 7. However, conventional plastics are not considered susceptible to biological attack. This process could take hundreds, if not thousands, of years. FOF ¶ 7.

³ There are some plastics that are susceptible to biological attack. FOF ¶ 8. However these generally do not have the same durability and low-cost of conventional plastics. Moreover, these are not the “non-degradable” plastics that are the subject of ECM’s advertising. CCX-892 ¶ 9. Accordingly, these are not discussed here.

oxodegradable, and biodegradable additives), bio-based plastics, and natural fiber composites.
FOF ¶ 15.

II. ECM MARKETS ITS “REVOLUTIONARY” ADDITIVE

ECM Biofilms, Inc. is making false and unsubstantiated claims to exploit this environmental consciousness. FOF ¶¶16-17. Claiming to have a “revolutionary additive technology” that “renders . . . plastic products biodegradable,” ECM sells its additive (the ECM MasterBatch Pellet, or “ECM Additive”) to plastic manufacturers.⁴ FOF ¶ 18. ECM advises its customers that mixing 1% ECM Additive to non-degradable plastic, *i.e.*, conventional plastic, “transforms” it into a biodegradable plastic (“ECM Plastic”). FOF ¶ 18. According to ECM, the presence of the ECM Additive triggers a “mechanism” that allows bacteria to consume the ECM Plastic once it has been disposed. FOF ¶ 18.⁵

Although, as explained below, the precise language ECM has used to market its product has morphed over time, ECM’s marketing materials have remained consistent. Its website, brochure, flyers, logos, certificate, and presentations have conveyed that ECM Plastics will completely biodegrade in less than five years in a landfill, and that scientific testing proves it.

⁴ ECM actually licenses its technology from another company, called Microtech Research Inc. FOF ¶ 20.

⁵ Some of ECM’s customers use the ECM Additive to make “biodegradable” products for purchase by retailers or end-use consumers. FOF ¶ 21. Others simply make plastic (such as plastic “film”) that they sell to product and package manufacturers, who in turn sell to packagers, retailers, or end-use consumers. In the parlance of the plastics industry, the plastic manufacturer is an “extruder”; the product manufacturer is a “converter.” FOF ¶ 21.

A. ECM's Express Biodegradable Claims: Complete Biodegradation in 9 months to 5 years in a Landfill.

As early as 2005 until at least October 2012, ECM prominently and expressly claimed that its additive enables conventional, non-degradable plastic to fully biodegrade in nine months to five years in a landfill. FOF ¶ 182.

Plastic products made with ECM additives

- **Fully biodegrade in 9 months to 5 years.**
- **Fully biodegrade wherever they are disposed of where other things are biodegrading (anaerobically and aerobically):**
 - In Landfills,
 - In Compost (backyard as well as commercial facilities),
 - Buried in the ground or littered,
 - Agricultural and erosion-control settings.
- **Are recyclable.**
- **Can be made with recycled resins.**
- **Do not use heat, light or mechanical stress to break them down.**
- **Do not require special handling (unlike PLA and oxo-degradable products).**
- **Do not contain heavy metals (unlike most oxo-degradable products).**

CCX-3. ECM's express claim—100% biodegradation in landfills in less than 5 years—has pervaded ECM's marketing materials and customer communications. FOF ¶ 32. In fact, ECM has touted these features as the principal distinction from its competitors in the market. FOF ¶ 31-34. These claims matter to ECM's customers, who pass on the claims in their own advertising:



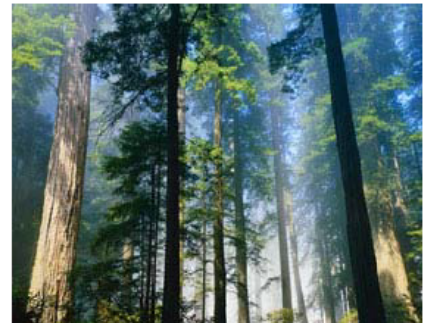
Co

- Home
- Plastic Bags Facts
- Going Green
- Store
- Shopping Cart
- Custom/Wholesale
- About Us
- Resources-Links
- Contact Us

Going Green

**Environmental issues are important to everyone.
We are doing our part by offering 100% Biodegradable bags!**

Our biodegradable bags break down completely when in contact with other decomposing materials; in compost bins, landfills, or just buried in the ground. These bags can also be recycled along with regular plastic bags. Unlike starch based compostable bags and oxo-biodegradable bags, these bags won't degrade in the presence of oxygen, heat, or sunlight, so they can also be reused until no longer serviceable. Any bag we make can be produced as biodegradable.



Environment friendly bags are made using traditional resins combined with an additive from ECM BioFilms that allows the plastic to completely biodegrade within a few years.

Plastic products made with ECM additives are:

- Fully biodegrade in 9 months to 5 years,
- Fully biodegrade when disposed of in a biodegrading environment, either anaerobically or aerobically:
 - in landfills,
 - in compost (backyard compost or commercial facilities),
 - if buried or littered in the ground,
 - in agricultural and erosion-control settings
- Are recyclable,
- Can be made with recycled resins,
- Do not use heat, light or mechanical stress to break them down,
- Do not require special handling (unlike PLA and oxodegradable products),
- Do not contain heavy metals (unlike most oxodegradable products)

For more information about the technology used to make our biodegradable bags, visit www.ecmbiofilms.com.



CCX-961; see also FOF ¶¶ 35-36.

B. ECM's Modified Qualified Claims: "Some Period Greater than a Year."

The FTC revised its Guides for the Use of Environmental Marketing Claims ("Green Guides") in October 2012.⁶ The Green Guides explained that consumers perceive unqualified biodegradable marketing claims to mean that a "biodegradable" product or package will completely biodegrade in a reasonably short period of time (one year or less) after customary disposal (landfill).⁷ Purportedly in response to the changes in the Green Guides, ECM marginally modified its claim. *See generally* FOF ¶¶ 37-44.⁸ ECM removed many of the prominent nine-month-to-five-years qualifications and instead replaced it with the following disclaimer: "Plastic products produced with our additives will biodegrade in biologically-active environments (including most landfills) in some period greater than a year." FOF ¶ 37.

⁶ 16 C.F.R. Part 260 (2012).

⁷ 16 C.F.R. § 260.8.

⁸ Notably, ECM did not make this nominal revision until October 2012 at the earliest, even though ECM's claims had been the subject of an FTC investigation since August 2011. FOF ¶ 38.

MASTERBATCH PELLETS



ECM BioFilms, Inc.

*Manufacturer of Additives That Make
Standard Plastic Resins Biodegradable**

ECM BioFilms, Inc. sells additives to plastic product manufacturers which allow them to offer their customers biodegradable* plastic products that can be priced competitively with, and have the same mechanical characteristics as, their traditional, non-degradable products.

The revolutionary additive technology, when combined as a one-percent load to the most widely-used plastic resins, renders the finished plastic products biodegradable* while maintaining their other desired characteristics.

Plastic products made with ECM additives

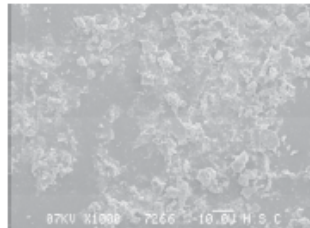
- Fully biodegrade over some number of years.
- Fully biodegrade wherever they are disposed of where other things are biodegrading (anaerobically and aerobically):
 - In Landfills,
 - In Compost (backyard as well as commercial facilities),
 - Buried in the ground or littered,
 - Agricultural and erosion-control settings.
- Are recyclable.
- Can be made with recycled resins.
- Do not use heat, light or mechanical stress to break them down.
- Do not require special handling (unlike PLA and oxo-degradable products).
- Do not contain heavy metals (unlike most oxo-degradable products).

Plastic Bag Film Samples Buried in Same Soil for a Month

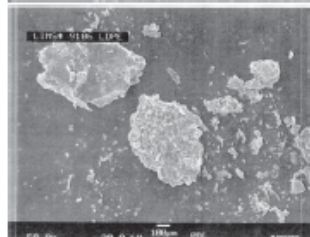
Without ECM



With ECM



The process continues until the plastic products become part of the organic components of the soil just like biodegraded sticks or other pieces of wood become part of the soil and in roughly the same time period.



* Plastic products manufactured with ECM BioFilms' additives will biodegrade in any biologically-active environment (including most landfills) in some period greater than a year.

Additives for Manufacturing
Biodegradable* Plastic
Packaging and Products

ECM  BIOFILMS

ECM BioFilms, Inc.

Victoria Place – Suite 225
100 South Park Place
Painesville, OH 44077, U.S.A.

Website: www.ecmbiofilms.com

For Sales or Information, contact:

Phone: 440-350-1400

Fax: 440-350-1444

E-mail: sales@ecmbiofilms.com

U.S. Toll Free: 888-220-2792



ECM-001882

CCX - 15

See, e.g., CCX-15.

Despite adopting this disclaimer in late 2012, ECM continued to make the nine-month-to-five-year and landfill claims on its website, FOF ¶ 39, in marketing materials it distributed to customers, FOF ¶ 40, and in emails to customers, FOF ¶ 41, *for another fourteen months*.⁹ ECM's customers explain they viewed it as merely a "change in the rules" rather than a change in the performance of the product, which they still understood to mean complete biodegradation in nine months to five years. FOF ¶ 43.

Additionally, ECM left its claims that ECM Plastics will completely biodegrade in a landfill largely untouched. For instance, the disclaimer itself continued to claim biodegradation in "most landfills." *See, e.g.*, CCX-15; CCX-17. And its marketing materials still touted that ECM Plastic was "fully" biodegradable. *See, e.g.*, CCX-15; CCX-25.

C. ECM's Unqualified Claims: "Biodegradable" Advertising.

ECM claims that ECM Plastic is "biodegradable"—with no qualification—in a variety of advertising media. Every page of ECM's website, www.ecmbiofilms.com, displayed the tagline, "Additives for Manufacturing Biodegradable Plastic Packaging and Products," with a description of ECM's allegedly groundbreaking technology for biodegradable plastic. FOF ¶ 26.

⁹ FOF ¶ 38. Mr. Sinclair testified that ECM stopped using the nine month to five year claim three years ago. (Sinclair Tr., 769.) This is contrary to Sinclair's own admission at his deposition in February 2014, that ECM had only removed the claim at the end of 2013. CCX-819 at 54 (discussing pulling the 9 months to 5 year claim "within the last three months or so"). And directly contradicts evidence showing that the claim still appears at least on the current brochure. RX-138 at 9.



CCX-19 (homepage www.ecmbiofilms.com). ECM distributed brochures aimed at “green business” promising that its technology yields “biodegradable plastic products” that are “priced competitively with, and have the same mechanical characteristics as, traditional non-degradable products.” FOF ¶ 27. Its flyers describe plastics made with the ECM Additive “Biodegradable” or “100% Biodegradable,” and its logos, letters, and certificates of biodegradability further endorse the biodegradability of ECM Plastic. FOF ¶ 28-39.



CCX-8 (“Logo”).



CCX - 18

CCX-18 (“Certificate”). Even ECM’s technical data and pricing sheets contained the claim.

FOF ¶¶ 184-185.

ECM’s emails to customers echoed and expanded on these claims. FOF ¶ 30. For instance, ECM explained:

[u]sing a green tint is always a good way to distinguish your product from others to stand out. I would also recommend printing on the trash liner something like “Biodegradable” or “This Liner Is Totally Biodegradable”. I attached our logo that can be used if you want but does not have to be.

CCX-317. Similarly, Robert Sinclair, ECM’s President and CEO, suggested that customers use the claim: “While this bag is fully biodegradable, it is also still recyclable. Please recycle where possible.” Further explaining that: “Most use our logo with the word ‘biodegradable’ or simply have ‘biodegradable’ with our company name and website but I like a statement like above to go as well.” CCX-308.

ECM encouraged its customers to use the unqualified biodegradable claim, FOF ¶ 68, and they did:

NEW FROM FLAMBEAU®

BIODEGRADABLE PRODUCTS

Flambeau's Packaging Division NOW OFFERS:

Completely 100% Biodegradable & 100% Recyclable Storage Cases and Boxes

Biodegradation occurs with our uniquely manufactured products in either an aerobic and or anaerobic environment:

- ♻ In Landfills
- ♻ In Compost (backyards as well as commercial facilities) or
- ♻ Buried in the ground

Flambeau's biodegradable manufacturing process does not produce any toxic residues. Once our products return to the environment in compost or landfill hosts then nothing but a safe biomass and humus results.

- ♻ Aerobic—Biomass, CO₂, Water
- ♻ Anaerobic—Biomass, Methane, CO₂, some Water

Moreover, the physical characteristics of Flambeau's "eco-friendly" packaging are equal to those of our traditional packaging---which emphasizes Flambeau's commitment to manufacture high quality, durable, plastic packaging. Products manufactured by Flambeau utilizing our "eco-friendly" process and materials do not affect our merchandise guarantee!

We offer: Completely 100% Biodegradable & 100% Recyclable. Ensures customers disposal of product lessens their carbon footprint on the environment & provides additional value to items sold.

No degradation by exposure to external stresses during storage, shipping, handling, or normal use. Provides an indefinite shelf life and similar service life as our standard resins.

Technical & Physical properties of cases and boxes made with Flambeau eco-friendly materials are equivalent to our traditional packaging---maintaining Flambeau's commitment to manufacturing high quality products.

Flambeau's capability with biodegradable packaging extends across the entire polyolefin product line, and can be manufactured and made available in most products with production quantities as small as 1,000 units.

Flambeau currently stocks a number of popular Flambeau boxes incorporating our "eco" friendly materials! In addition, we are capable of producing nearly everything in this catalog as biodegradable except for some products made of engineered resins.

Contact customer service to see if your packaging can be biodegradable!

CCX-50 at 2; *see also* FOF ¶ 186.

D. ECM's Testing Claim: Proven to Work.

Throughout its time selling the ECM Additive, ECM has made another claim of central importance to its business: hundreds of thousands of dollars spent on independent testing to nationally-recognized standards proves that the ECM Additive makes plastic biodegradable. The evidence shows that ECM repeatedly made this claim in its marketing materials and its customer communications. FOF ¶¶ 44-45.

1. ECM's Testing.

ECM has touted the “hundreds of thousands of dollars” it spent on “independent” testing at “renowned” labs. *See* CCX-19-20; CCX-332-CCX-340. In truth, until 2006,¹⁰ ECM had only three purportedly independent tests:¹¹ (1) “Ecological Assessment of ECM Plastic” (“Ecological Assessment”)¹²; (2) “Final Report: Biodegradation Testing, Aerobic Biodegradation Under Controlled Composting Conditions for 40-gal trash bags”; and (3) AMC: Environmental, Material and Product Evaluations – Laboratory Report.¹³ None shows complete biodegradation (in any timeframe) or biodegradation in landfills. For instance, only one of these studies pertains to anaerobic (without oxygen) environments, but that test has fatal flaws—it was not conducted for a sufficient duration, at the right temperature and moisture conditions, or with proper controls. *See supra* at 16. The remaining tests are composting tests, *i.e.*, aerobic tests (with oxygen), which ECM’s landfill expert concedes are irrelevant to claims of biodegradation in

¹⁰ Between 2006 and 2012, there were an additional twelve (12) tests, but only two were actually conducted for ECM at its direction and one was conducted by Dr. Barber. *See* FOF ¶ 449. ECM’s customers commissioned the remaining tests by small labs such as Northeast Laboratories, Inc. and Eden Research Laboratories. FOF ¶ 449 (identifying all of the tests of ECM Plastic). For reasons explained in Section , none of the tests ECM identifies support its claims.

¹¹ Sinclair testified that there were a number of informal, undocumented “tests” that he and the founder of the technology, Patrick Reily, had conducted. (Sinclair Tr. 748-749; 755-756.)

¹² The “Ecological Assessment of ECM Plastic,” Prepared by ChemRisk, A Service of McLaren/Hart Inc., Feb. 16, 1999, was often referred to by ECM as the “McLaren/Hart” or “ChemRisk” assessment. FOF ¶ 50.

¹³ *See* FOF ¶ 449 (identifying all of the tests of ECM Plastic). ECM never appears to have relied on the AMC report (CCX-160); it did not provide it as part of its substantiation materials and never circulated it to its customers as a basis for its claims. *See* FOF ¶ 50.

landfills. FOF ¶ 182 (“To begin, for purposes of biodegradability under landfill conditions, only anaerobic biodegradability is of relevance.”).¹⁴

2. The Ecological Assessment is Unreliable and Irrelevant.

Although the Ecological Assessment purports to be a test conducted by McClaren/Hart, it is not a test at all—rather it is a summary of tests without any supporting documentation.¹⁵ The Ecological Assessment, on which ECM has principally relied over the years, FOF ¶ 50, summarizes several tests that purport to show biodegradation. During the hearing, Dr. Timothy Barber (an oceanographer), whose name appears on the test, explained that his job was merely to summarize test results provided to him. (Barber, Tr. 2014-2018.) Dr. Barber testified that he summarized several tests, some of which, but not all, he believed had been conducted by O.W.S. (Barber, Tr. 2014-2018.) During his examination, he was asked about the tests that he had summarized, which supposedly had been appended to the original report. (Barber, Tr. 2014-2018.) Dr. Barber was asked to review two tests (RX-264 and RX-265) during his examination. Dr. Barber identified RX-264 as the test he purportedly summarized in Section 2.1 and RX-265 as the test he purportedly summarized in Section 2.3 of the Ecological Assessment. (Barber, Tr. 2014-2015.)

¹⁴ Remarkably, ECM’s experts cannot agree on whether aerobic testing is relevant to biodegradation in landfills. Dr. Sahu testified that anaerobic testing is of some relevance (Sahu, Tr. 1839-1840), which is directly contrary to Dr. Barlaz’s report and deposition testimony, FOF ¶ 182. But the landfill experts on both sides agree that landfills are predominantly, if not almost exclusively anaerobic environments. FOF ¶ 182.

¹⁵ Complaint Counsel moved to exclude the McLaren report because it is patently unreliable. Complaint Counsel’s Motion *In Limine* to Exclude the 1999 McLaren Hart Report (filed July 14, 2014). Although the Court ruled that the McLaren report is admissible, it should not be given much weight. It is unclear who conducted these “tests” or how.

Despite ECM's efforts to bolster the reliability of the ECM Assessment by providing some supporting documentation for the tests Dr. Barber summarized in the Assessment, these efforts fail for at least three reasons. First, Dr. Barber identified only **two of at least five** different tests summarized in the report—meaning more than half of the underlying data is missing. (*See* Barber, Tr. 2014-2018 (identifying tests for Sections 2.1 and 2.3, but no tests for Section 2.2, 3.0, and 4.0).) Second, the two reports Dr. Barber did identify (RX-264 and RX-265) cannot be correct. One of the tests he supposedly summarized (RX-265) was dated **after** the ECM Assessment was written. Barber Tr. 2071-2072. The second O.W.S. report, RX-264, describes an anaerobic biodegradation study of the **ECM Additive**, not a study of a **50% ECM film** as described in Section 2.3 of the Ecological Assessment. *Compare* CCX-266E with RX-264.

Moreover, Dr. Barber admitted that none of the supporting tests were in his files or had been produced by him. Barber Tr. 2072. Finally, neither test is signed by O.W.S., further calling into question whether these are the correct tests or had even been performed by O.W.S. at all. *See* RX-264 at 61 (“The sponsor gets 3 copies of the final report, signed by the study director and the quality assurance manager of O.W.S.”); *compare* RX-264 and RX-265 (no signatures) *with* CCX-170 and CCX-171 (O.W.S. final reports with signatures).

Third, most, if not all, of the tests summarized in the ECM Assessment are irrelevant to ECM's claims at issue in this case. Section 2.1 summarizes the results of a short-term aerobic test (with oxygen test) and Section 2.2 summarizes a long-term aerobic test, which, as discussed *supra*, are not appropriate measures for biodegradation in landfills (oxygen-less environments). Additionally, Sections 3 and 4 summarize tests evaluating whether the ECM Additive and ECM Plastic are environmentally safe, not whether the plastic is biodegradable.

a. ASTM D5511 Testing

The only section of the test addressing anaerobic biodegradation of ECM Plastic (which is the only test condition that is relevant to ECM's claims at issue in this case) is Section 2.3, which summarizes an anaerobic (oxygen-less) test conducted under ASTM D5511: "Standard Test Method for Determining the Anaerobic Biodegradation of Plastic Materials Under High-Solids Anaerobic-Digestion Conditions."¹⁶ However, the ASTM D5511 test does not support ECM's claims any more than the composting tests do.

The ASTM D5511 is a screening-level test designed to evaluate whether the test specimen is capable of biodegrading under optimal anaerobic conditions. FOF ¶ 187. It is a "gas evolution test," in which the test specimen is exposed to a source of bacteria (inoculum), and the end-products of biodegradation (biogases) are observed and measured. CCX-891 ¶ 52. This short-term test is designed to run for 15-30 days, and is intended to replicate anaerobic digesters. CCX-891 ¶ 52. There are no anaerobic digesters treating household waste in the United States. CCX-891 ¶ 52. Rather, in the U.S., anaerobic digesters are primarily used at farms to treat animal waste, although there are also some applications for wastewater treatment. CCX-891 ¶ 52. This anaerobic sludge from wastewater (sewage) treatment plants is what many of the labs used to conduct this test. FOF ¶ 470.

¹⁶ ASTM D5511 not only does not substantiate ECM's claims, but ECM repeatedly mislead its customers as to its purpose and use. ECM routinely conveyed to its customers that ECM Plastics were "certified to"; "passed"; or "met" this standard. *See, e.g.*, CCX-288. But the ASTM D5511 is not a "pass/fail" test. Rather, it is a test method that describes a set of procedures and processes for conducting a test. *See* CCX-891 ¶¶ 44-53. Unlike pass/fail tests *e.g.*, ASTM D6400, in which one can state that the treated item is "compostable" at the conclusion of the test, ASTM D5511 only allows the results of the test to be reported, for example 4% biodegradation of the test sample was observed over 30 days under anaerobic digestion conditions. CCX-83. And ECM knew this all along. CCX-963

When properly conducted, ASTM D5511 can be used as a screening-level test. CCX-891 ¶ 53. It cannot, however, be used to support a scientific conclusion that a biodegradable plastic will biodegrade to completion in a landfill—it is not conducted under the correct temperature or moisture conditions—and has numerous other fatal flaws (*e.g.*, test is conducted for insufficient duration and without all necessary proper controls for this type of plastic additive). *See infra* at 61-76; *see also* FOF ¶¶ 139-140. Importantly, as explained above, the underlying data for this test is missing from the record.

3. ECM “Certifies” Performance.

Microtech Research, Inc. (the owner of the ECM Additive) commissioned the ECM Assessment, not ECM. FOF ¶ 49. However, ECM often provides the ECM Assessment to its customers as its own independent testing, FOF ¶¶ 44, 45, and 50, to convince customers to purchase the Additive without doing their own testing. Below is a typical exchange between ECM and its customers regarding the need for testing:

De: Thomas Nealis [mailto:tom.nealis@ecmbiofilms.com]
Enviado el: Jueves, 22 de Octubre de 2009 11:50 a.m.
Para: Juan Domingo Barbieri
Asunto: RE: RV: Samples

Juan Domingo,

Thanks for the quick reply and explanation. Due to the high cost and time needed we don't send samples out for testing. These tests can cost up to \$25,000 and take over a year. We have done testing to prove the biodegradation and I have attached those for your use and review.

Any additional help I can be let me know as we are here to help grow the business.

Regards,

Tom

CCX-301; *see also* FOF ¶ 57.

The testing claim is essential to ECM's business: it gives ECM credibility with its target audience, plastic producers and other businesses who lack sophistication about biodegradation. FOF ¶ 51. ECM's customers also rely on ECM's testing claims as their basis to pass biodegradable claims on to their customers and to end-use consumers. FOF ¶ 52.

ECM's "Certificate of Biodegradability of Plastic Products Made by [Customer] that Incorporate the ECM MasterBatch Pellet Technology" ("Certificate") is also central to its testing claim. FOF ¶ 51. The Certificate claims to "certify that numerous plastic samples, submitted by ECM Biofilms, Inc., have been tested by independent laboratories in accordance with standard test methods approved by ASTM, ISO and other such standardization bodies" FOF ¶ 47. The Certificate states that the tests "certifies [sic] that plastic products manufactured with ECM additives can be marketed as biodegradable" and the certificate itself can be "used by [customer] to validate its claims to the biodegradability" of ECM Plastic. FOF ¶ 48.

ECM frequently provides its customers with the Certificate of Biodegradability. FOF ¶¶ 53, 56. As ECM routinely told customers, ECM has "proof," FOF ¶ 54; ECM stands behind its claims, FOF ¶55; and the Certificate was a means of "**assuring you and your customers**" that ECM's additive worked as advertised , FOF ¶ 56. ECM also used the certificate to convince customers to purchase the additive without doing their own testing. FOF ¶ 57. ECM repeatedly told customers that testing was unnecessary thanks to ECM's assurances in the certificate; testing would only create unnecessary costs and delay. FOF ¶ 57. For example, in one typical exchange, a prospective customer asked:

Does ECM test, or recommend testing, the end-users' products to ensure that they biodegrade in less than 5 years? If the burden is split between the two parties (ECM & Williams) or if it rests solely on Williams, can you tell me what test is run, the expected cost, and timeframe? If that's not part of ECM's procedure, let me know.

ECM Director of Sales, Tom Nealis promptly responded:

We have independent third party test results that prove our claims. ECM will issue to Williams Industries our Certificate of Biodegradability. With our information our customers don't find a need to incur the expense of duplicating our test results.

CCX-300. Similarly, although Mr. Sinclair testified that ECM "encouraged" customers to test, (Sinclair, Tr. 772-773), the evidence clearly shows the contrary. For instance, one of ECM's customers, Fabritrak, asked ECM to recommend a lab for biodegradation testing because the lab it contacted was too expensive. Mr. Sinclair's response was to *discourage* the testing:

Concerning testing, yes it is very expensive which is why most all customers rely on our certification from our hundreds of thousands of dollars of testing over the years rather than going through the expense themselves; especially if they are concerned about their costs as you have indicated that you are. I have attached a certificate for your company hereto if you would like to use it.

CCX-305.

Many of ECM's customers are relatively small companies without the resources to test the ECM additive themselves. FOF ¶ 86. Thanks to ECM's assurances and insistence that its testing proves its claims, these customers rely on ECM's representations about its proof. FOF ¶ 58. And, in turn, customers passed the testing and ECM's testing claims, or the Certificate, on to their customers by posting the Certificate on their websites, sending it to downstream customers, and copying the language verbatim as proof that their plastic is biodegradable. FOF ¶¶ 59-61.

III. ECM SELLS THE RIGHT TO ADVERTISE THAT ECM PLASTICS ARE BIODEGRADABLE.

Customers buy the ECM additive because they want biodegradable plastic—and they want to be able to advertise their plastic as biodegradable. FOF ¶ 22. ECM has sold its product to about 300 customers, FOF ¶ 23, who passed ECM's "biodegradable plastic" claims to millions of end-use consumers, FOF ¶ 24. ECM's customers use these claims to sell a host of products

and packages—ranging from grocery bags to shampoo bottles, Frisbees, golf tees, highlighters, storage cases, shoe soles, mailers, zippers, plastic cutlery, straws, and more. FOF ¶ 25.¹⁷

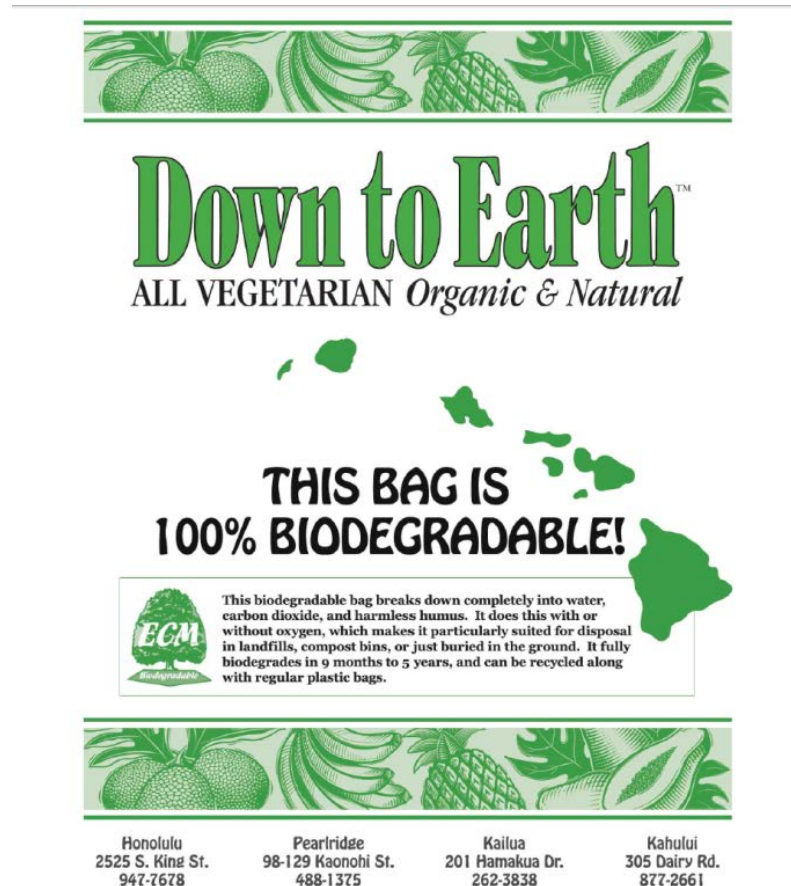
ECM does not simply sell an additive; more importantly, it sells the purported ability to make a “biodegradable” advertising claim. FOF ¶ 62. To that end, ECM provides its customers with the tools to pass ECM’s biodegradable claims to downstream and end-use consumers. Chief among them are the Certificate and the ECM “biodegradable” logo. ECM provides the logo, a picture of a green tree with the words “ECM” and “Biodegradable,” to its customers to place on their products, packaging, and advertisements. FOF ¶¶ 62-63. Many customers use the logo, especially on plastic bags. FOF ¶ 64. Customers have used the Certificate on their websites. FOF ¶ 59.

In addition to the Certificate and logo, ECM provides its customers with marketing materials to use when selling ECM “biodegradable” plastic. FOF ¶ 65. Tom Nealis specifically advised customers to refer consumers to the ECM website, and suggested that they use ECM’s flyer for marketing. FOF ¶¶ 66-67.

ECM not only provided its customers with tangible items to pass on biodegradable claims, it was also actively involved in reviewing, revising, and approving downstream biodegradable advertising claims. Frequently, ECM simply instructed customers to make unqualified biodegradable claims. FOF ¶ 68. Other times, ECM provided detailed guidance on a customer’s specific ad copy. FOF ¶ 69. For example, ECM was integrally involved in developing and approving the following marketing claim for “biodegradable” grocery bags used

¹⁷ ECM tried to suggest at trial that its customers only make thin films and foam packaging. (Sahu, Tr. 1953-1954.) The host of products containing the Additive is not so limited, nor is ECM’s advertising directed solely to one segment of the market. *See, e.g.*, CCX-25 (website stating “The potential uses of this technology are limited only by the imagination.”).

by a Hawaiian grocery store chain called Down to Earth All Natural and Organic (“Down to Earth”), which contains express claims of complete biodegradation in a landfill in nine months to five years:¹⁸



CCX-44-45.

IV. NEITHER ECM NOR ITS CUSTOMERS ARE BIODEGRADATION EXPERTS.

Expertise in making plastic does not entail expertise in biodegradability. In fact, neither ECM nor its customers have the breadth of knowledge and expertise necessary to evaluate and understand the science behind the alleged biodegradability of ECM’s claims.

¹⁸ From mid-2008 through early 2014, Down to Earth purchased “biodegradable” grocery bags from a distributor who bought bags from an ECM customer, Island Plastic Bags. (CCX-803 (DTE, Dep. at 19)).

A. ECM Lacks Biodegradation Expertise.

ECM's business is selling a purportedly "revolutionary," complex technology, but no ECM employee has any degree in chemistry, biochemistry, polymer science, or environmental science. Robert Sinclair, the President of ECM, is the point person for all things related to ECM. Mr. Sinclair is ECM's "main sales contact" and advises customers on both marketing and the "science" behind ECM's technology. FOF ¶¶ 71-73. A lawyer by training, Mr. Sinclair does not have any formal science training beyond a smattering of high school and undergraduate science classes, some time teaching science in the Cleveland Public Schools, and reading *Scientific American*. FOF ¶¶ 74-75.

ECM's Director of Sales is Tom Nealis. FOF ¶ 76. Though his title and frequent customer interactions suggest heavy involvement in the sales process, Mr. Nealis disavows knowledge about most aspects of ECM's business and customer relationships. FOF ¶¶ 77-80. Indeed, he claimed that he did not know how many customers ECM had, why they wanted to buy the ECM additive, or the size of customers. FOF ¶¶ 77-80. Mr. Nealis does not have a college degree. FOF ¶ 81.

In fact, the only employee to have any science-related degree is Alan Poje, and he left the company in 2013. FOF ¶ 82. Mr. Poje is an engineer by training, not an expert in biodegradation, and lacks the requisite background or training to advise customers regarding biodegradation of plastics. Nor did he. His role was to advise customers on plastics extrusion (the mechanics of adjusting the manufacturing process to incorporate the ECM additive), not to advise customers regarding biodegradation times. FOF ¶¶ 83-84.

B. ECM'S Customers Lack Sophistication to Meaningfully Evaluate ECM's Purported Substantiation.

Many of ECM's customers and downstream users are equally untrained in the areas of biodegradation. ECM itself describes some of its customers as "mom and pop"-type businesses. FOF ¶ 86. Mr. Sinclair further testified that his customers are sophisticated in various plastic manufacturing processes—with no mention of biodegradation:

Q. Are your customers, in your view, sophisticated?

A. Absolutely they're sophisticated.

Q. What makes you think they're sophisticated?

A. When you're making a plastic product, there's so much that -- or, again, really, pretty much any product but especially a plastic product, you have to understand the various resin choices that you have, the plastic materials. You may want to use low-density polyethylene on one thing and you want to use linear low-density polyethylene on something else. Or you need high density to strengthen this up or you need to use something of polypropylene. Or you know, if I look at this screen in front of me, it's polycarbonate most likely. And then there's hundreds of different polycarbonates, and so they have to find the exact, right one that's going to give them the strength, the lightness, the various other factors, so they're in -- whether they have their own scientists in-house or not, they're in consultation with scientists all the time. These are very -- and again, this -- they may not have book learning at some point, but to function in the marketplace and to get a competitive product out there is a very sophisticated process, and so these people, they have to understand how their machinery works, how to get the right releases, what additives to use, how to get the right color, how to get the right release from a mold, all these things. There's slippage and there's antilocks for people that are extruding films. There are all these various things that they have to have worked through to get the finished product out the other end and consistently out the other end without a lot of waste. So it's a very sophisticated process, and these people are very good at it. Obviously they make their money doing so.

(Sinclair, Tr. 773-774.)

Indeed, deposition testimony from a number of ECM's customers shows that they did not have the resources or know-how to evaluate ECM's biodegradability claims (beyond seeking information from ECM itself) or conduct their own biodegradability testing. FOF ¶ 87. For example, one of ECM's customers, Island Plastic Bags, is very sophisticated when it comes to

manufacturing customized plastic bags. But it is still a small company—only about 16 employees—and, as such, does not employ anyone with any expertise related to biodegradability. FOF ¶ 88. Island Plastic Bags reviewed ECM’s testing (the Ecological Assessment), but had no way to evaluate whether the testing had been properly conducted and could reliably support its conclusions. FOF ¶ 89. Despite its sophistication in manufacturing, Island Plastic Bags had to rely on ECM when it came to understanding biodegradability. FOF ¶ 90.

Other customers had the resources to conduct or commission their own testing, but not the expertise to meaningfully evaluate the results. FOF ¶¶ 91, 95-97. These companies turned to Mr. Sinclair for guidance in understanding results, including negative results. FOF ¶¶ 91, 95-97. Correspondence with these customers shows that Mr. Sinclair is adept at explaining away negative test results by assuming testing flaws or by accusing the tester of bias. FOF ¶ 97. Indeed, Mr. Sinclair also learned to steer potential customers away from testing labs that provided negative results and towards labs whose dubious testing protocols could produce the semblance of positive results. FOF ¶ 99.

For example, in ECM’s Summary Database, which reflects its communications with its customers, there is a telling exchange between Robert (“Bob”) Sinclair and Scott McGregor at Shields Bag and Printing Company (a long-time ECM customer). In December of 2012, Mr. McGregor asks about the lack of biodegradation after 75 days in a test run by O.W.S.:

11:31 AM **Shields Bag and Printing Company** 1009 Rock Avenue MJ
Contact: **Grove, Marshall** P.O. Box 9848
Yakima, WA

Scott sent email to Bob. CC: Marshall Grove.
Attachments: U-SMG-1_Update-5.docx; SHIELD-Dec-9.pdf
You said there would be signs of degradation after 45 days; we are now at 75 days. Should we continue testing?

7:16 PM **Shields Bag and Printing Company** 1009 Rock Avenue MJ
Contact: **McGregor, M. Scott** P.O. Box 9848
Yakima, WA

Bob sent email to Scott McGregor. CC: Marshall Grove.
We knew this lab was against us but we didn't think they would skew the testing such that the results are so different than any other lab around the world, which apparently is happening. Would need to see a more precise writeup of the procedures to comment more directly. The disintegration testing is just ridiculous. Apologize for referring this lab to you-gave the information of 3 other testing labs that customers have used.

CCX-422. Mr. Sinclair ultimately claims that O.W.S. lacks integrity, and refers Shields Bag to another lab (Eden Research Laboratories):

11:26 AM **Shields Bag and Printing Company** 1009 Rock Avenue MJ
Contact: **McGregor, M. Scott** P.O. Box 9848
Yakima, WA

Bob sent email to Scott. CC: Marshall Grove
Cannot promise that the same problems won't happen at another lab but it is very doubtful as OWS is very involved in commercial composting-thought their scientific integrity would trump their economic motives but this is clearly not the case.

CCX-422.

Tellingly, prospective customers that have both the resources to conduct tests and the expertise to evaluate the results do not use ECM's product. A prime example is 3M Company, a global manufacturer with approximately \$30 billion in sales (employing 75-80,000 people). FOF ¶ 92. 3M was initially interested in the purported biodegradability of ECM Plastic. CCX-821 (3M, Tr. 31.) 3M has its own environmental laboratory, with ready capacity to conduct its own testing of ECM's additive. FOF ¶ 92-93. And 3M did in fact conduct its own test—which showed no biodegradation of plastic containing the ECM additive. FOF ¶ 94. Needless to say, 3M did not become a customer of ECM.¹⁹

¹⁹ 3M is not unique. Other companies with enough sophistication and resources to evaluate biodegradation tests also rejected ECM's technology. FOF ¶ 94. For example, Covidien identified the potential issues related to the additive, *see* CCX-230; CCX-254-CCX-256, and sent plastic with the ECM additive to an independent laboratory, O.W.S., for testing—

V. ECM REPEATEDLY IGNORED EVIDENCE THAT ITS ADDITIVE DOES NOT WORK.

ECM's spurious claims have not gone unnoticed. For years, ECM customers have expressed concerns to Mr. Sinclair and ECM about the validity of its biodegradability claims. Repeatedly, they informed ECM that its testing did not substantiate its claims. FOF ¶ 102. In fact, Mr. Sinclair knew that the National Advertising Division of the Better Business Bureau and at least three foreign tribunals had found that several ECM customers had made false and unsubstantiated biodegradability marketing claims (that used the very language that ECM assured its customers was backed by testing) concerning products containing the ECM additive. FOF ¶ 103.

Despite this scrutiny, ECM continued making its claims and routinely dismissed criticisms as nothing more than bias against the company. FOF ¶ 104. For example, in rejecting criticisms about ECM from Michigan State University Professor and ASTM Plastics Committee Head Dr. Ramani Narayan, Mr. Sinclair referred to Professor Narayan as, among other things, "very biased" and a "paid proselytizer." FOF ¶ 105. Mr. Sinclair has also accused entities such as the Biodegradable Products Institute ("BPI") and OWS of being biased opponents of ECM. FOF ¶ 106.

ARGUMENT

I. ECM MADE DECEPTIVE ADVERTISING CLAIMS.

An advertisement is deceptive if it contains a representation or omission of fact that is likely to mislead a consumer acting reasonably under the circumstances, and that representation or omission is material to a consumer's purchasing decision. *In re POM Wonderful LLC*, No.

which showed no biodegradation of ECM plastic, *see* CCX-157 (test); CCX-158 (presentation summarizing test).

9344, 2013 FTC LEXIS 6 at *17-18 (FTC Jan. 10, 2013) (citing *FTC Policy Statement on Deception*, 103 F.T.C. 174, 175 (1984) (appended to *Cliffdale Assocs., Inc.*, 103 F.T.C. 110 (1984)) (“*Deception Statement*”). To evaluate whether an advertisement is deceptive, the Commission applies a three-part inquiry: “(1) what claims are conveyed in the advertisement; (2) are those claims false or misleading; and (3) are those claims material to prospective consumers.” *Kraft, Inc. v. FTC*, 970 F.2d 311, 314 (7th Cir. 1992).

ECM violated Section 5 of the FTC Act because: (1) it disseminated advertisements conveying the claims alleged in the Complaint; (2) ECM’s claims were false or misleading; and (3) the claims are material to consumers.

A. ECM Disseminated Advertisements Conveying The Claims Alleged In The Complaint.

Advertising claims may be express or implied. “Express claims directly represent the fact at issue while implied claims do so in an oblique or indirect way.” *Kraft*, 970 F.2d at 318 (citing *Thompson Medical*, 104 F.T.C. 648,788 (1984)). ECM made both express and implied biodegradable claims for plastics containing its Additive. ECM’s customers received the claims through ECM’s website and myriad promotion materials, *e.g.*, brochure, flyers, technical data sheets, technology summaries, Certificate, testing, and presentations. FOF ¶¶ 46, 63, 65-66.

End-use consumers received these claims both directly through ECM’s website and through the means and instrumentalities ECM provided to its customers. FOF ¶¶ 107-108, 24-25.

Through all of these means, ECM repeatedly made four express claims: (1) ECM Plastics will biodegrade completely; (2) in nine months to five years; (3) in a landfill; and

(4) scientific testing proves these claims.²⁰ While under investigation by the FTC, ECM changed its primary advertising claim to “biodegradable in some time greater than a year.”²¹ ECM also continued to claim prominently that ECM Plastic was “biodegradable” both on its website and in its brochure.²² This advertising made three implied claims: (1) ECM Plastics will completely biodegrade; (2) after customary disposal (*i.e.*, in a landfill); (3) in a period close to one year, or at least within 5 years. Finally, one ECM expert opined regarding a fourth implied claim: that ECM Plastic biodegrades more rapidly than conventional plastic. (Sahu, Tr. 1753-1754). In addition to making these claims, ECM provided others with the means and instrumentalities to disseminate them.

1. ECM Made Express Biodegradable Claims.

When claims are express, one can “infer that reasonable consumers interpret them to mean what they say.” *FTC v. USA Beverages, Inc.*, No. 05-61682-CIV, 2005 U.S. Dist. LEXIS 39075, at *16-17 (S.D. Fla. Dec. 5, 2005); accord *FTC v. Pantron I Corp.*, 33 F.3d 1088, 1096 n. 21 (9th Cir. 1994).

ECM repeatedly made four express claims: (1) ECM Plastics will biodegrade completely; (2) in nine months to five years; (3) in a landfill; and (4) scientific testing proves these claims.²³ While under investigation by the FTC, ECM changed its primary advertising

²⁰ FOF ¶¶ 18, 26-29, 31-33, 44-48, 50.

²¹ FOF ¶ 38.

²² FOF ¶¶ 39-43.

²³ FOF ¶¶ 18, 26-29, 31-33, 44-48, 50.

claim to “biodegradable in some time greater than a year.”²⁴ Specifically, on its website, in its brochures, and in its presentations, as well as in its letters, emails, and verbal communications, ECM repeatedly claimed that plastic containing the ECM Additive would completely biodegrade in nine months to five years in a landfill—and that testing proved it.²⁵ These express claims are clear on their face. The law is plain that “[e]xtrinsic evidence is unnecessary to establish the impression that consumers would take away from an ad if the claims are reasonably clear from the face of the advertisement.” *In re POM Wonderful LLC*, 2013 FTC LEXIS 6 (Jan. 10, 2013); *Pantron I* at 1088. Accordingly, no further analysis is necessary to determine that ECM made these claims and that its customers and consumers reasonably understood them to mean what they said.

Notably, ECM’s own consumer perception expert, Dr. David Stewart, agreed that prohibiting claims like “nine months to five years” would serve the public interest unless they have scientific support. FOF ¶ 191. Thus, where—like here—there is no competent and reliable scientific evidence for ECM’s claims, the Court should prohibit them.

2. ECM Also Made Implied Biodegradable Claims.

“The courts and the FTC have consistently recognized that implied claims fall along a continuum from those which are so conspicuous as to be virtually synonymous with express claims to those which are barely discernible. It is only at the latter end of the continuum that extrinsic evidence is necessary.” *FTC v. QT, Inc.*, 448 F. Supp. 2d 908, 958 (N.D. Ill. 2006) (quotation omitted), *aff’d*, 128 F.3d 530 (7th Cir. 1997). ECM’s implied claims that ECM

²⁴ FOF ¶ 38.

²⁵ FOF ¶¶ 31-33, 44, 45, 54.

Plastics will completely biodegrade after customary disposal (*i.e.*, in a landfill) are so clearly implied that they need no interpretation. Thus, consumer perception evidence is unnecessary for such claims because they “are reasonably clear from the face of the advertisement.” *Kraft, Inc. v. FTC*, 970 F.2d at 319.

Additionally, when necessary, extrinsic evidence such as consumer surveys, copy tests, or expert witness testimony may be used to interpret claims. *In re Telebrands Corp.*, 140 F.T.C. 278, 291 (2005), *aff'd*, 457 F.3d 354 (4th Cir. 2006). With respect to ECM’s implied rate claims, there is strong extrinsic evidence demonstrating that consumers understood ECM’s “biodegradable” and “biodegradable in some period greater than a year” claims to mean ECM Plastics will completely biodegrade in a landfill within a year.

a. The Evidence Establishes That Substantial Numbers of Consumers Understand “Biodegradable” Claims to Imply Within One Year.

Significantly, as explained below, **the lowest** of the four relevant studies still estimates the percentage of consumers who believe “biodegradable” means “biodegradable within one year or less” is 25%. Put differently, each of four different studies, conducted with four different methodologies, at four different times, by four different sets of researchers, concludes that between 25% and 60% of consumers believe that “biodegradable” means “biodegradable within one year or less.” Although ECM nitpicks the studies in various (largely baseless) respects, Yale Professor Shane Frederick testified regarding their “convergent validity,” *i.e.*, despite their **different** alleged flaws, the probability that they are all materially incorrect is essentially nil.

i. The Number of Deceived Consumers Vastly Exceeds The Threshold For A “Substantial Minority.”

Although the Commission has never determined a minimum number of affected consumers necessary to satisfy the “substantial minority” threshold, courts and the Commission have found repeatedly that percentages ranging from 10% to 22% are sufficient. *See, e.g.*,

Firestone Tire & Rubber Co. v. FTC, 481 F.2d 246, 249 (6th Cir. 1973); *In the Matter of Telebrands Corp.*, 140 F.T.C. 278, 325 (2005). As discussed below, in the four studies before the Court, the percentage of consumers who believe that “biodegradable” products will biodegrade within one year or less generally ranges from 25% to 60% of consumers. Thus, this is not a borderline case.²⁶

ii. The Convergence of All Four Studies Provides Overwhelming Evidence That Substantial Numbers of Consumers Understand “Biodegradable” Claims to Imply Within One Year.

Professor Frederick testified extensively regarding “convergent validity.” FOF ¶¶ 192, 193, 208, 291, 371, 373, 374. “Convergent validity” refers to the degree that studies employing different methodologies yield similar results. FOF ¶ 192. Although not using the technical term “convergent validity,” both the Commission and its ALJs have recognized that the convergence of results from different consumer perception studies confirms that they are “reasonably reliable and probative.” *See, e.g., In the Matter of Bristol-Myers*, 85 F.T.C. 688, 744 n.2 (1975); *In the Matter of Am. Home Prods.*, 98 F.T.C. 136, 252 (1981). Indeed, as one FTC ALJ made clear, a factfinder can draw valid conclusions from several studies even when each study “could not, standing alone, serve as the basis for any conclusion.” *American Home*, 98 F.T.C. at 253.

²⁶ An already overwhelming argument becomes even stronger if one moves the benchmark to five years. In APCO, 65% of respondents believe that packages labelled “biodegradable” should biodegrade within four years. Of 204 respondents in Dr. Stewart’s survey who gave specific estimates about how long an unspecified material would take to biodegrade, 58% estimated within five years. According to Synovate, 45% of consumers believe that “less than five years” is a reasonable amount of time for a “biodegradable” package to decompose in a landfill. In Professor Frederick’s GCS research, depending on the type of question and the wording, 40% to 76% of respondents understood that a plastic product labelled “biodegradable” would biodegrade within five years. Of the twelve questions Professor Frederick asked directly addressing this subject, more than 50% of respondents understood that a plastic product labelled “biodegradable” would biodegrade within five years in nine of twelve cases. FOF ¶¶ 209-13

As discussed below, there is more than adequate evidence that: (1) standing alone, Professor Frederick's research establishes that substantial numbers of consumers understand "biodegradable" to mean biodegradable within one year; (2) the two studies the Commission originally considered (APCO and Synovate), when taken together, establish the same fact; and (3) standing alone, Dr. Stewart's data establishes the same fact. However, the Court need not consider whether any study alone suffices. Instead, the combined power of all four studies makes the conclusion beyond reasonable dispute:

- In 2006, the American Plastics Council ("APCO") conducted a telephone survey focused on plastic products, and found that **60%** of respondents believe that packages labelled "biodegradable" should biodegrade within one year. FOF ¶¶ 194, 195.
- In 2010, Synovate conducted an internet panel survey, and reported that **25%** of consumers believe that "less than one year" was a reasonable amount of time for a "biodegradable" package to decompose in a landfill. FOF ¶¶ 196, 197.
- In 2014, Professor Frederick used Google Consumer Surveys ("GCS") to assess how much time consumers believe plastic products labelled "biodegradable" will take to biodegrade. He estimated that **35%** believe such products will biodegrade within one year. FOF ¶¶ 198-200.
- In 2014, Dr. Stewart supervised a 400-person landline survey. Of 204 respondents who gave specific estimates about how long an unspecified material would take to biodegrade, **33%** estimated within one year. He also asked respondents what ECM's disclaimer "some period greater than a year" meant, and of the 150 respondents who gave specific biodegradation time estimates, 50% estimated within one year. FOF ¶¶ 201-7.

Professor Frederick explained that the convergent validity between these different studies establishes that at least 35% of consumers believe that plastic products labelled "biodegradable" will biodegrade within one year. FOF ¶ 208.

Significantly, ECM's response to "convergent validity" misunderstands the concept. "Convergent validity" refers to the convergent results of different surveys with **different** flaws. ECM's expert, Dr. Stewart, rejected the convergence between the four studies in this case because, according to him, the similarity of their results "may simply reflect the fact that they share the same flaw." FOF ¶ 214. This is an attack on a straw man. In fact, these surveys do not share the same flaw, nor does Dr. Stewart allege that they do. Each employs significantly different methodologies, giving validity to the overall conclusion that significant numbers of consumers understand that products labelled "biodegradable" will biodegrade within one year.

iii. Standing Alone, Professor Frederick’s Research Establishes That Substantial Numbers of Consumers Understand “Biodegradable” Claims To Imply Within One Year.

(a) *Survey Research Need Not Be Perfect—Only Reasonably Reliable and Probative.*

Survey evidence need not be perfect, as long as it is “reasonably reliable and probative.” *See, e.g., POM Wonderful LLC*, 2013 FTC LEXIS 6 at 49. FOF ¶ 215. In two respects, ECM suggests that Professor Frederick misunderstood this standard. First, ECM highlights the fact that Professor Frederick—who is an academic, not an attorney—was unfamiliar with the standards the Commission uses to evaluate survey research. FOF ¶ 216. However, when asked, on cross-examination, “[w]hat do you consider to be the generally accepted survey principles that define a valid survey,” Professor Frederick responded: “A valid survey is one which produces accurate results.” FOF ¶ 217. This is functionally identical to the Commission’s standard that looks to whether a survey is reasonably reliable and probative. *See In the Matter of Bristol-Myers Co.*, 85 F.T.C. 688, 744 n.2 (1975) (noting the fact that different “surveys are from independent sources and tend to confirm one another” is relevant to whether surveys are reasonably reliable and valid); *In the Matter of Thompson Med. Co.*, 104 F.T.C. 648, 836 n.82 (“The consistency of this finding across both studies should have been a warning signal to Thompson that potential consumers might be confused about the ingredients of Aspercreme.”); *In the Matter of Am. Home Prods.*, 98 F.T.C. 136, 252 (noting that “[t]he fact that these studies generated consistent results over a relatively short period of time (three to four years) enhances their reliability”) (ALJ op.).

Second, ECM points to *The Manual for Complex Litigation* as purportedly defining validity, a legal treatise with which Professor Frederick was also unfamiliar. Notably, however, that treatise merely points to various indicia of a probative survey (for instance, whether the questions are clear, and whether the data gathered were accurately reported). The Commission has never employed this *Manual* to analyze surveys, although the various considerations it

references are consistent with an inquiry into whether a survey is reasonably reliable and probative. Indeed, under Commission authority, any consideration relevant to whether a survey is reasonably reliable and probative is relevant. Despite ECM's implication, the fact that Professor Frederick (a prominent marketing academic and survey research expert) is unfamiliar with the Commission's legal standard for survey research is irrelevant to whether his research conformed to that standard (which it did).

(b) *Professor Frederick's Research Is Reasonably Reliable and Probative.*

1. Background Regarding Professor Frederick's GCS Surveys.

GCS pays approximately 340 mainstream internet content providers to present survey questions to internet users who would otherwise need to pay to receive the content. FOF ¶ 218. Put differently, GCS gives internet users the opportunity to obtain content from behind a paywall in exchange for answering a survey question. FOF ¶ 218. When possible, GCS infers five important demographic features of survey participants (gender, approximate age, geographic region, income range, and urban density (whether the respondent resides in an urban, suburban, or rural area)). FOF ¶ 218. With respect to age and gender, Google infers demographic information based on the respondent's browsing history as recorded in a DoubleClick advertising cookie. FOF ¶ 273. GCS infers the respondent's location based on the computer's IP address, and infers the respondent's income and urban density "by mapping the location to census tracts and using the census data to infer income and urban density."²⁷ FOF ¶ 274. GCS then uses this

²⁷ "For approximately 30-40% of [GCS] users, demographic information is not available—either because their cookies are turned off but more often because the [GCS] algorithm cannot determine a trend from the websites visited as recorded in their DoubleClick advertising cookie that would suggest what gender or age they are." FOF ¶ 277. In Professor Frederick's data, when GCS lacked sufficient information about a particular respondent to infer a given demographic characteristic, GCS (and Professor Frederick) reported that characteristic as "unknown." FOF ¶ 276. However, the absence of demographic information is irrelevant as long as the GCS sample is reasonably representative, which it is. *See infra* at 35-39 (discussing lines of evidence establishing that the GCS samples is reasonably representative).

information “to ensure each survey receives a representative sample.” FOF ¶ 275. Finally, GCS reports demographic information, along with the survey’s exact results, back to the researcher (in this case, Professor Frederick). FOF ¶ 218.

Professor Frederick designed more than sixty different questions and collected approximately 29,000 responses to those surveys. FOF ¶ 218. His research included twelve different surveys assessing how much time consumers believe plastic products labelled “biodegradable” will take to biodegrade. FOF ¶ 290. Based on this data, Professor Frederick concluded that 35% of consumers believe that a plastic product labelled “biodegradable” will biodegrade within a year. FOF ¶ 200.

2. Undisputed Evidence Establishes That GCS Is Reasonably Representative of American Consumers.

Significantly, Professor Frederick testified that the population of American internet users is more demographically and psychographically²⁸ representative of the population of American consumers than other potential survey media, such as internet panels, landline surveys, or “mall intercept”-style face-to-face interviews. FOF ¶ 224. This is partly because the GCS survey mechanism is much less intrusive than other types of surveys, and partly because the percentage of the population that uses the internet is enormous (85% in 2013).²⁹ FOF ¶ 225. Importantly, five largely undisputed³⁰ lines of evidence establish that GCS respondents are both reasonably

²⁸ “Psychographic representativeness” means that the sample reflects a population’s psychological characteristics (such as beliefs or opinions). FOF ¶ 221. Although demographic representativeness is correlated with psychographic representativeness, the differences between these measures are important because a sample may match consumers’ demographics perfectly, yet come nowhere close to matching their beliefs and attitudes. FOF ¶ 222. This is pertinent because internet users willing to respond to a single GCS question are more likely to be psychographically representative than people with landlines who are willing, without compensation, to take an approximately twelve-minute survey. FOF ¶ 223.

²⁹ In contrast, 40% of Americans do not have a landline. FOF ¶ 226.

³⁰ As discussed below, ECM disputes Professor Frederick’s opinion that GCS is representative. However, ECM did not challenge any of the specific facts upon which Professor Frederick based his conclusion, nor did Dr. Stewart testify contrary to these specific facts.

representative of internet users and American consumers: (1) an independent Pew Research study; (2) Nate Silver's analysis; (3) Google's validation efforts; (4) Professor Frederick's investigation; and (5) Google's incentives.

First, as Professor Frederick explained, shortly after Google introduced GCS in 2012, the independent Pew Research Center ("PEW") compared the results of its own telephone survey of internet users with GCS respondents. FOF ¶ 227. As PEW concluded: "A comparison of several demographic questions asked by Pew Research indicates that the Google Consumer Surveys sample appears to conform closely to the demographic composition of the overall internet population." FOF ¶ 228. Specifically, PEW compared the demographics of its survey of internet users with GCS respondents according to six metrics (gender, age, race, marital status, home ownership, and church attendance). FOF ¶ 229 (reproducing entire chart). As Professor Frederick testified, "for all intents and purposes, they're identical." FOF ¶ 230. Furthermore, PEW compared its telephone survey respondents with GCS respondents along dozens of different measures of opinions and attitudes. FOF ¶ 231. Although PEW noticed differences depending on the precise question, "the median difference between 43 results obtained from Pew Research surveys and using [GCS] was 3 percentage points," and mean difference was six points. FOF ¶ 232. Noteworthy findings include (1) similar percentages reported owning particular devices and engaging in various online activities, (2) similar views about the size and role of government, and (3) comparable views about a variety of foreign policy issues. FOF ¶¶ 233-38. Significantly, ECM's expert, Dr. Stewart, never questioned PEW's significant findings. FOF ¶ 239.

Second, Professor Frederick noted Nate Silver's study detailing GCS's impressive performance in predicting the 2012 presidential election results.³¹ FOF ¶ 241. In his well-

³¹ Regarding the 2012 presidential election, PEW noted: "In a series of tests after each presidential debate, the Pew Research surveys and [GCS] produced similar reactions." FOF ¶ 240.

known *New York Times* blog, Mr. Silver compared the accuracy of twenty-three polling entities that conducted at least five polls in advance of the 2012 election. FOF ¶ 242. GCS tied for second place, conducting twelve pre-election polls with an average error relative to the actual results of only 1.6%. FOF ¶ 243. GCS finished ahead of better-known entities including CNN, Reuters, and Gallup. FOF ¶ 244. As Mr. Silver wrote: “The final poll conducted by [GCS] had Mr. Obama ahead in the national popular vote by 2.3 percentage points—very close to his actual margin, which was 2.6 percentage points.” FOF ¶ 245. At trial, Professor Frederick explained that “[t]he fact that [GCS] is doing so well [compared] with all these other opinion polling firms . . . suggests to me . . . that the population is both psychographically and demographically representative. Otherwise, I don’t think they’d be able to accurately predict who people are going to vote for.” FOF ¶ 246. Notably, Dr. Stewart offered no testimony regarding Mr. Silver’s conclusions, or Professor Frederick’s evaluation of them. FOF ¶ 247.

Third, Google engaged two survey research firms to administer identical questionnaires to internet panels representative of American adults. FOF ¶ 248. Google also administered the same survey thirteen times through GCS. FOF ¶ 248. The results of the three surveys were compared to established benchmarks related to media usage and health data. FOF ¶ 249. Significantly, the GCS surveys performed as well, or better than, the internet panel surveys, and—perhaps most important—the GCS surveys deviated from the established benchmarks by only approximately 4%. FOF ¶ 250. Dr. Stewart did not testify regarding this study. FOF ¶ 252.

Fourth, through direct communications with Google, Professor Frederick verified GCS’ *bona fides* himself. FOF ¶ 253. Specifically, he conferred telephonically with Google’s representatives twice to confirm the mechanics and methodology GCS employs. FOF ¶ 253. As Professor Frederick explained, “[s]uch interviews with data collectors are regularly conducted in my field to ascertain the reliability of data-gathering techniques.” FOF ¶ 253. Furthermore, although relying on GCS is relatively new, relying on a third party to ask questions and gather data from a representative sample is not. As ECM’s expert agreed, “[i]t is typical in survey

research” to rely “on the belief that a survey research firm is operating as you would expect them to operate with respect to the gathering of data.” FOF ¶ 254. Significantly, through his conversations with Google, Professor Frederick concluded that, “[b]ased on Internet protocol (IP) address and browsing history, GCS uses dynamic imputation algorithms to help ensure [the] demographic representativeness of [its] sample data.” FOF ¶ 255. In contrast, Dr. Stewart: (1) never communicated with GCS, and (2) never testified that, as a survey research expert, it was somehow inappropriate for Professor Frederick to rely on communications with Google regarding GCS’ methodology. FOF ¶¶ 256, 257.

Fifth, Professor Frederick testified that, because Google delivers advertising to users partly based on their demographics, it has “high incentives” to get that information reasonably correct. FOF ¶ 258. As Professor Frederick explained, “[a]dvertisers value online advertising only to the extent that it works, which gives Google strong incentives to accurately ascertain the demographic characteristics of respondents advertisers target.” FOF ¶ 259. Overall, he concluded that GCS is “highly representative both demographically and psychographically.” FOF ¶ 260.

In an attempt to refute the five lines of mutually-reinforcing evidence, ECM provides little more than *ad hominem* attacks, blog posts, and—in one case—a tweet. Much of Dr. Stewart’s opinion related to GCS is more name-calling than substance: for instance, his report repeatedly uses scare quotes when discussing Professor Frederick’s GCS research (referring to it as a “survey”). FOF ¶ 262. Dr. Stewart also broadly pronounced that no “serious scholar” would conclude that GCS is “in the legitimate market research business.” FOF ¶ 266. On cross-examination, however, Dr. Stewart reluctantly admitted that Professor Frederick published an article relying partly on GCS data in *THE JOURNAL OF MARKETING RESEARCH*, a well-respected peer-reviewed journal. FOF ¶¶ 264, 265.

Next, Dr. Stewart’s report alluded to alleged instances in which GCS “has been far off the mark,” but—as he admitted at trial—his source for this claim is an unverified and unexplained tweet. FOF ¶¶ 268, 269. Indeed, he admitted that he never performed “any type of

systematic analysis” to determine GCS’ accuracy. FOF ¶ 270. Although shortly before trial, ECM’s counsel compiled 19 blog posts criticizing GCS and added them to the exhibit list, Dr. Stewart never testified regarding these posts. FOF ¶ 267. Indeed, most are from other survey researchers (*i.e.*, competitors) and have nothing to do with whether GCS is reasonably representative. FOF ¶ 267. In short, all of the competent evidence submitted supports Professor Frederick’s conclusion that GCS is sufficiently representative to support valid conclusions from the data he collected.

3. Both Parties’ Experts’ Testimony Establishes That Demographic Information About Survey Respondents Is Unnecessary if the Overall Sample Is Representative.

Professor Frederick testified—consistent with elementary survey research principles—that demographic data about each individual survey respondent is unnecessary if the overall sample is representative. FOF ¶ 271. As he explained, as long as the sample represents the population the researcher is attempting to measure, “it makes no difference whatsoever” whether particular respondents’ demographics are known. FOF ¶ 272. Indeed, Professor Frederick characterized the irrelevance of respondents’ individual demographic characteristics as “the essence of random sampling.” FOF ¶ 272. This is why, with respect to GCS, it makes no difference if certain inferred demographics are missing or arguably unreliable for particular respondents. FOF ¶ 272.

Significantly, Dr. Stewart’s own study proves Professor Frederick’s point. The record is clear that Professor Frederick’s GCS survey collected considerably more demographic information about respondents than Dr. Stewart’s 400-person landline survey. In fact, Dr. Stewart’s vastly smaller landline survey collected no data at all regarding income, geography, or urban density.³² FOF ¶ 279. Put differently, each of those three demographic characteristics is

³² Geographic information is potentially significant because—as Dr. Stewart conceded—“beliefs regarding the importance of purchasing environmentally-friendly products might vary” between “people living in cities and people living in rural environments,” or between people living in different regions of the country. FOF93.

unknown for 100% of Dr. Stewart's respondents. FOF ¶ 280. Even with respect to gender and age, Dr. Stewart conceded that the data his researchers collected was almost certainly incorrect in at least some instances, and that he did nothing to verify it. FOF ¶¶ 282, 284, 285.

Significantly, notwithstanding the absence of complete or perfectly reliable demographic information, Dr. Stewart had no difficulty concluding that his study was valid. FOF ¶ 286. This is because, as discussed above, respondents' individual demographic traits are irrelevant as long as the overall pool is reasonably representative. FOF ¶ 287. Simply put, the fact that GCS lacks complete and perfect demographic data about its respondents is a red herring.

4. ECM Does Not Challenge Professor Frederick's Questions.

Notably, ECM did not challenge the wording or structure of any question Professor Frederick asked. FOF ¶ 288. Specifically, he asked more than sixty different questions, including twelve asking consumers to estimate, in an open-ended format, the time needed for a plastic product labelled "biodegradable" to biodegrade. FOF ¶¶ 289-90. The many different questions enabled Professor Frederick to test what effect, if any, the wording of particular questions has. FOF ¶ 291. For instance, some questions involved the "ECM Biodegradable logo," some involved other "biodegradable" logos, and some involved only words.³³ FOF ¶ 294. As Professor Frederick explained, "if it's the case that you get the same result despite asking questions in different ways," it increases the "robustness" or convergent validity of the results. FOF ¶¶ 291-92. As discussed below, substantial numbers estimated that plastic products labelled "biodegradable" would biodegrade within one year—no matter how the question was presented. FOF ¶ 293.

³³ As discussed *supra*, at [REDACTED], ECM's "biodegradable" claims reach end-use consumers in different ways. Sometimes, the "ECM biodegradable" logo itself reaches consumers (and ECM encourages this). Sometimes, end-use products are labelled "biodegradable" along with an "eco-friendly" label unique to the particular end-use seller. Sometimes, products containing the ECM Additive are simply labelled "biodegradable." See *supra*, at [REDACTED] (discussing the different ways in which ECM Plastic is labelled when sold to end-use consumers).

**(c) Substantial Numbers of Consumers Understand
“Biodegradable” To Mean Within One Year.**

For nine of the twelve questions asking consumers to estimate biodegradation times for plastic labelled “biodegradable,” at least 30% estimated the product would biodegrade within one year—and in no case did fewer than 20% give such an estimate.³⁴ FOF ¶ 298. Furthermore, depending on the question’s phrasing, majorities ranging from 53%-68% would consider it misleading if a plastic product labelled “biodegradable” did not biodegrade within one year. FOF ¶ 299. For instance, when asked: “A company should be allowed to label its plastic packaging material as ‘biodegradable’ if it biodegrades within what amount of time,” **68%** responded with one year or less, and only 9% of consumers gave numbers greater than five years.³⁵ FOF ¶ 300. Additionally, consistent with the *Green Guides*, a substantial number of consumers believe that generic “products” (as opposed to plastic products) labelled “biodegradable” will biodegrade within one year. FOF ¶ 302. Again, Professor Frederick asked the question many different ways, and “one year or less” responses ranged from 42%-74%.³⁶ FOF ¶ 302.³⁷

³⁴ Notably, from 40% to 76% of respondents understood that a plastic product labelled “biodegradable” would biodegrade within five years. In response to nine of the twelve surveys, more than 50% of respondents understood that a plastic product labelled “biodegradable” would biodegrade within five years. FOF ¶ 212.

³⁵ Indeed, as discussed *supra* at [REDACTED], even ECM’s witnesses estimated that ECM Plastic would take thirty years to more than one hundred years to biodegrade. Assuming that this is true, few consumers believe it is appropriate to label a product “biodegradable” if it takes that long to biodegrade. Specifically, if the responses to Questions 4A-4E are aggregated, less than 5% of consumers believe companies should be allowed to label as “biodegradable” products that take longer than twenty-five years to biodegrade. FOF ¶ 301.

³⁶ This range excludes two questions (1I and 1J) that were intended to test the effect of using the word “years” in the question, which suggests a longer process. FOF ¶ 303. Notably, even when consumers were asked: “If a package is labelled ‘biodegradable,’ how many **years** will it take to biodegrade,” 25% **still** estimated one year or less. FOF ¶ 303 (emphasis added).

³⁷ ECM did not dispute other facts that “biodegradable” implies. Professor Frederick’s study, APCO, and Synovate establish that most consumers believe plastic products labelled “biodegradable” will biodegrade in landfills. FOF ¶ 311. Additionally, across eight GCS surveys with varied wording and question type, 37%-50% of consumers understood that a plastic product labelled “biodegradable” will biodegrade completely into elements found in nature. FOF ¶ 312.

**(d) ECM's "Some Period Greater Than a Year"
Implies Faster Biodegradation to Many Consumers.**

Professor Frederick also compared ECM's prior qualifier ("nine months to five years") with its new attempt to qualify its "biodegradable" claim ("some period greater than a year"). Significantly, "nearly half, between 40 and 50 percent, of consumers construe the qualifier 'some period greater than a year' as implying **faster** biodegradation than the qualifier 'nine months to five years.'"³⁸ FOF ¶ 304. Dr. Stewart did not challenge (or even address) Professor Frederick's conclusion that ECM's "some period greater than a year" language did not materially increase consumers' estimated biodegradation times. FOF ¶ 310.

(e) ECM's Critiques Are Baseless.
**1. Professor Frederick Correctly Employed
a Bright-Line Rule.**

ECM contends that Professor Frederick improperly excluded various responses from his data, but this assertion ignores both his rationale and the fact that his coding decisions did not affect his conclusions. As he explained, Professor Frederick employed a "bright line" coding rule designed to avoid any "value judgments about which responses are 'too inaccurate' to count." FOF ¶ 313. His bright-line rule was that "any response containing both a numeric specification and an accompanying temporal unit" was coded (*e.g.*, "6 months"), other responses were not. FOF ¶ 314. Accordingly, Professor Frederick excluded five types of responses: (1) numeric responses lacking a temporal unit (for instance, "1"); (2) responses lacking a specification of quantity (for instance, "months"); (3) responses indicating unwillingness to answer without further clarification ("it depends"); (4) responses indicating an unwillingness to respond because of reported uncertainty ("I don't know"); and (5) "bypass" or "protest"

³⁸ Notably, Professor Frederick is an anchoring expert, and he attributed the failure of ECM's new qualifier to produce meaningfully longer estimated biodegradation times in part to the fact that "[t]he specified minimum value ('one year') likely functioned as a numeric referent towards which some respondents' subsequent estimates assimilate." Specifically, although the new qualifier increases the number of longer estimates, it also increases the percentage who believe the product will biodegrade within two years from (17% to 29%). FOF ¶¶ 306-309.

responses intended to circumvent the survey (“e.g., “go away”).³⁹ FOF ¶ 315. Critically, omitting these responses would only affect the results if respondents who gave them hold different views concerning biodegradation than the rest of the population. FOF ¶ 317. However, “there is no reason to believe that any of the people whose responses [Professor Frederick] did not code hold a view of biodegradation that differs from the rest of the population[.]” FOF ¶ 317.

To provide one illustration, **Dr. Stewart** reluctantly explained that survey respondents with views regarding the correct answer sometimes state “I don’t know” because they lack sufficient confidence in their view, or because they fear embarrassment if they respond incorrectly. FOF ¶ 318. Dr. Stewart conceded it was “generally true” that “there’s a literature on the ‘I don’t know’ response [in survey research], and that literature generally finds that you don’t change the distribution of responses substantially by preventing people from saying ‘I don’t know.’” FOF ¶ 319. Similarly, Professor Frederick testified there was no reason to conclude “that as a group, people who give ‘I don’t know’ responses to questions asking for beliefs regarding biodegradation time have different beliefs than people who gave [specific estimates].” Accordingly, omitting “I don’t know” responses does not “affect the conclusions of the research.” FOF ¶ 320.

To provide a second example, Professor Frederick compared the distribution of (uncodeable) numeric responses that did not have an accompanying unit (for instance, “1”) with the distribution of (coded) responses that had an accompanying unit (“for instance, “1 year”). FOF ¶ 321. Because the distribution of responses was “very similar,” there is “every reason to believe that these people [who gave uncodeable responses] have the same distribution of beliefs as the people who provided a unit.” FOF ¶ 322. In short, because the people whose responses Professor Frederick excluded likely have the same distribution of beliefs regarding

³⁹ As Professor Frederick testified, he did not code these responses because there is no way to translate them into a specific estimate of biodegradation time. FOF ¶ 316.

biodegradation time than those who gave codeable responses, excluding them does not “affect the inferences drawn from the data.” FOF ¶ 323.

2. ECM’s Other Challenges To Professor Frederick’s Coding Are Baseless.

ECM makes myriad other challenges to Professor Frederick’s coding, all of which are baseless and only a few of which even warrant mention. For instance, ECM characterizes consumers’ short biodegradation time estimates (including days and weeks) as “absurd” and “ludicrous,” FOF ¶ 337, and implies that Professor Frederick should have excluded these responses.⁴⁰ ECM’s critique ignores that “biodegradation” is a technical concept, and most consumers are not polymer chemists or environmental engineers. Although a claim is not deceptive if it is “**unreasonably** misunderstood by an insignificant and unrepresentative segment” of consumers,” *Deception Statement*, 103 F.T.C. at 178 (quoting *In re Kirchner*, 63 F.T.C. 1282, 1290 (1963), *aff’d*, 337 F.2d 751 (9th Cir. 1964)) (emphasis added), there is no evidence that consumers who believe a product labelled “biodegradable” will biodegrade within days or weeks have an *unreasonable* misunderstanding.” Given that ECM’s own expert testified that ECM Plastic will not biodegrade in anaerobic conditions within even five years, there is no legally valid basis to conclude that one set of mistaken estimates (days, weeks) should be excluded as unreasonable or “absurd,” whereas another set of mistaken beliefs (months, one year) is close enough to count.⁴¹

⁴⁰ ECM also points to extremely short estimates, for instance, “a nanosecond.” In reality, out of approximately 20,000 responses to open-ended questions, only two consumers responded with “a nanosecond.” FOF ¶ 338. During his cross-examination, ECM confirmed that Professor Frederick coded approximately 26 responses of seconds, minutes, or hours, but this represents less than .001% of the data collected. FOF ¶ 339. These 26 responses might represent people who mistook “biodegradation” for dissolution, people who misunderstood the question as asking when the biodegradation process begins, or people who did not take the question seriously. Regardless, the number of these responses is too small to affect the data. FOF ¶ 340.

⁴¹ ECM’s critique also (1) fails to acknowledge that, like Professor Frederick, Dr. Stewart also coded very short estimates and included them in his data, and (2) fails to note that Professor Frederick coded both extremely long responses as well as extremely short ones—again, he implemented a “bright line” rule intended to avoid value judgments, *see supra* at [redacted]. FOF ¶¶ 313, 314, 343.

Additionally, ECM falsely asserts that Professor Frederick's study was not "double-blind." However, neither GCS respondents (who provided data) nor GCS itself (which collected the data) knew who sponsored Professor Frederick's study. FOF ¶ 344. Finally, any implication that Professor Frederick or his coders somehow handled the data improperly is false. The coding of numeric responses generally does not have any significant subjective component, nor is there any evidence that the very few arguably subjective judgments Professor Frederick made were mistaken and somehow affected his results.

3. A Tiny Number of "Protest" Responses Among 20,000 Responses To Open-Ended Questions Is Irrelevant.

At trial, ECM tried to make much of the unsurprising and irrelevant fact that, out of approximately 20,000 responses Professor Frederick collected to open-ended questions, a very small fraction (less than 1%) gave "protest" responses intended solely to bypass the GCS survey wall.⁴² FOF ¶ 324. There are two problems with ECM's position. First, Professor Frederick testified that excluding such responses had no material effect because there is "no reason to believe people who [give protest responses] actually have different views about biodegradation times than the people who g[a]ve responses which are codeable."⁴³ FOF ¶ 324. Dr. Stewart did not challenge this conclusion either. FOF ¶ 325. Second, ECM offered no evidence through Dr. Stewart or otherwise that including this tiny number of protest responses (less than 1%) would

⁴² Professor Frederick also testified that GCS takes steps to ensure that people who respond randomly do not receive future surveys by periodically asking questions with obvious answers (for instance, how many states are there in the United States?), and ensuring that persons who respond incorrectly do not receive future surveys. FOF ¶ 326.

⁴³ Indeed, logically, there is no reason to think that the less than 1% of respondents who react to a survey with a bypass response (random typing) or a protest response (a snide remark) are psychographically different from the population at large in any respect relevant here. If, for example, the GCS question asked for views about paywalls limiting access to online content, then excluding bypass/protest responses from the data might be problematic. In this context, however, there is no reason to think that bypass/protest responders, as a group, would give different biodegradation time estimates than people who give sincere responses. FOF ¶ 327.

have changed the results, even assuming (inexplicably) that people inclined to protest GCS surveys are also disproportionately inclined to estimate very long biodegradation times.

4. There Is No Credible Evidence of “Disinterest Bias.”

In his report, Professor Stewart briefly alleged that a “disinterest bias” exists. Specifically, ECM alleges that GCS respondents give random answers to bypass the survey wall. FOF ¶ 328. For several reasons, this critique fails. First, Dr. Stewart’s report references only a blog post from a GCS competitor alleging “disinterest bias.” FOF ¶ 329. Indeed, Professor Frederick testified that alleged “disinterest bias” has not been studied in academic literature (and his search for the term produced no results). FOF ¶ 330. Second, the fact that less than 1% of respondents gave protest responses provides additional evidence that the overwhelming majority of respondents gave thoughtful answers. FOF ¶ 331. Third, the fact that average response times for GCS respondents were generally above 20 seconds (meaning that the average respondent took more than 20 seconds before responding) provides additional “evidence that people are thinking about the question.”⁴⁴ FOF ¶ 332. As Professor Frederick explained, “[i]t wouldn’t make any sense . . . for someone to see a question, to sit there and do nothing, and then key in a nonsense response [after] 22 seconds”⁴⁵ to bypass the survey wall when he or she could do so immediately. FOF ¶ 333. Finally, the fact that less than 1% of respondents gave protest

⁴⁴ In fact, as Professor Frederick testified, and Dr. Stewart ultimately conceded, a question in which the consumer gives a response after twenty seconds much better replicates the actual consumer experience when confronted with a “biodegradable” claim on a store shelf than a telephone interview taking ten minutes or more. FOF ¶ 336. Ultimately, how consumers behave in the real world is what is important, not how they respond after discussing biodegradation on their landline for ten minutes.

⁴⁵ ECM attempts to account for the response time by suggesting that respondents might have become distracted between when GCS presented the question stem and when they responded. FOF ¶ 334. As Professor Frederick testified, “obviously [this] does happen sometimes,” but “I don’t think it’s common that people would be interrupted between reading the question stem and answering[.]” FOF ¶ 335. In short, atypical distractions might account for a few response times of twenty seconds or more, but not hundreds or thousands.

responses (that could reflect “disinterest”) is irrelevant because there is no reason to believe that such respondents, as a group, hold different beliefs regarding biodegradation time. FOF ¶ 327.

5. The Absence of “Screening Questions” Is Irrelevant.

Although ECM criticized Professor Frederick for not screening out people who denied knowing the scientific definition of “biodegradation,” it would have been inappropriate to do so.⁴⁶ Initially, as Dr. Stewart admitted, screening can remove people who **do** understand what “biodegradation” means, but who are not confident in their understanding, or who have decided that they no longer want to participate in the survey.⁴⁷ FOF ¶ 348. Additionally, the Commission evaluates claims “in light of the sophistication and understanding” of the audience (in this case, American consumers generally). *See, e.g., Deception Statement*, 103 F.T.C. at 178-79. As Professor Frederick explained, the population of American consumers whom a false biodegradable claim might deceive includes many consumers whose understanding of “biodegradation” is mistaken or incomplete according to scientists, and consumers who believe “biodegradability” is a positive attribute even if they do not know precisely why. FOF ¶ 349. Indeed, Dr. Stewart reluctantly concurred that a consumer might purchase a product “because he or she thinks biodegradation is a positive attribute even if his or her understanding of the term is scientifically incorrect,” and such a consumer “can still be misled if the product doesn’t biodegrade as he or she understands the term[.]” FOF ¶ 350. Simply put, Professor Frederick properly sampled the legally relevant population of consumers, including the many who are

⁴⁶ ECM also criticized Professor Frederick for not screening out respondents who reported not purchasing anything plastic within the past month, or who work in the plastics industry. Even assuming some minuscule number of the 29,000 GCS respondents fall within these categories, the presence of few outliers would not affect the data. FOF ¶ 351.

⁴⁷ Furthermore, the evidence at trial was clear that screening questions such as the one Dr. Stewart employed are ineffective. Dr. Stewart still included dozens of respondents who understood that “biodegradable” meant that the product was recyclable, that it would **not** degrade, that it would “self-destruct,” and even that it was digestible. FOF ¶ 347.

uncertain of their understanding of “biodegradation” as a concept even if “biodegradable” claims affect their purchasing decisions.

iv. Standing Alone, Professor Stewart’s Research Is Sufficient To Establish That Substantial Numbers of Consumers Understand “Biodegradable” To Imply Within One Year.

(a) Dr. Stewart’s Data Establishes That Substantial Numbers of Consumers Understand “Biodegradable” To Mean Within One Year.

Dr. Stewart supervised a 400-participant landline survey. FOF ¶ 352. Although he (tellingly) never asked respondents to estimate how long it would take plastic products labeled “biodegradable” to biodegrade, *see infra* at [REDACTED], he did collect data bearing upon this key issue. FOF ¶ 353. First, Dr. Stewart’s landline callers asked (without specifying a material or that the product was *labeled* “biodegradable”): “If something is biodegradable, how long do you think it would take for it to decompose or decay?” FOF ¶ 354. Of the 400 respondents, a majority (206) gave codeable estimates,⁴⁸ and of those respondents, **33%** gave estimates of one year or less.⁴⁹ FOF ¶ 355. This is sufficient to support the relief requested even without considering the GCS, APCO, and Synovate results.

Obviously, ECM contests that Dr. Stewart’s opinion supports its liability, and ECM asserts that his study merely establishes that consumers hold many different views regarding biodegradation (which is true). However, the fact that there is no universal “shared understanding” of a term is legally irrelevant to whether ECM deceived substantial numbers of consumers. For instance, although consumers may have hundreds of different views, those views may (and do) include a substantial minority that understand that plastic labelled “biodegradable” will biodegrade within one year. This is true even if the “year or less” group itself has no “shared understanding,” for example, some consumers might estimate weeks, some

⁴⁸ As with the GCS surveys, many respondents gave responses such as “I don’t know,” “it depends,” or other responses not quantifiable as a specific time estimate. FOF ¶ 356.

⁴⁹ Additionally, of the 206 respondents who gave codeable estimates, 58% gave estimates of five years or less. FOF ¶ 210.

months, and some one year. In short, the “no shared understanding” hypothesis is irrelevant, and Dr. Stewart’s data is what it is, even if it does not support ECM’s position.

(b) *Dr. Stewart’s Data Establishes That Substantial Numbers of Consumers Understand ECM’s “Some Period Greater Than a Year” Qualifier To Mean Within One Year.*

Dr. Stewart’s landline callers also read ECM’s “biodegradable in some period greater than a year” disclaimer to respondents, and asked: “In your own words, what does this claim mean to you?” FOF16. Although Dr. Stewart notably did not ask respondents to estimate biodegradation times, 150 respondents still gave estimates. Of those respondents—and notwithstanding ECM’s disclaimer—**50%** (75 respondents) gave estimates of a year or less. FOF ¶ 207.⁵⁰ Thus, even standing alone (without the benefit of Professor Frederick’s research), Dr. Stewart’s data establishes that the “some period greater than a year” does not meaningfully reduce the percentage of consumers who believe plastic labelled “biodegradable” will biodegrade in one year or less. Indeed, Dr. Stewart’s data establishes that “some period greater than a year” actually **increases** that percentage.

v. Viewed Together, the APCO and Synovate Studies Establish That Substantial Numbers of Consumers Understand “Biodegradable” To Imply Within One Year.

The *Green Guides* state that “[i]t is deceptive to make an unqualified degradable claim for items entering the solid waste stream if the items do not completely decompose within one year after customary disposal.” 16 C.F.R. § 260.8(c). Before issuing the Green Guides, the Commission evaluated two studies concerning estimates of biodegradation time: APCO and Synovate. FOF ¶ 365. The APCO study involved an approximately 1000-respondent telephone

⁵⁰ Although Dr. Stewart’s coders reported 95 responses as falling within the category “gone/decomposed/biodegrade in one year,” Complaint Counsel could only locate 75 such responses. FOF ¶¶ 360-363. Accordingly, we adopt the more conservative estimate. FOF ¶ 364.

survey that focused primarily on plastic products. FOF ¶ 366. Sixty percent of respondents stated that packages labeled “biodegradable” should biodegrade within one year or less.⁵¹ FOF ¶ 367. Additionally, EcoLogic, a manufacturer of a plastic additive similar to ECM’s, engaged a survey firm (Synovate) to conduct a 2000-responder internet panel survey. FOF ¶ 368. In the Ecologic/Synovate study, 25% stated that “less than one year” was a reasonable amount of time for a “biodegradable” package to decompose in a landfill.⁵² FOF ¶ 369.

Notably, Professor Frederick testified that APCO and Synovate/Ecologic, taken together, provide reasonably reliable and valid evidence that substantial percentages of consumers believe plastic products labelled “biodegradable” will biodegrade in one year or less. FOF ¶ 370. Professor Frederick explained that APCO and Synovate have opposing biases. FOF ¶ 371. Specifically, APCO’s response options suggested shorter biodegradation times, whereas Synovate’s response options suggested longer ones. FOF ¶ 372. Indeed, with respect to the presence of opposing biases, Dr. Stewart gave essentially identical testimony. FOF ¶ 372.

Importantly, as Professor Frederick explained, the presence of opposing biases helps confirm the existence of convergent validity with respect to the conclusion that at least a substantial minority of consumers believe plastic products labelled “biodegradable” will biodegrade within one year. FOF ¶ 373. Thus, based on convergent validity, and viewed together (but without the benefit of either Professor Frederick’s research or Professor Stewart’s research), APCO and Ecologic/Synovate are sufficiently reliable and probative to establish that substantial percentages believe plastic labeled “biodegradable” will biodegrade within one year. FOF ¶ 374.

vi. ECM Offers No Reasonably Reliable and Probative Contrary Evidence.

(a) *Dr. Stewart Never Asked the Most Important Question.*

⁵¹ Sixty-five percent (65%) said four years or less. FOF ¶ 209.

⁵² Forty-five percent (45%) said five years or less. FOF ¶ 211.

Although the data Dr. Stewart produced supports the allegations in the Complaint,⁵³ he designed his study to minimize the number of consumers who would give relevant estimates of biodegradation time. Most glaringly, Dr. Stewart never asked the central consumer perception question in this case: how much time will it take for plastic labeled “biodegradable” to biodegrade?⁵⁴ FOF ¶ 376. At trial, Dr. Stewart stated that he “was not interested in that specific issue.” FOF ¶ 377. He also denied (at trial) that this question was probative of consumer perception in this case, although when asked in his deposition whether this question was “probative of the consumer perception question at issue in this case,” Dr. Stewart responded: “**It certainly is.**” FOF ¶ 378.

(b) *Dr. Stewart’s Studies Are Grossly Flawed.*

1. Dr. Stewart Designed His Landline Consumer Study To Create Confusion.

In two ways, wording and order of Dr. Stewart’s survey questions, increased the number of immaterial or imprecise responses, and reduced the number of biodegradation time estimates. First, the order of his questions prompted respondents to think about uncertainty in biodegradation time immediately before they were asked about ECM’s claims in particular. Specifically, after respondents were on the phone for a considerable period answering questions about biodegradation, Dr. Stewart’s researchers asked a final series of questions. At the beginning of this series, they were asked: “Do you think that there are differences in the amount of time it takes for different products to biodegrade, decompose, or decay?” FOF ¶ 380. Unsurprisingly, almost everyone (98%) answered affirmatively. FOF ¶ 381. Next, those 98%

⁵³ Dr. Stewart worked hard to put a positive spin on data adverse to ECM. For instance, his results show that whether a package or product is biodegradable is important to 71% of respondents. Dr. Stewart interpreted this fact as establishing “that while consumers have a conceptual understanding of what biodegradability is, it is not material to a sizeable minority of consumers.” FOF ¶ 387. Of course, it **is** material to a sizeable majority. As an aside, the correct number from Dr. Stewart’s data is 75%, not 71%. FOF ¶ 388.

⁵⁴ Dr. Stewart also did not ask consumers any relevant variant, such as how much time would it take for plastic labeled “ECM biodegradable” to biodegrade? FOF [REDACTED].

who answered “yes” were asked to expound upon those differences: “What differences exist in the time for different types of products to biodegrade, decompose, or decay?” FOF ¶ 382.

Immediately thereafter, respondents were asked to give their impressions of claims similar to ECM’s.⁵⁵ FOF ¶ 383. Thus, their impressions of claims similar to ECM’s followed two invitations to consider variability in biodegradation time. Although, at trial, Dr. Stewart denied that this question series “put in the mind of survey respondents that there are differences in the amount of time it takes for different types of products to biodegrade, decompose, or decay,” in his deposition, Dr. Stewart offered this more candid response: “Well, I hope we did put that in their minds because we’re asking them whether or not they think there are those differences, yes or no.”⁵⁶ FOF ¶ 386.

Second, respondents were **not** asked to estimate biodegradation times of products labeled “ECM biodegradable”; rather, they were merely asked: “In your own words, what does this claim mean to you?” FOF ¶ 384; *see also* FOF ¶¶353; 357. Logically, many respondents did not give specific estimates of biodegradation times, many gave answers with no direct bearing on this case (for instance, that ECM seems like a great product, or that they would be interested in learning more about ECM), and many gave “it depends”-type answers. FOF ¶ 385. Put simply, Dr. Stewart’s questions reveal that his goal was to maximize the number of respondents who gave “I don’t know” or “it depends”-type responses (thereby enabling him to report that consumers’ understanding of “biodegradation” is varied and nuanced).

2. Dr. Stewart’s Anachronistic Landline Study Was Psychographically and Demographically Unrepresentative.

⁵⁵ Dr. Stewart also increased consumer confusion by asking end-use consumers to interpret “biodegradable” claims that included technical language such as “one percent load” and “plastic resins.” FOF ¶ 473((RX-602) (Stewart, Tr. 2775-76).) He agreed that most consumers would not know what these terms meant, and that such claims never reached end use consumers. FOF ¶ 474 (Stewart, Tr. 2775-76).

⁵⁶ Dr. Stewart admitted that “information conveyed to respondents earlier in a survey can affect their answers to later questions[.]” FOF ¶ 472.

Dr. Stewart conducted an anachronistic landline survey, thereby excluding **40%** of the population who no longer have landlines. FOF ¶ 404. His survey was neither psychographically nor demographically representative. From a psychographic perspective, relatively few consumers are willing to take a survey lasting as long as twenty minutes without compensation; indeed, although Dr. Stewart's callers eventually located 400 participants, more than 4,000 hung up the phone when the callers introduced themselves (before they could even ask whether the potential respondent was willing to participate). FOF ¶ 400. Because people willing to participate in lengthy surveys likely have different beliefs and attitudes than the population at large, Professor Frederick testified that landline surveys are less psychographically representative than GCS and other methods. FOF ¶ 401.

Regarding demographics, Dr. Stewart admitted that "landline surveys tend to overrepresent older Americans[.]" FOF ¶ 402. In fact, 58% of Dr. Stewart's respondents were age 50 and older, which deviates markedly from the population at large. FOF ¶ 403. Based on 2010 census data that ECM offered into evidence, only 40% (of persons age 15 and above) are fifty and older. FOF ¶ 404. Thus, he oversampled older Americans, which—as he admitted—means undersampling Hispanics and other minorities because older Americans are disproportionately white. FOF ¶ 405.

Dr. Stewart also inexplicably excluded consumers below age 18, although he conceded that someone as young as junior high school-age "might walk into a convenience store and purchase a bottle of water," and "that purchasing decision could be influenced by the word 'biodegradable' on some of the bottles, but not [] others." FOF ¶ 406. Dr. Stewart testified only that he "[wasn't] interested" in researching such consumers' opinions. FOF ¶ 407. The Court can reasonably infer that the nature of a landline survey influenced this decision (landline surveys are a terrible way to reach teenage consumers). Omitting these consumers is significant because—as Dr. Stewart also conceded—such consumers may have different opinions about the importance of purchasing environmentally-friendly products than older Americans and different

understandings of what “biodegradable” means. FOF ¶ 409. Thus, Dr. Stewart’s study is less representative in material ways.

3. Dr. Stewart Readily Admitted That His Ten-Customer Survey Is Useless (Otherwise, It Would Support Complaint Counsel).

Dr. Stewart also conducted a 10-respondent pilot survey of ECM’s customers, but ECM elected not to conduct a full-scale study, and (on direct examination) Dr. Stewart emphasized that no one should “make any statistical inferences” based on his pilot study. FOF ¶ 410. Two brief points about the study warrant mention. First, ECM defined the pool of companies (and the particular persons at those companies) whom Dr. Stewart’s researchers could contact. FOF ¶ 411. Second, notwithstanding the fact that Dr. Stewart’s researchers spoke only with ten people from a pool that ECM chose, 3 of the 10 respondents gave either responses that they understood biodegradation as something that happens in less than a year or referenced tests (ASTM D5511 and D6400) that are run for less than a year.⁵⁷ FOF ¶ 412. This result adds to the evidence that even allegedly “sophisticated” customers often understand that biodegradation happens within a year.

II. ECM’S CLAIMS ARE FALSE AND UNSUBSTANTIATED.

Claims are deceptive if they are false or lack a reasonable basis. *In re Daniel Chapter One*, No. 9329, Initial Decision, at *99 (F.T.C. Aug. 5, 2009). ECM’s claims both are false and lack a reasonable basis.

A. ECM’s Express and Implied Claims are False.

ECM’s experts concede ECM’s claims are false. ECM’s expert, Dr. Sahu, estimates that *at minimum* it would take 30 years for ECM Plastic to completely biodegrade. Another of ECM’s experts, Dr. Barlaz, concurs with Complaint Counsel’s expert, Dr. Tolaymat, that landfill

⁵⁷ A fourth respondent said “1-3 years.” RX-849 at 5.

conditions do not support the biodegradation times claimed by ECM. In addition to these concessions, ECM's express and implied claims are false based on indisputable science. A physical blend of 1% ECM Additive and 99% conventional plastic cannot change the underlying recalcitrance of the remaining 99% plastic—and ECM offers no reliable expert opinion the contrary. This fact is backed by a number of biodegradation studies that show ECM's claims are false.

1. ECM's Experts Concede ECM's Biodegradation Claims Are False.

ECM offered the opinions of four different experts. Only one of the four, Dr. Sahu, offers any opinion regarding biodegradation times for ECM Plastic. *Compare* RX-855 with RX-853, RX-854 and RX-856. Dr. Sahu's report and testimony estimate biodegradation times anywhere from 30 years to as long as 100 years for plastic films containing ECM Additive. FOF ¶ 188.⁵⁸

Moreover, both parties' landfill experts agree that landfill conditions do not support the biodegradation times ECM claims.⁵⁹ As both parties' landfill experts explain, landfills continue to be the dominant method for managing discarded municipal solid waste ("MSW") in the United States.⁶⁰ Dr. Tolaymat, an environmental engineer at the EPA with expertise in solid waste management, further explained that biodegradation in landfills is slow because typical U.S. landfills are primarily anaerobic environments with low-moisture, *i.e.*, so-called "dry

⁵⁸ Although not an expert in this case, Dr. Barber also testified that ECM Plastics could take as much as 50 years to biodegrade. (Barber Tr., 2129.)

⁵⁹ FOF ¶ 170.

⁶⁰ FOF ¶ 12.

tombs.”⁶¹ These conditions are engineered (and largely mandated by federal law) to facilitate containment rather than biodegradation.⁶² Even in landfills that are the *most conducive* to biodegradation (so-called “bioreactors”), Dr. Barlaz reports a range of degradation times for MSW anywhere from 24 (for rapidly biodegrading food waste) to over 200 years (for slowly degrading wastes).⁶³ And conventional plastics would have “[l]onger if not infinite” half-lives in landfills. (Barlaz, Tr. 2295.) Thus, ECM’s express and implied claims that ECM Plastics will completely biodegrade in landfills within five years are tantamount to claiming that ECM Plastics will biodegrade five times faster than food waste. As stated by Dr. Barlaz: “that a waste must be completely degraded within 12 months or even 5 years . . . is inconsistent with what happens in landfills.” RX-853 at 12 (emphasis in original). Accordingly, ECM’s claims are simply false.

2. Physical Blends Do Not Affect Plastic Recalcitrance.

Similarly, there is no real disagreement that conventional plastics—high molecular weight, synthetic polymers derived from petrochemicals—are not biodegradable.⁶⁴ Dr.

⁶¹ FOF ¶ 12.

⁶² FOF ¶ 12.

⁶³ See FOF ¶ 166 (half-lives of 4 and 34.7 years multiplied by 5).

⁶⁴ FOF ¶ 5, 9. Although Drs. Sahu and Burnette stated in their reports that plastics are biodegradable, at trial they both conceded that conventional plastics are considered stable and would take a “very long time” to biodegrade. See FOF ¶ 7. Moreover, all of the authorities cited

McCarthy is a professor of Plastics Engineering at the University of Massachusetts Lowell with more than 30 years' experience studying both the chemical and mechanical behavior of polymers, including their biodegradability.⁶⁵ Dr. McCarthy opines that the overwhelming scientific consensus is that conventional plastics are not biodegradable.⁶⁶ The reasons are well-understood: the high-molecular weight and chemical structure of most conventional plastics prevent naturally-occurring microorganisms from using it as food source.⁶⁷ Petroleum-based conventional plastics have not been around long enough for microorganisms to develop the ability to digest them.⁶⁸ Even ECM concedes that conventional plastics are not biodegradable. FOF ¶ 189; CCX-818 (Sinclair Dep. Tr. at 56 (admitting that he has “never seen any evidence that [polyethylenes and polypropylenes] will ever biodegrade.”).)

to by Drs. Sahu and Burnette for the proposition that conventional plastics are biodegradable address the biodegradability of pre-treated or low-molecular weight PE. *See* CCX 892 ¶ 11; (Michel, Tr. 2872-2875). As explained by Dr. Michel:

Only when PE is modified through UV irradiation for long periods of time so that carbonyl bonds are formed, or when hydrolysable linkages or unsaturated sites are introduced into the polymer does it display a very limited ability to biodegrade (Prasun et al., 2011). Pretreatment by incubating PE at high temperatures can also modify PE by reducing the molecular weight of the polymer which improves biodegradation. However without these abiotic and chemical and physical modifications, the extent of PE biodegradation is essentially nil.

CCX-895 at 12. Other papers relied on by these experts for this proposition pertain to the “extremely limited subset of high-molecular weight, commercial-grade synthetic plastics that are similar enough to naturally occurring polymers to be susceptible to enzymatic attack.” CCX-892 at n.4. But as explained by Dr. McCarthy, the biodegradability of these plastics is irrelevant to the claims at issue in this case. CCX-892 at n.4.

⁶⁵ FOF ¶ 128.

⁶⁶ FOF ¶ 9.

⁶⁷ FOF ¶ 9.

⁶⁸ FOF ¶ 10.

The ECM Additive is mostly a synthetic biodegradable polymer like polycaprolactone (PCL).⁶⁹ ECM recommends that a small concentration, about 1%, of its Additive be melt-batch blended with a non-biodegradable conventional plastic, such as polyethylene.⁷⁰ This type of physical blend does not alter the chemical structure of the plastics.⁷¹ Therefore, the Additive does not alter the chemical characteristics that make conventional plastics resistant to biodegradation and the non-biodegradable plastic component is no more susceptible to biodegradation after blending than it was before.⁷² This view is resoundingly supported by the literature cited by *ECM's own experts*.⁷³

Even making the false assumption that the addition of 1% ECM Additive (biodegradable component) would allow the ECM Plastic to degrade faster (*e.g.*, by breaking the plastic into smaller pieces), the amount of time it would take for the conventional plastic to completely biodegrade would not be reduced to five years or even decades in any environment.⁷⁴ This fact

⁶⁹ FOF ¶ 171.

⁷⁰ FOF ¶ 130-131.

⁷¹ FOF ¶¶ 130-131; *see also* CCX-895 at 13 (“Addition of additives into conventional plastics does not increase the carbonyl content of the plastic nor does it reduce the molecular weight of the high molecular weight polymers or add hydrolysable linkages or unsaturated carbon bonds.”). ECM offered testimony that Dr. McCarthy used a physical blend in his patent to make a biodegradable polymer. (Sahu, Tr. 892-893.) However, as Dr. McCarthy explained, his patent covered a physical blend of two known biodegradable polymers—completely unlike ECM Plastic. (McCarthy, Tr. 405-406.) In fact, Dr. McCarthy testified in his own early research, he evaluated blends of biodegradable with non-biodegradable polymers to determine the effect of the non-degradable component on the biodegradable component. He never considered that entire treated plastic would be rendered biodegradable – because there has “never been any scientific proof that polyethylene is biodegradable.” (McCarthy, Tr. 406.)

⁷² FOF ¶¶ 130-131.

⁷³ FOF ¶ 131.

⁷⁴ FOF ¶ 132.

is conceded by Dr. Sahu, who (incorrectly) estimates ECM Plastic to biodegrade in 30-100 years. FOF ¶ 132. However, as Dr. McCarthy explained, ECM Plastic could take as long as conventional plastic to biodegrade (because it still consists of 99% conventional, non-biodegradable plastic), or even longer (if the fragmented pieces become recalcitrant to biodegradation).⁷⁵ Thus, claims that ECM Plastic will completely biodegrade in periods of time as short as five years cannot be true.⁷⁶

3. Tests Show No Biodegradation of ECM Plastic.

ECM provides the Court with a number of studies, some of which were part of ECM's original substantiation materials and others that have been produced in this litigation. *See* FOF ¶ 449. None of these materials supports ECM claims. FOF ¶ 454. Importantly, several actually disprove them. FOF ¶ 450; 454.

Perhaps most significantly, Dr. Barlaz conducted at least four (and perhaps more) biodegradation tests of ECM Plastics under the Biochemical Methane Potential test ("BMP").⁷⁷ The BMP, like other biodegradation tests, evaluates the amount of methane gas released after the sample is exposed to bacteria. These so-called gas evolution tests are the "only true indicator of biodegradation." RX-855 at 41. Unlike the ASTM D5511, the BMP evaluates ultimate methane yield. It is run in 160 milliliter glass vials in a liquid phase. (Barlaz, Tr. 2220-2221.) The test is traditionally run for 60 days. (Barlaz, Tr. 2230.) BMP tests are also conducted in the mesophilic range, *i.e.*, at 37°C. *See* FOF ¶ 167.

⁷⁵ FOF ¶ 133.

⁷⁶ Dr. McCarthy concludes that any claim that ECM Plastic biodegrades more rapidly than conventional plastic is, in his professional opinion, false.

⁷⁷ FOF ¶ 167.

According to Dr. Barlaz, the “BMP is an appropriate screening tool for biodegradability in landfills although the actual volume of methane generated in a landfill may well be less than that measured by a BMP test.”⁷⁸ As Dr. Barlaz explained at trial, the BMP, like the ASTM, is optimized for accelerated biodegradation.

In the lab, you know, I look at the BMP test as a first-level screening test because it’s cheaper and easier to set up. And I look at a reactor test as one step up in complexity. It’s a high-solids environment. It’s still wet, but it’s a high-solids environment. And it’s more representative of a high-solids matrix as we see in a landfill. But a reactor is similarly optimized for anaerobic biodegradation.

(Barlaz, Tr. 2224.) Yet, Dr. Barlaz’s BMP results showed no⁷⁹ or negligible amounts of methane production⁸⁰ and, in no case, an amount of methane exceeding the amount of gas attributable to the additive alone.⁸¹ Not surprisingly, Dr. Barlaz’s report offers no opinion on the biodegradability of ECM Plastics.⁸²

Dr. Barlaz’s findings are by no means unique. Similar results were reached under the only published, peer-reviewed study to address whether **ECM Plastic** is biodegradable. (*See* CCX-164 (E. Gomez & F. Michel, *Biodegradability of conventional plastics and natural fiber composites during composting, anaerobic digestion and long term soil incubation*, 98 JOURNAL OF POLYMER DEGRADATION & STABILITY 2583-91 (2013).) This study, which ran a soil test lasting over two years and an ASTM D5511 test on PP and PE treated with the ECM Additive, concludes that “**plastics containing additives that supposedly confer**

⁷⁸ FOF ¶ 175.

⁷⁹ FOF ¶ 168.

⁸⁰ FOF ¶ 169.

⁸¹ FOF ¶ 172.

⁸² FOF ¶ 173.

biodegradability to polymers such as polyethylene and polypropylene did not improve the biodegradability of these recalcitrant polymers.” (emphasis added) (CCX-164).

These results are consistent with several other studies also concluding that no biodegradation was observed at the conclusion of the test. For instance, Stevens Ecology, an independent lab in Oregon ran several anaerobic tests, each finding no biodegradation under anaerobic conditions. CCX-174-CCX-176. Two tests conducted by Advance Material Center, Inc. showed no biodegradation under both aerobic and anaerobic conditions. CCX-173; *see infra* at 11. O.W.S. also conducted several composting studies (whose composting environment presents far better conditions for biodegradation than landfill conditions) and several anaerobic tests that likewise report no biodegradation. CCX-156; CCX-157; CCX-163; CCX-169-CCX-171. All of these studies show unequivocally that ECM Plastic is ***not*** “biodegradable” even under accelerated, optimized conditions.

B. ECM Lacks a Reasonable Basis for its Claims.

To prevail under the “reasonable basis” theory, Complaint Counsel must prove that the advertiser did not have a reasonable basis substantiating its claims at the time it made the claims. *Daniel Chapter One*, No. 9329, Initial Decision, at *99 (citing *Thompson Med. Co.*, 104 F.T.C. at 813). ECM’s express and implied claims of complete biodegradation in landfills in five years or less lack a reasonable basis for two reasons. First, as explained below, the appropriate level of substantiation is competent and reliable scientific evidence. This standard requires well-controlled, well-conducted studies, and ECM’s evidence falls far short of this standard.

Second, even assuming that some of the tests show *some* biodegradation, they fail to reach levels of biodegradation beyond that attributable to the additive, much less enough to support ECM’s claims of complete biodegradation. Nor were they conducted under conditions

that come close to approximating the conditions claimed in ECM's advertisement. Accordingly, ECM's claims are unsubstantiated.

1. Competent and Reliable Scientific Evidence is the Appropriate Standard of Substantiation for Green Claims.

a. Pfizer Factors Analysis

“To determine what constitutes a reasonable basis, the Commission considers the ‘*Pfizer* factors,’ which are factors relevant to the benefits and costs of developing substantiation for the claim.” See *POM Wonderful*, Docket No. 9344, at 17-18 (citing *In re Pfizer Inc.*, 81 F.T.C. 23 (1972)); *Substantiation Statement*, 104 F.T.C. at 840. The *Pfizer* factors include:

the type of claim, the product, the consequences of a false claim, the benefits of a truthful claim, the cost of developing substantiation for the claim, and the amount of substantiation experts in the field believe is reasonable.

104 F.T.C. at 840. Application of the *Pfizer* factors here demonstrates that ECM's substantiation is insufficient to support its claims for three reasons.

i. The Type of Claim and Products at Issue Demand Biodegradability Claims be Supported by a High Level of Substantiation.

The first and second *Pfizer* factors (the type of claim and product) weigh in favor of requiring “a high level of substantiation.” *Thompson Med.*, 104 F.T.C. at 822. Plastics, which consumers use in huge volume and which comprise a significant proportion of municipal solid waste,⁸³ are of obvious importance to consumers who are concerned about the environment. But, as the Commission has acknowledged, environmental claims are particularly difficult for consumers to evaluate: consumers are not in a position to access, let alone evaluate, scientific evidence of biodegradability nor see for themselves whether a product actually degrades as

⁸³ FOF ¶¶ 11, 14.

promised. 16 C.F.R. § 260.4(b); *POM Wonderful* at 35 (citations omitted) (citing *Removatron Int'l Corp.*, 111 F.T.C. 206, 306 n.20, 884 F.2d 1489, 1496-97 (1st Cir. 1989)) (competent and reliable scientific evidence required for “claims whose truth or falsity would be difficult or impossible for consumers to evaluate by themselves”).⁸⁴ Therefore, biodegradable claims such as ECM’s must be supported with a high level of substantiation.

ii. The Potential Harm to Consumers of Allowing False Claims is Significant.

The third and fourth factors (the benefits of a truthful claim and the consequences of a false claim) also militate in favor of requiring a high level of substantiation. Truly biodegradable plastics⁸⁵ would have significant appeal to consumers who care about the size of landfills and environmental pollution caused by plastics.

False claims are detrimental to consumers who care about the environment for several reasons. First, environmentally-conscious consumers (a large segment of the consumer population) are likely to purchase “biodegradable” plastics in lieu of traditional plastics—and pay higher prices for the perceived environmental benefit. FOF ¶ 14. Second, consumers are likely to replace environmentally-beneficial practices such as recycling with disposal of “biodegradable” plastic in a landfill. Third, false claims of biodegradability (when exposed as false) undercut faith in truthful claims.

⁸⁴ When asked whether plastic is accumulating in landfills and causing plastic pollution, Dr. Burnette stated that he “didn’t have a peep hole into a landfill,” so he didn’t know whether or not they are accumulating. (RX-840 (Burnette, Dep. at 110-111.))

⁸⁵ The few plastics currently on the market that are capable of breaking down under certain conditions (*e.g.*, cellulose or starch-based plastics) remain niche products that do not replace traditional plastics. FOF ¶ 8.

iii. ECM Does Not Face Substantial Hardship in Substantiating Claims with a High Level of Substantiation or in Qualifying its Claims Appropriately.

The fifth and sixth *Pfizer* factors (the cost of a reasonable amount of substantiation) further support requiring a high level of substantiation. If its product in fact worked, ECM would not face a substantial hardship in substantiating its claims because it could (1) modify the tests to correct for the flaws identified by our experts; (2) employ other testing methods, such as ^{14}C radio tags;⁸⁶ or (3) qualify its claims. According to our experts, Drs. McCarthy and Michel, conducting a ^{14}C test on ECM Plastic is feasible. Dr. Michel, an Associate Professor in the Department of Food, Agricultural and Biological Engineering at the Ohio State University with an adjunct appointment in the Department of Chemical and Biomolecular Engineering, who has previously conducted studies using ^{14}C , estimated that such a test would have cost approximately \$108,000—significantly less than “hundreds of thousands of dollars” ECM claims to have spent to date substantiating its claims. CCX-895.

b. Scientists in the Relevant Fields Demand a High Level of Substantiation for These Claims.

⁸⁶ This method involves tagging radioisotopes of carbon, ^{14}C , of a high-molecular weight plastic, such as polyethylene (PE) before conducting a gas evolution test. During the gas evolution test, biogases are monitored for the radiolabeled ^{14}C . If the radiolabeled carbon is detected, then the conventional plastic polymer is undergoing a material transformation through biodegradation. If the radiolabeled carbon is not detected in the biogases, then the observed biogases are likely due to other factors, such as biodegradation of the additive or the inoculum. CCX-891 ¶ 59. All the experts agree that using ^{14}C radiolabeling would provide strong, if not definitive, evidence that the plastic, and not just the additive, is biodegrading. FOF ¶ 455.

Dr. Stephen McCarthy, a pre-eminent expert in the area of degradable polymers explains that to satisfy scientists⁸⁷ (who view claims of biodegradable conventional plastic with great skepticism⁸⁸) that 1% additive will make conventional plastics biodegradable in a stated timeframe and disposal condition, the claimant must provide the results of appropriately-analyzed results of independent, well-designed, well-conducted, well-controlled testing.⁸⁹ The testing should use the appropriate plastic application, load rate, inoculum, test conditions, and sample weight, over an appropriate duration of time.⁹⁰ And tests must simulate the claimed disposal conditions.⁹¹

This standard is consistent with the level of substantiation demanded under the Pfizer factors and is consistent with the numerous consent orders that require environmental marketing claims be supported by competent and reliable scientific evidence (“CRSE”). *See, e.g., Down to Earth Designs, Inc.*, Docket No. C-4443 (2014); *Clear Choices Housewares, Inc.*, File No. 122 3288 (2013); *Kmart Corp.*, File No. 0823186 (2009); *Tender Corp.*, File No. 082-3188 (2009); *Dyna-E Int’l Inc.*, File No. 082-3187 (2009); *Archer Daniels Midland Co.*, 117 F.T.C. 403, 415, 410 (1994); *Mobil Oil Corp.*, 116 F.T.C. 113, 120-121 (1993); *American Enviro. Prods., Inc.*, 115 F.T.C. 399, 408-09 (1992).

⁸⁷ Two of ECM’s science experts—Drs. Burnette and Sahu—concede that they are not polymer scientists and do not have the expertise to opine specifically on the biodegradability of plastics. FOF ¶ 176.

⁸⁸ FOF ¶ 134.

⁸⁹ FOF ¶ 138.

⁹⁰ FOF ¶ 138.

⁹¹ FOF ¶ 136.

“Competent and reliable scientific evidence” consists of “tests, analyses, research, studies, or other evidence based on the expertise of professionals in the relevant area, that has been conducted and evaluated in an objective manner by persons qualified to do so, using procedures generally accepted in the profession to yield accurate and reliable results.” *See, e.g., Brake Guard Prods., Inc.*, 125 F.T.C. 138 (1998); *see also, POM*, 2013 FTC LEXIS 6, at 11. In addition, “where advertising expressly or impliedly represents that it is based on scientific evidence, the advertiser must have that level of substantiation, and, in particular, must satisfy the relevant scientific community that the claim is true.” *Removatron*, 111 F.T.C. at 299.

As explained below, ECM’s purported substantiation fails to rise to the level of competent and reliable scientific evidence for two reasons: the tests ECM relies on are fatally flawed; and cannot support claims of complete biodegradation in landfills. Moreover, ECM defense of its substantiation is little more than post-hoc rationalizations.

2. ECM’s “Substantiation” Has Severe Methodological Flaws.

Many of the studies, particularly those conducted by Dr. Timothy Barber, Eden Research Laboratories (ERL), and Northeast Labs (NEL), are so methodologically flawed that they are not reliable evidence. For example, the tests conducted by Dr. Barber rely on a “weight loss” methodology.⁹² Weight loss is inherently unreliable.⁹³ As Dr. McCarthy explained: “[the] weight loss test method was abandoned, because people just realized it was a bad test.” (McCarthy, Tr. 432).

And those [weight loss] tests, as I mentioned, are problematic because all you need is disintegration to -- you know, just embrittlement, and then you miss a

⁹² FOF ¶ 137.

⁹³ FOF ¶ 138.

corner of the film and then you think that it's degraded, but really all you did was lose a corner to the test method.

(McCarthy, Tr. 457.) Therefore, the scientific community has rejected these tests as a principal basis for determining biodegradation.⁹⁴ At least one of the papers cited by ECM's experts concurs that weight loss is not an accurate predictor of biodegradation.⁹⁵

Dr. Barber's test also looks to measurements of free chloride as an indicator of biodegradation.⁹⁶ However, as explained by Dr. McCarthy, the loss of a chlorine side group does not indicate that the much more stable and difficult to break carbon-carbon bonds that form the polymer chain have been affected.⁹⁷ Thus, the existence of the free chlorine does not indicate anything about the most difficult, *i.e.*, strongest and most recalcitrant, bonds that need to be broken to truly result in biodegradation.⁹⁸ Even Dr. Burnette admits that the loss of the chlorine side group does not "automatically" mean that the carbon-carbon backbone has been broken. (Burnette, Tr. 2417). Nor has any of ECM's experts identified a source other than Dr. Barber that relies on this metric.

Even if the presence of the free chloride were indicative of biodegradation, the results would only apply to PVC and not other treated plastics. (*See, e.g.*, Barber Tr. 2081-2082 (conceding that rates of biodegradation cannot be extrapolated beyond the precise environmental conditions or to other plastics).) Finally, Dr. Michel, a microbiologist and expert in enzymatic

⁹⁴ FOF ¶ 138.

⁹⁵ *See, e.g.*, RX-584.

⁹⁶ FOF ¶ 177.

⁹⁷ CCX-891; (McCarthy Tr. 456-457.)

⁹⁸ CCX-891; (McCarthy Tr. 456-457.)

and microbial polymer conversion in composting, soil, and anaerobic digester systems, explains that there is a “major flaw in the scientific analysis and modeling of BioPVC biodegradation data.” CCX-895 at 17. He further explains that using the correct model for biodegradation of the ECM-treated BioPVC shows that it would never biodegrade. CCX-895 at 19 (“from the data presented, and using the logistic model used by Dr. Barber uses [sic], the time to completely biodegrade BioPVC would be infinite.”).

The NEL and ERL tests are as fatally flawed as Dr. Barber’s, but for different reasons. These tests look to the ASTM D5511 method to support ECM’s biodegradation claims. Tellingly, ECM’s experts refer to ASTM D5511 as inconclusive, and even Dr. Barlaz cautioned he was skeptical of the test.⁹⁹ Notwithstanding the general shortcomings of ASTM D5511 to support claims of complete biodegradation or biodegradation in landfills (*see supra at 16; 61-66* for discussion), the tests conducted by these labs also fail to satisfy other indicia of reliability.¹⁰⁰

For instance, during the trial, Alan Johnson, the current owner of NEL (Johnson, Tr. 1554) testified that:

- NEL does not undergo any audits, does not hold any certifications, and has never been evaluated (Johnson Tr, 1580-1581);
- NEL did not maintain anaerobic conditions throughout the duration of the extended anaerobic ASTM D5511 tests (Johnson, Tr. 1574);¹⁰¹
- ASTM D5511 does not allow for extension testing, *i.e.*, testing beyond the 30-day period of the test (Johnson Tr., 1583);

⁹⁹ FOF ¶¶ 140, 142, 143, 178.

¹⁰⁰ CCX-891, ¶¶ 87-89.

¹⁰¹ FOF ¶¶ 142-143.

- The protocol for extended ASTM testing was set up by Dr. Bill Ullman (Johnson Tr. 1560) and has never been independently re-evaluated (Johnson Tr., 1583);
- The system for gas monitoring involves using an inverted cylinder and metal paint cans. There would be no way to identify a small leak in the system from gas generation. (Johnson Tr. 1584);
- They wait for a paint can to rust before swapping it out for a new one. (Johnson Tr. 1585 (when the paint can rusts during extension testing, replace it with a new one)); and only replace the one that has been rusted (Johnson, Tr. 1592-1593);
- NEL did not consider whether the rusting test vessel affected results of biodegradation testing (Johnson, Tr. 1586); and
- The methane readings produced by the IR machine has a precision of plus or minus 20% (Johnson ,Tr. 1587).

Similarly, Thomas Poth, the owner of ERL, testified that:

- ERL does not report statistical information, so it does not know if the test results are statistically significant (Poth, Tr. 1512-1513, 1538);
- ERL provides primarily quick-and-dirty updates that are not given the same level of rigorous review as the reports (Poth, Tr. 1499-1500); and
- ERL adjusts biodegradability percentage of positive control to 100% even though ASTM D5511 does not provide for the adjustment and he is aware that cellulose will never reach 100% biodegradation (Poth, Tr. 1505-1507).

In his expert report, Dr. McCarthy highlights these and other deficiencies and explains why they call into question the reliability of the test results. For instance, Dr. McCarthy explains that replacing the inoculum would likely lead to overestimation of biodegradation, by exposing

the inoculum to oxygen. CCX-891 ¶¶87-89. Similarly, deviating from the method and going beyond the validation period makes the data unreliable. CCX-891 ¶¶87-89. Similarly, these labs did not report several categories of critical information required to be reported under the methodology, making it impossible to validate the data. CCX-891 ¶¶87-89. Even Dr. Sahu acknowledged that information such as load rates, plastic types, or other critical information are necessary to understand and evaluate the data. (Sahu, Tr. 1932-1933; 1940, 1961).

Q. So it's important to understand what the error rate is in order to establish or understand the results that are being reported; correct?

A. Yeah. Unless you have the underlying data, in which case you can look at the error rates and make your assessment. If the author is not providing the underlying data, then yes, it will be good to see the analysis of error. But if the underlying data are presented, then of course one can make their own judgment.

(Sahu, Tr. 1959.)

These tests stand in stark contrast to the well-documented studies conducted by such labs as Stevens Ecology (CCX-573), O.W.S. (CCX-169-171), North Carolina State University (CCX-946-948), and Ohio State University (CCX-164) that show no statistically relevant biodegradation of ECM Plastics under a variety of conditions. Given the severe methodological flaws of the Barber, ERL, and NEL tests, they are exceedingly unreliable, and certainly not indicative of complete biodegradation in landfills under any time frame.

i. ECM's Substantiation Does Not Support Claims of "Complete" Biodegradation of ECM Plastics in "Landfills."

To support claims of "complete" biodegradation for ECM treated plastics, tests must be conducted for a sufficient length of time to demonstrate that the entire treated plastic, not just the

biodegradable additive, will be consumed.¹⁰² This means conducting a biodegradation study to show at least 60% biodegradation.¹⁰³ There is no reliable study that has been conducted for sufficient duration to demonstrate that the ECM Plastic will completely biodegrade. Moreover, the test must also reflect the disposal conditions claimed, in this case “landfills.” There is no evidence of biodegradation of ECM Plastics under landfill conditions or that ECM Plastic has biodegraded above the “priming effect.”

(a) ***No Evidence of Complete Biodegradation.***

ECM rests its claim of complete biodegradation on an incorrect assumption that has been resoundingly rejected by the scientific community: that once started, biodegradation will go to completion.¹⁰⁴ There is no basis for ECM’s contention that the minute amounts of biodegradation (probably from the biodegradable additive) can be extrapolated to completion.

As Dr. Sahu himself testified:

I have not seen any kind of extrapolation to complete biodegradation, you know, in other words, taking a rate derived from a test and then extrapolating that and holding that the rate would remain constant and therefore trying to attempt a time period for complete biodegradation. That would be unusual.

(Sahu, Tr. 1796 (emphasis added).) In fact, ASTM D5511 explicitly prohibits extrapolation of test results:

Claims of performance shall be limited to the numerical result obtained in the test and not be used for unqualified ‘biodegradable’ claims. Reports shall clearly state the percentage of net gaseous carbon generation for both the test and reference samples at the completion of the test. Furthermore, results shall not be extrapolated past the actual duration of the test.

¹⁰² FOF ¶ 147.

¹⁰³ FOF ¶ 148. *See also* RX-853 at 56 (“If biodegradable were defined as complete mineralization, then I want to see something close to the stoichiometric yield [of methane].”).

¹⁰⁴ FOF ¶ 150.

CCX-83. Thus, if a test shows 10% biodegradation in 300 days, the test cannot be used to support a claim of 100% biodegradation in 3000 days. The reason for the prohibition on extrapolation is simple: there is no evidence that biodegradation is a linear process (and, in fact, the rate of biodegradation is likely to slow because of recalcitrance). CCX-891 ¶ 69.

In support of its remarkable claims, ECM drums up an equally fantastical mechanism of action to explain how ECM Plastics will biodegrade to completion. According to ECM's marketing materials:

The presence of at least one percent of our additives in a plastic product, which is in contact with other biodegrading organic materials, structures communities of such organisms as are there present on the surfaces of the plastic in such a way that their interaction produces the ability to break down the long hydrocarbon chains of the "non-biodegradable" petrochemical plastics. As most people are aware, an example of a biofilm would be the scum that can form on the surface of a pond or on teeth, for that matter. In the cases of most pond biofilms, the surface layers with chlorophyllic, aerobic organisms can support layers of anaerobic organisms in the deeper layers and the interaction of all of the organisms makes for an ecosystem that in some cases produce byproducts that would not be formed without the interaction. The same can be said of the biofilms formed by the interaction of our additive materials and the naturally existing biota. Importantly, this structuring of communities of microorganism [sic] proceeds in anaerobic as well as aerobic conditions.

Once there are the structured communities of microorganisms interacting to produce schisms in the long hydrocarbon chains of the polymers the process continues until all the hydrocarbons are eventually transformed into the carbon dioxide and water (aerobic biodegradation) or carbon dioxide, methane and water (anaerobic biodegradation).¹⁰⁵

ECM has not submitted one shred of evidence to support the theory that the purported biofilm that forms on the surface of ECM Plastic operates in a fundamentally different way than the individual microorganisms. This purported mechanism "is contrary to the scientific literature that shows that biofilms can form equally well on hydrophilic and hydrophobic surfaces, and that

¹⁰⁵ CCX-4.

they can form on surfaces that are not biodegradable.”¹⁰⁶ As further explained by Dr. Michel at trial,

So in everyone’s bathroom there’s biofilms formed in the drain. In the drain, biofilms are formed so they can remain in a position where nutrients are flowing, which is down the drain. But they’re not breaking down the pipe itself. If they would be breaking down the pipe itself, then you wouldn’t be using those materials to make the pipe because the pipe would break down. So their understanding of biofilms, just because a biofilm forms that it’s biodegrading the material to which it’s attached, is incorrect.

(Michel, Tr. 2865.) ECM’s expert, Dr. Burnette, concedes that the presence of a biofilm does not indicate that the microorganisms are using the plastic as a food source.¹⁰⁷

Moreover, ECM’s experts cannot even agree on what the Additive actually does. For instance, Dr. Burnette claims that the Additive may serve as an attractant or “weaken” carbon-carbon bonds in the plastic, or both. RX-854 ¶ 45. Dr. Sahu attributes the process to the synergistic effect of both degradation (non-biological mechanisms) and biodegradation (caused by the formation of a biofilm on the plastic). (RX-855 at 13; Sahu, Tr. 1870-1872.) But none of the experts know the proprietary formula for the ECM Additive and ECM’s experts are not plastics engineers with an understanding of how ECM Additive interacts with the plastic at a molecular level. (Sahu, Tr. 1949; Burnette, Tr. 2449.) Their opinions are nothing more than a hodgepodge of untested and unsupported hypotheses.

(b) *No Evidence of Biodegradation in Landfills.*

To support claims of biodegradation in landfills, both sides agree that tests should be run at appropriate landfill temperatures with appropriate anaerobic bacteria.¹⁰⁸ Of the few tests

¹⁰⁶ CCX-895 at 16-17.

¹⁰⁷ FOF ¶ 179.

¹⁰⁸ FOF ¶ 154.

purporting to show biodegradation, none mimics these conditions. FOF ¶ 136. For instance, the primary test used to evaluate biodegradability of plastics is ASTM D5511. This test, like other gas evolution tests, uses methane gas generation as a proxy for biodegradation. However, the test is typically conducted at 52°C. *See* CCX-83; FOF ¶ 154. Running tests at 52°C results in two potentially serious flaws. First, the hot temperatures could cause non-biological degradation that would not occur at more typical landfill temperatures of 37°C.¹⁰⁹ Second, the types of anaerobic bacteria that survive at the hotter temperatures are not the same types of anaerobic bacteria that operate at cooler landfill temperatures.¹¹⁰ Accordingly, one cannot conclude that because “some” biodegradation is observed under one set of conditions, it will be observed under all conditions. In fact, tests conducted under the appropriate temperature range showed no biodegradation at all.¹¹¹

(c) *No Evidence of Biodegradation above the Priming Effect.*

Although no test supports ECM’s claims, some tests purport to show minimal levels of methane gas generation beyond that from the Additive. Drs. McCarthy and Michel, the only two degradable polymer experts in this case, both explain that biodegradation observed in these tests is likely the result of the priming effect.¹¹² CCX-891 ¶ 44. The priming effect is the biodegradation of the additive (which contains organic compounds highly susceptible to

¹⁰⁹ FOF ¶ 155; *see also* Barlaz, Tr. 2279; 2324.

¹¹⁰ FOF ¶ 156.

¹¹¹ FOF ¶ 157.

¹¹² “Many of the reports where ECM amended plastics have been observed to biodegrade greater than the negative control can be attributed to the biodegradation of the ECM additive, or to the priming effect (Shen and Bartha, 1996), and not the plastic to which it has been added.” CCX-895 at 10.

biodegradation) and the organic materials of the test medium (the bacteria used for testing) rather than the plastic.¹¹³ CCX-895 ¶ 19. Thus, the priming effect essentially increases the biodegradation of the inoculum. CCX-895 ¶ 19; *see also* CCX-162 at 3.

Dr. Barlaz testified that he performed calculations for some of the tests conducted by NEL and ERL showing that the data was statistically significant as compared to the inoculum. However, these calculations prove nothing. The ECM Additive itself is highly biodegradable, as is the inoculum in which it is tested. Therefore, it is not surprising that a test of plastic treated with ECM's highly biodegradable Additive shows more biodegradation than inoculum alone. The existence of the additive both increases the total amount of material available for biodegradation (compared to the test of the inoculum by itself), and stimulates increased biodegradation of the inoculum (the priming effect).¹¹⁴ Thus, even taking Dr. Barlaz's calculations into account, these results are consistent with no biodegradation of the plastic.

Additionally, Dr. Barlaz acknowledges that the priming effect exists in anaerobic conditions, but does not explain how his calculations account for it. In fact, he concedes that he "can't refute it without doing the experiment." (Barlaz, Tr. 2279.) Therefore, Dr. Barlaz tries to explain away the impact of the priming effect on these tests by asserting that the Additive is not a "readily degradable" substance like glucose.¹¹⁵ However, Dr. Barlaz ignored his recent testing of the

¹¹³ "The phenomenon of more than 100% biodegradation sometimes happens with very easily biodegradable materials. The consumption of the easily degradable material stimulates the inoculum in those reactors to consume the background substrate at a slightly higher rate than the inoculum in the control reactors." CCX-162 at 3.

¹¹⁴ "It is true that ECM amended plastics will biodegrade to a greater extent than unamended plastics, but only because the ECM additive itself apparently biodegrades at a much faster rate than the plastics to which it has been added." CCX-895 at 13.

¹¹⁵ Assuming the additive is PCL (ECM refused to provide the formula for its additive in response to Complaint Counsel's discovery requests, or even to its own experts), Dr. Barlaz

ECM Additive that showed it is almost as biodegradable as paper. *Compare* CCX-946 (copy paper has a methane yield of 200 mL CH₄/dry gram) *with* CCX-951 (reporting 151 mL CH₄/ dry gram for ECM Additive). He also ignored other testing in the record that demonstrates that the ECM Additive alone is readily biodegradable. RX-269; RX-265; RX-264.

Lastly, Dr. Barlaz acknowledged that his statistical analysis would not address irregularities in the test conduct, for instance, if the test were conducted under alternating aerobic–anaerobic conditions. (Barlaz, Tr. 2334.) As discussed above, because of the poor controls and test methods employed by NEL and ERL, oxygen likely was introduced into the testing environment, creating such alternating conditions during the test.

III. ECM’S CLAIMS ARE MATERIAL.

A. ECM’s Claims Are Presumptively Material Because They Address the Additive’s Central Characteristic.

A claim is material if it “involves information that is important to consumers and, hence, likely to affect their choice of, or conduct regarding a product.” *Kraft, Inc. v. FTC*, 970 F.2d at 322 (quotation omitted). Significantly, three types of claims are presumed material: (1) express claims; (2) implied claims the seller intended to make; and (3) claims involving health, safety, or “other areas with which reasonable consumers would be concerned, including a claim that concerns the **purpose**, safety [or] **efficacy**” of the product. *Id.* at 322-23 (emphasis added). Thus, any claim related to the product’s central characteristics is presumptively material, *Telebrands*, 140 F.T.C. at 292, including any implied claim, *Thompson Med.*, 104 F.T.C. at 816-17.

relies on his past work evaluating the biodegradability of PCL at 37°C, but acknowledged that the biodegradation rate of PCL “could be faster at a higher temperature.” (Barlaz, Tr. 2324.)

Significantly, the additive's central (and only) characteristic is that it purportedly makes plastic biodegradable.¹¹⁶ ECM's consumer perception expert, Dr. David Stewart, was unaware of any reason why a manufacturer would purchase the additive other than to make its products biodegradable (Stewart, Tr. 2643), and his own consumer survey found that 71% of respondents believe that whether a product is biodegradable is important, RX-856 at 10. Yale Marketing Professor Shane Frederick concurred that biodegradable claims "affect consumer decisions." CCX-865 at 15. ECM's claims concern only biodegradability: (1) the express claim that ECM Plastic is completely biodegradable; (2) the express claim that the scientific testing establishes the additive's efficacy; (3) the express claim that ECM Plastic will biodegrade in landfills; (4) the express claim that ECM Plastic will biodegrade in nine months to five years; and (5) implied claims concerning degradation speed, including that ECM Plastic will fully biodegrade in landfills within one year. Because ECM's claims directly relate to the product's central characteristic, they are presumptively material.

B. ECM Failed To Rebut the Materiality Presumption.

ECM's attempt to rebut the presumed materiality associated with its product's central characteristic falls short. Specifically, ECM focuses on the "nine months to five years" claim, and asserts its alleged irrelevance to both its customers and end-use consumers. ECM's position fails for five reasons. First, ECM argues that it used the "nine months to five years" claim only to distinguish its product from faster-degrading compostable material. However, although Mr. Sinclair offered this dubious story when deposed, CCX-818 at 77-79, he never mentioned it at trial. In fact, there is no reliable evidence supporting this hypothesis at all (such as contemporaneous documents). Furthermore, even assuming ECM meant to distinguish its additive from slower-degrading material, *why* ECM conveyed "nine months to five years" is

¹¹⁶ Arguably, the Additive's compatibility with plastic manufacturing equipment is another characteristic, albeit a secondary one to ECM's customers and irrelevant to end-use consumers.

irrelevant to *whether* ECM intended to convey that claim (which is beyond dispute).¹¹⁷

Likewise, *why* ECM conveyed the claim does not establish *how* its customers or end-use consumers understood it.

Second, ECM contends that its allegedly “sophisticated” customers found the claim immaterial. Although there are a few instances in which a customer suggested that it did not consider biodegradation time, the overwhelming majority of the evidence supports the opposite. For example, in a candid moment, ECM CEO Robert Sinclair admitted to customer Westchem Group: “**Lots of people get hung up on how long.**” CCX-423 at 9 (emphasis added).

Westchem had asked him whether “the complete biodegradation can be stated to happ[e]n by the 5 years on the max end.” CCX-423 at 9. Indeed—as Mr. Sinclair complained—many customers inquired about “how long.”¹¹⁸ Other ECM customers demonstrated the importance the timeframe had to them by reiterating it to **their** prospective customers.¹¹⁹ For example, after

¹¹⁷ Whatever the reason ECM elected to make the “nine months to five years” claim, it knew or should have known that the claim was false. *See infra* at 94-95 (discussing evidence relevant to the need for fencing-in relief).

¹¹⁸ *See, e.g.*, CCX-282 at 2 (asking various questions about “degradable timing,” including whether “adding more [additive]” would accelerate the “degradable effect”); CCX-281 at 2 (requesting test results demonstrating the “progress of decomposition during a certain time span (a couple years)”); CCX-279 at 3 (expressing concern about “the ability to claim without exception the speeded up breakdown”); CCX-280 at 3 (“We do have some nagging concerns that we need to resolve. The first question is ‘how long does it take to degrade.’”); CCX-300 at 1 (“Does ECM test, or recommend testing, the end-users’ products to ensure that they biodegrade in less than 5 years?”); CCX-269 at 1 (“What determines 9 months vs 5 years as it is such a variance?”); CCX-400 at 4 (asking ECM precisely how much additive it needed to use in its products use “to meet your stated degradation timeframe of 9 months to 5 years”).

¹¹⁹ CCX-811 at 22 (agreeing that “[b]ecause the prospective customers were interested in purchasing biodegradable plastic, IPB thought that the fact that . . . plastic products made with ECM additives would fully biodegrade in nine months to five years would be important to them”); CCX-33 (Earthware Films; repeating “nine months to five years” in marketing literature); CCX-34 (Earthware Films; repeating “nine months to five years” in memorandum to its distributors); CCX-37 (BioPVC, repeating “nine months to five years” on website); CCX-53 (Gilman Brothers; stating product would degrade in one to five years in marketing material); CCX-57 (Kappus Plastics; marketing materials stated in bold that its product “**will break down in approximately 9 months to 5 years**”) (emphasis in original); CCX-182 (BioMugs; “This BioMug is made of a unique plastic that renders it biodegradable in 1-5 years.”); CCX-105 (Plascon Films; repeating “nine months to five years” in advertisement).

informing potential customers that its ECM Plastic allegedly would degrade in “9 months to 5 years,” one customer’s marketing materials exclaimed: “We think you’ll agree that this is an environmental bargain. . . especially when compared to the unknown breakdown time of other modern plastic materials!” CCX-38 at 1 (ellipses in original). In short, despite ECM’s effort to cherry-pick stray remarks from the record, the overwhelming weight of the evidence is that customers cared about the timeframe.

Third, ECM implies that, because the claim does not appear on some products reaching end-use consumers, it must have been immaterial to those consumers who did see the claim. This is a *non-sequitur*, the absence of the claim on certain products says nothing about how consumers understood it when it was present. ECM also offered no evidence bridging the gap in logic (*i.e.*, evidence that manufacturers removed the claim because it was allegedly irrelevant to end-users). Furthermore, there are many reasons a manufacturer might not include a claim on a product, for instance, if the claim will not fit easily (for instance, on a straw wrapper, CCX-101), or the claim would require excessive text on packaging, CCX-803 (Santana, Tr. 42) (testimony from Down To Earth explaining that it was unusual for so much text to appear on a plastic bag). Finally, it is undisputed that the “nine to five” claim appeared on millions of end-use products. CCX-811 (Hong, Tr. 99). Companies including Down To Earth thought it important enough to end-use consumers to include it on the packaging they received.¹²⁰ CCX-494. Indeed, Down To Earth’s supplier, Island Plastic Bags (“IPB”), manufactured ECM Plastic bags reflecting the “nine months to five years” claim for “50 to 100” different customers. CCX-811 (Hong, Tr. 57). In total, IPB alone manufactured “about **10 million**” such bags. CCX-811 (Hong, Tr. 99).

¹²⁰ Down To Earth asked ECM about using language that included “nine months to five years” on its grocery bags. *See* CCX-307. ECM responded with general approval – not befuddlement or confusion as to why anyone would want to put that claim on packaging for end-use consumers. *See* CCX-307; *see also* CCX-1095 (approving the use of “nine months to five years” on another customer’s marketing).

Fourth, ECM contends that “nine months to five years” is immaterial to consumers because they often have understandings of “biodegradation” that scientists would consider inaccurate, or because they believe that biodegradation times can vary.¹²¹ These facts are irrelevant to whether “nine months to five years” was important to consumers. Although consumers probably do not care whether ECM Plastic biodegrades in “nine months to five years” as opposed to, for instance, “ten months to six years,” there is undisputed evidence that they **do** care whether the product is biodegradable. . As discussed above, the consumer perception evidence is clear that substantial numbers of consumers believe that plastic products labelled “biodegradable” will biodegrade within one year, and a majority understand that such a product will biodegrade within five years. Thus, most consumers understand that biodegradation is a process that happens quickly. The “nine months to five years” claim thus reinforces the expectation that the product will function as advertised (an obviously material fact) by defining the biodegradation promised in a manner consistent with how most consumers understand biodegradation.

The claim “nine months to five years” helps ensure that consumers believe the “biodegradable” claim. Indeed, as IPB explained, its bags contain the “nine months to five years” language because “we want people [consumers] to know” how the product biodegrades, “so that they feel like this is an actual technology . . . **it’s for real.**”¹²² CCX-811 (Hong, Tr. 54-

¹²¹ ECM also points to the fact that some consumers are skeptical of the “nine months to five years” claim. However, some consumers’ skepticism does not mean that others—even most others—do not accept it. (Stewart, Tr. 2662).

¹²² Notably, as a manufacturer of end-use products, IPB’s intent in conveying the “nine months to five years” claim is “a predicate fact giving rise to the presumption of materiality.” *Deception Statement*, 103 F.T.C. at 182; *See also Kraft*, 970 F.2d at 311 (presumption of materiality applies “where there is evidence that the seller intended to make the claim”) (citation omitted); *FTC v. QT, Inc.*, 448 F. Supp.2d 908, 960 (N.D. Ill. 2006). Other ECM customers gave testimony similar to IPB. For instance, packaging manufacturer FP International testified that it conveyed to its potential customers that its “CELL-O air cushions will decompose completely within 9 to 60 months in the presence of microorganisms whether they are sent to a landfill or end up as litter in the soil” because “[i]t was important to convey a message of biodegradability.” CCX-810 (Blood, Tr. 199).

55). Put differently, IPB wanted consumers to have details regarding the biodegradation process, including the timeframe, “so that they would understand that the bags would . . . **work as advertised**[.]”¹²³ CCX-811 (Hong, Tr. 55).

Finally, ECM argues that the claim is scientifically immaterial. Specifically, ECM cites landfill expert Dr. Barlaz, who testified that precise biodegradation times are irrelevant to him because “the material is in the landfill, in essence, forever.” RX-864 at 109-10. But whether “nine months to five years” is irrelevant to a landfill expert with a Ph.D. in environmental engineering says nothing about the claim’s relevance to ECM’s customers or consumers. In short, ECM failed to overcome the materiality presumption with respect to any of its claims, including the claim that ECM Plastic biodegrades in “nine months to five years.”

C. Regardless of the Presumption, the Evidence Proves Materiality.

Even ignoring the presumption, the evidence establishes that ECM’s claims are material to both its customers and end-use consumers. Each claim at issue directly concerns the additive’s performance with respect to its only advantage over conventional plastic: biodegradability. The claims are, in essence, that the additive works, that testing proves it works, that it works in landfills, and that it works quickly. Indeed, the fact that ECM Plastic biodegrades quickly was so important that ECM required its customers to sign a so-called “Certificate of Minimum Loading” (Sinclair, Tr. 765), in which the customer acknowledges that “ECM’s reputation can be materially and, perhaps, irreparably damaged when products claiming to use ECM MasterBatch Pellets fail to biodegrade **within a reasonable time** (CCX-832)

¹²³ There are many different ways an advertiser can convey the material message that its product’s central feature functions as advertised. *See, e.g., Thompson Med.*, 104 F.T.C. at 818 (“Evidence from the ads themselves confirms our conclusion that Thompson was making implied efficacy representations when it represented Aspercreme to be a new product.”); *see also Sterling Drug, Inc. v. FTC*, 741 F.2d 1146, 1151-52 (9th Cir. 1984) (upholding Commission finding that broad references to drug’s “quality” would be interpreted by consumers as encompassing “efficacy,” because, with respect to the product at issue, “effective pain relief” was “consumers’ primary concern”).

(emphasis added).¹²⁴ ECM further required that its customers certify: “we are fully aware [of] the risk that a [] plastic product will not fully biodegrade within a **reasonable period of time** if it contains less than one percent” of ECM’s Additive. (CCX-832) (emphasis added).

ECM’s own conduct is equally revealing with respect to the “nine months to five years” claim in particular. Most of ECM’s marketing materials emphasize the claim.¹²⁵ ECM’s Director of Sales, Tom Nealis, explained that, prior to 2012, “[t]he fact that the process will not normally take longer than five years” was representative of the claims he made to ECM’s customers. CCX-813 (Nealis, Tr. 249). ECM even prepared a flyer explaining the “nine months to five years” claim in detail. *See* CCX-5 (entitled “Life Expectancy of Products Manufactured with ECM Masterbatch Pellets.”).

In fact, both Messrs. Sinclair and Nealis made the “nine months to five years” claim to customers and prospective customers who specifically inquired about biodegradation time. As noted above, Mr. Sinclair complained that many of his customers “get hung up on how long.” CCX-423 at 9. Thus, the evidence establishes that ECM made the “nine months to five years” claim because its customers were interested in the timeframe, and the only reason its customers would care is that end-users care.¹²⁶

¹²⁴ The “certificate of assurance of minimum loading” was a marketing ploy intended to underscore that the additive worked as advertised. However, the fact ECM prepared a “certificate” for its customers’ signature referencing the need to assure that ECM Plastic biodegrades “within a reasonable time” highlights the relevance of timing to ECM’s customers.

¹²⁵ *See, e.g.,* CCX-3; CCX-6; CCX-7 at 6.

¹²⁶ *See, e.g.,* CCX-865 at 14 (expert opinion of Professor Shane Frederick; “The purchasers of ECM’s additive presumably have the greatest incentive to determine whether consumers respond to such claims.”) (IPB testimony explaining that it placed the “nine months to five years” claim on bags so that consumers know the “biodegradable” claim is “for real”). Notably, although ECM generally did not communicate with end-use consumers, one consumer who received a “biodegradable shopping bag” tracked down ECM and asked: “[I]n a landfill situation, would the bag be 100% broken down in XX years, or 50% within XX months.” CCX-326 at 2. Mr. Sinclair responded: “The timeframe for biodegradation is generally-speaking 9 months to five years[.]” CCX-326 at 1.

IV. ECM PROVIDED CUSTOMERS THE MEANS AND INSTRUMENTALITIES TO DECEIVE END-USE CONSUMERS

“[I]t is well established that one who puts into the hands of others the means by which such others may deceive the public is equally as responsible for the resulting deception.” *FTC v. Magui Publishers, Inc.*, No. 91-55474, 1993 U.S. App. LEXIS 28684, at *10 (9th Cir. Oct. 6, 1993)) (quoting *In re Litton Indus., Inc.*, 97 F.T.C. 1, 48 (1981)). Specifically, under the doctrine of means and instrumentalities (“M&I”), a respondent is primarily liable for deceptive claims even when it does not convey the misrepresentations directly to end-use consumers. *FTC v. Winstead Hosiery Co.*, 258 U.S. 483 (1922). The purpose of the M&I doctrine is simple: “it is in the public interest to stop any deception at its incipiency.” *Regina Corp. v. FTC*, 322 F.2d 765, 768 (3d Cir. 1963).¹²⁷

ECM has unquestionably provided its customers with the means and instrumentalities to deceive consumers. Its product has no economic value unless it allows purchasers to make biodegradability claims about their products; without such a claim, a customer’s product would be indistinguishable from the products of its competitors who did not raise their costs by buying

¹²⁷ The doctrine applies in at least two circumstances: the passing on of deceptive tangible items and the passing on of specific deceptive claims from the tangible item. *In re Shell Oil Co.*, 128 F.T.C. 749, 766 (1999) (Swindle, C., dissenting). M&I liability has been imposed to address a wide variety of deceptive claims. *See, e.g., FTC v. Winstead Hosiery Co.*, 258 U.S. 483, 494 (1922) (deceptive labels on knit goods sold to retailers); *Magui Publishers, Inc.*, No. 91-55474, 1993 U.S. App. LEXIS 28684, at *10-11 (certificates, brochures, and signed prints); *FTC v. Cyberspy Software, LLC*, No. 6:08-cv-1872-ORL-31GJK, 2010 U.S. Dist. LEXIS 145969, (M.D. Fla. April 22, 2010) (computer spyware); *FTC v. Cruz*, No. 08-1877 (JP), 2008 U.S. Dist. LEXIS 103103, at *4-5 (D.P.R. Dec. 18, 2008) (pamphlet containing instructions on how to perpetuate an envelope stuffing scheme, as well as sample advertisements and a script to carry out the scheme); *FTC v. Norvergence, Inc.*, No. 04-5414 (DRD), U.S. Dist. LEXIS 40699, at *7-8 (D.N.J. July 18, 2005) (consumer rental agreements); *FTC v. Five-Star Auto Club*, 97 F. Supp. 2d 502, 539 (S.D.N.Y. 2000) (marketing materials to recruit other participants to “free dream vehicle” pyramid scheme); *In re N.E.W. Plastics Corp.*, 2014 FTC LEXIS 71, at *8 (Apr. 3, 2014) (plastic lumber marketing brochures); *In re Nonprofit Mgmt. LLC*, 151 F.T.C. 144, 154 (2011) (“Tested Green” logo and “green” certification).

ECM's additive. The fact that some ECM customers sell to others in the production or distribution chain does not change this fact. Each purchaser in such a chain only makes money from purchasing the ECM Additive if the claims can eventually be passed to a retailer who can use those claims to sell to end-use consumers. Given this self-evident fact, ECM provides its customers with a multitude of marketing tools to help sell their products to end-use consumers, all of which feature ECM's false and unsubstantiated claims: the ECM logo, the ECM Certificate of Biodegradability, and other marketing material such as the ECM flyer and ECM leaf.¹²⁸ ECM's customers, in turn, use the deceptive claims provided in these material to sell their products.¹²⁹

First, ECM routinely provided its customers with its "biodegradable" logo—a green tree with the wording "ECM" and "Biodegradable"—and instructed customers to use the logo on consumer products to promote the products' alleged biodegradability.¹³⁰ As explained above, such a claim not only falsely conveys that products made with ECM's Additive will biodegrade; it also falsely implies that the product will completely do so in about a year in landfills. Many customers followed ECM's instructions, placing the ECM logo on products as varied as grocery bags, online golf tee ads, and shampoo containers.¹³¹ By providing its customers with the ECM logo (and encouraging them to use it on their products and advertising), ECM gave them the means to deceive customers and end-use consumers.

¹²⁸ FOF ¶¶ 39-41, 65-67.

¹²⁹ FOF ¶¶ 36, 52, 59, 60.

¹³⁰ FOF ¶¶ 62-64.

¹³¹ FOF ¶ 25.

Second, ECM routinely provided its customers with a “Certificate of Biodegradability,” and instructed them to use the certificate to prove the veracity of biodegradable claims to downstream customers and end-use consumers.¹³² In fact, ECM expressly told its customers to “present” the certificate to downstream customers as a way of “assuring” them that ECM Plastic had been tested and proven to biodegrade.¹³³ Unsurprisingly, many customers followed ECM’s instructions, passing the certificate to their distributors and customers, posting the certificate on their website, and creating their own certificates with precisely the same (or very similar) wording as the ECM certificate.¹³⁴ ECM thus provided its customers with the means to fool downstream customers—and ultimately end-use consumers¹³⁵—into believing that they were purchasing tested and proven biodegradable plastic.

Finally, ECM provided its customers with dozens of “sales tools” and emails to help them market their products based on the ECM’s additives supposed efficacy.¹³⁶ For example, ECM Sales Director Tom Nealis routinely sent emails to customers offering such “sales tools” for their use with customers.¹³⁷ Not only did ECM provide the “tools” to make biodegradable claims, but ECM also actively helped customers to develop “biodegradable” claims tailored to their product. Numerous emails show ECM employees reviewing, tweaking, and approving

¹³² FOF ¶¶ 46-48, 53, 56.

¹³³ FOF ¶ 56.

¹³⁴ FOF ¶¶ 59-61.

¹³⁵ *Infra* at n.90.

¹³⁶ FOF ¶¶ 65-67, 69, 70.

¹³⁷ *Id.*

advertising copy,¹³⁸ and testimony from ECM employees and customers reveals ECM's eagerness to funnel biodegradable claims into the market.¹³⁹ By providing customers with "sales tools" and personalized help in developing biodegradable claims, ECM gave its customers the means to deceive downstream customers and end-use consumers.

V. ECM'S CONTENTION THAT IT NEVER MADE THE EXPRESS AND IMPLIED CLAIMS SET FORTH ABOVE IS BASELESS.

ECM makes essentially two arguments in an attempt to avoid legal responsibility for the claims alleged in the Complaint. First, it argues that its customers are "highly sophisticated" plastic manufacturers who do not perceive biodegradable claims the same way as end-use consumers. Second, it argues that even if some of its direct and indirect customers were not sophisticated, ECM effectively qualified its biodegradable claims by delivering them as a package with verbal and written qualifiers.

A. ECM's Purportedly "Sophisticated Customers" Had the Same Understanding of ECM's Claims as End-Use Consumers.

ECM's "sophisticated customer" defense fails for two reasons. First, sophistication, or lack thereof, is irrelevant to interpretation of ECM's express claims. As the Ninth Circuit explained in *Pantron I*, when a "case involves *express* objective product claims," there is no need to consider whether they are "so far-fetched that reasonable consumer would not believe [them]" 33 F.3d 1088, 1096 n.21 (emphasis in original, quoting *Thompson Medical*, 104 FTC at 788-89 n.6).

¹³⁸ FOF ¶ 70.

¹³⁹ FOF ¶¶ 65-67, 69, 70.

Second, ECM's customers may be sophisticated plastic manufacturers, but they are *not* biodegradation experts. Many ECM customers and downstream users were small businesses that had neither the resources nor the sophistication to meaningfully understand or evaluate the results of biodegradation tests.¹⁴⁰ And, therefore, they relied solely upon ECM's express claims and purported substantiation.¹⁴¹

When ECM attempted to sell its additive to 3M Corporation, the results dramatically illustrate both the lack of sophistication of their actual customers and the difficulty ECM encountered when selling its product to a truly sophisticated customer. Unlike many customers who simply accepted ECM's claims,¹⁴² Dr. Stephen Joseph, a 3M chemist, consulted with colleagues who were immediately suspicious of ECM's claims.¹⁴³ Based on their suspicions, 3M conducted its own test to determine if ECM's additive would make a plastic blend biodegrade to any extent.¹⁴⁴ This testing provides a marked contrast with many of ECM's customers who had no ability to test ECM's product, and therefore relied upon ECM's representations. The 3M test, conducted pursuant to ASTM standards, showed no measurable biodegradation of the plastic samples.¹⁴⁵ Thus, 3M, an actual sophisticated "customer," did not use ECM's additive in its products, and never passed any of ECM's false claims to consumers.

¹⁴⁰ FOF ¶¶ 87, 95.

¹⁴¹ FOF ¶ 58.

¹⁴² *Id.*

¹⁴³ FOF ¶ 180.

¹⁴⁴ FOF ¶ 181.

¹⁴⁵ FOF ¶ 94.

This incident demonstrates why ECM's entire business was dependent on unsophisticated buyers.

A "pilot study" conducted by ECM's own expert, Dr. Stewart, provides additional evidence of lack of "sophistication." In that study, 37.5%¹⁴⁶ of the customers questioned believed that biodegradation would happen within one year, making them essentially indistinguishable from end-use consumers. Defendants terminated the pilot study, perhaps because the results contradicted their sophisticated consumer defense; thus, the sample size is too small to support meaningful conclusions.¹⁴⁷ Nonetheless, these results tend to corroborate the already overwhelming evidence that at least some, if not most, of its customers were unsophisticated.

B. ECM's "Qualifications" Do Not Change the Meaning of its Deceptive Claims.

ECM's "qualification defense" fails for four reasons. First, to the extent that ECM's argument rests upon oral and written "disclaimers" purportedly disseminated separately from the false claims, the argument fails as a matter of law. An advertiser cannot "cure the deception" in one advertisement with different statements in another. *In re Chrysler Corp.*, 87 F.T.C. 719, 1976 FTC LEXIS 397, *59 (Apr. 13, 1976); *Removatron Int'l Corp. v. FTC*, 884 F.2d 1489, 1496-97 (1st Cir. 1989).¹⁴⁸

¹⁴⁶ Three of ten respondents gave timeframes equivalent to one year or less (by stating so, or by referencing ASTM tests that take less than one year). A fourth gave a 1-3 year timeframe.

¹⁴⁷ CCX-865 (Frederick Rebuttal Report ¶ 17).

¹⁴⁸ "The public has a right to expect each of respondent's advertisements to be equally free of deception." *Id.* See *In re Raymond Lee Organization, Inc.*, 92 F.T.C. 489, 618-19 (1978) ("If an initial contact with a purchaser is deceptive, the fact that the truth may be subsequently revealed will not necessarily eliminate the initial wrong."); *Removatron*, 884 F.2d at 1496-97

Second, “disclaimers or qualifications in any particular ad are not adequate to avoid liability unless they are sufficiently prominent and unambiguous to change the apparent meaning of the claims and to leave an accurate impression. Anything less is only likely to cause confusion.” *FTC v. Direct Marketing Concepts*, 624 F.3d 1, 24 (1st Cir. 2010) (quoting *Removatron*, 884 F.2d at 1497). ECM claims, without support, that it disclaimed the express 9-month-to-five-year claim by stating that biodegradation times are “approximate.” Even if true, however, such a “disclaimer” poses just the type of confusion the cases warn about. One logical and facially reasonable interpretation of the claim given the “disclaimer” is that the nine month to five years is an approximation of the time it typically takes ECM Plastic to completely biodegrade in a landfill. However, Dr. Barlaz explains this range is off by decades if not centuries.¹⁴⁹ Thus, even with ECM’s disclaimer, the claim is not even close to being an accurate approximation.

Third, even if ECM qualified its claims to its purportedly “sophisticated customers,” ECM’s is still responsible for the claims as conveyed to end-use consumers because it intended (and insisted) that its customers use the “sales tools” it provided to pass claims down the distribution chain and ultimately to consumers.¹⁵⁰ Thus the effectiveness of the qualifications must be viewed from the intended “relevant audience”—the end-use consumer, and not its customers. *Removatron*, 884 F.2d at 1497 (“We reject the contention that the relevant audience is only the beauty industry. While it is true that petitioners placed their ads in trade magazines, it

(“Each advertisement must stand on its own merits; even if other advertisements contain accurate, non-deceptive claims, a violation may occur with respect to the deceptive ads.”).

¹⁴⁹ See *supra* n.45.

¹⁵⁰ See generally *supra*, Statement of Facts Section III.

is also true that their sales personnel provided brochures and other information to purchasers who were then instructed to provide these materials to potential clients. Furthermore, petitioners provided advertising to purchasers who would then place it in local print media. *The relevant audience thus includes potential purchasers and customers of purchasers. The two qualifications made by petitioners are, as the Commission found, ineffective to dispel the overall message that the machine will remove hair permanently.*) (emphasis added). As discussed in prior sections, end-use consumers understand ECM’s biodegradable claims to mean rapid biodegradation times of around one year in a landfill.

Finally, ECM’s own customers’ understanding of the claims further demonstrate the ineffectiveness of ECM’s supposed “qualifiers.” Many of these customers testified that they self-evidently understood ECM to be claiming complete biodegradability in nine months to five years in a landfill.¹⁵¹ Thus, any “qualifiers” were demonstrably ineffective. In addition to being ineffective, ECM’s qualifications were rare. Dozens of ECM emails and marketing documents uniformly reiterate ECM’s deceptive claims.¹⁵² Even if they could have been effective, which they clearly were not, such sparse qualifications do no rise to the prominent and unambiguous level required by the law.

VI. ENTRY OF THE NOTICE ORDER IS APPROPRIATE AND NECESSARY.

Entering a cease and desist order to stop ECM’s deceptive advertising is appropriate because the findings of fact are “supported by substantial evidence upon the record as a whole.” *Niresk Indus. Inc. v. FTC*, 278 F.2d 337, 340 (7th Cir. 1960). Once a violation is found, the FTC has wide latitude in crafting the appropriate relief.

¹⁵¹ *Id.*

¹⁵² *Id.*

A. The FTC Has Wide Latitude in Crafting Relief.

In *Ruberoid*, the Supreme Court described the Commission's authority to craft orders:

In carrying out this function, the Commission is not limited to prohibiting the illegal practice in the precise form in which it is found to have existed in the past. If the Commission is to attain the objectives Congress envisioned, it cannot be required to confine its roadblock to the narrow lane the transgressor traveled; it must be allowed effectively to close all roads to the prohibited goal, so that its order may not be bypassed with impunity. Moreover, **the Commission has wide discretion in its choice of a remedy deemed adequate to cope with the unlawful practices disclosed.** (Emphasis added).

FTC v. Ruberoid Co., 343 U.S. 470, 473 (1952). This “wide discretion” allows the Commission to issue orders with fencing-in provisions that are broader than the respondent's unlawful conduct. *Telebrands Corp. v. FTC*, 457 F.3d 354, 357 n.5 (4th Cir. 2006). Pursuant to this discretion, courts have affirmed Commission orders requiring remedies as diverse as prohibitions on individual use of zone pricing,¹⁵³ cancellation of existing contracts,¹⁵⁴ mandated divestiture of assets to create a competitor,¹⁵⁵ requirements for varying levels of substantiation for future claims,¹⁵⁶ disclosure requirements,¹⁵⁷ and trade name excision,¹⁵⁸ just to name a few. The underlying inquiry in all these orders is the same: what is the necessary remedy to ensure that

¹⁵³ *FTC v. National Lead Co.*, 352 U.S. 419 (1957).

¹⁵⁴ *North Texas Specialty Physicians v. FTC*, 528 F.3d 346 (5th Cir. 2008).

¹⁵⁵ *Chicago Bridge & Iron Co N.V. v. FTC*, 534 F.3d 410 (5th Cir. 2008).

¹⁵⁶ See, e.g., *Sears, Roebuck & Co. v. FTC*, 676 F.2d 385 (9th Cir. 1982) (requiring competent and reliable evidence for future performance claims for major household appliances); *Thompson Medical Co. v. FTC*, 791 F.2d 189 (1986) (requiring at least two adequate and well-controlled, double-blinded clinical studies for future efficacy claims for a topical analgesic).

¹⁵⁷ *Porter & Dietsch, Inc. v. FTC*, 605 F.2d 294, 307 (1979).

¹⁵⁸ *Continental Wax Co. v. FTC*, 330 F.2d 475 (1964).

respondents do not again violate the FTC Act? See *FTC v. Colgate-Palmolive Co.*, 380 U.S. 374 (1964).

The Commission’s “wide discretion” to craft that remedy is subject to only two constraints: (1) the order must bear a “reasonable relation” to the unlawful practices, *Jacob Siegel Co. v. FTC*, 327 U.S. 608, 612 (1946); and (2) it must be sufficiently clear and precise that its requirements can be understood, *Colgate-Palmolive*, 380 U.S. at 392. The Notice Order is clear, precise, and easy to understand. It also is carefully crafted to stop ECM’s ongoing, deceptive advertising of its only products core attribute.¹⁵⁹

1. The Notice Order is Clear, Precise, and Easy to Understand.

There is no ambiguity in the Notice Order. It prohibits deceptive and unsubstantiated biodegradation claims. Paragraph I.A.i. prohibits unqualified claims of degradability unless the defendants have competent and reliable scientific evidence of complete degradation within a year in a customary disposal facility.¹⁶⁰ For unqualified biodegradable claims, competent and reliable scientific evidence “must assure complete decomposition within one year and replicate, i.e.,

¹⁵⁹ The Commission may order “provisions that are broader than the conduct that is declared unlawful.” *Telebrands Corp.*, 457 F.3d at 357 n.5; see also, e.g., *Colgate-Palmolive Co.*, 380 U.S. at 394-95; *FTC v. Ruberoid Co.*, 343 U.S. 470, 473 (1952); *POM Wonderful*, 2013 FTC LEXIS 6, at *50. To the extent the proposed notice order goes beyond Respondent’s specific practices, such fencing in relief is appropriate in light of ECM’s willful and repeated misrepresentations about the core attributes of its sole product and its persistent, knowing misrepresentation of scientific evidence.

¹⁶⁰ The Notice Order’s definition of “competent and reliable scientific evidence” requires that any scientific protocols used to substantiate biodegradability claims assure complete decomposition within the stated timeframe (or a reasonably short period of time) and simulate the physical conditions of the stated disposal environment. This provision will ensure that ECM no longer makes unqualified biodegradable claims without adequate support, and, in particular, will ensure that ECM no longer (1) extrapolates from minimal biodegradation to complete decomposition or (2) makes landfill claims based on tests like ASTM D5511 that do not simulate landfills.

simulate, the physical conditions found in landfills, where most trash is disposed.” The order defines the terms “degradable” and “landfill” to provide additional precision and clarity. As discussed above, an unqualified claim of biodegradability is deceptive unless it meets these requirements.

At the same time, sub-paragraph I.A.ii. of the Notice Order would allow ECM to make truthful, substantiated, qualified claims. First, pursuant to sub-paragraph I.A.ii.a(1), ECM can disclose the substantiated time to complete biodegradation.¹⁶¹ For example, in the unlikely event ECM were able to demonstrate with competent and reliable scientific evidence that its product causes ordinary plastic bottles to completely biodegrade in a landfill in 30 years, they could convey that fact in their marketing, so long as they clearly and conspicuously disclose the time frame, which exceeds most consumers’ reasonable understanding. If ECM cannot determine the time to complete degradation, it can make qualified claims about the rate and extent of biodegradation shown in **valid**, properly controlled and conducted, scientific tests. However, sub-paragraph I.A.ii.a(2) of the Notice Order requires additional disclosures to prevent a reported test result from conveying a deceptive, implied claim of continued biodegradation, or of a continuous rate of biodegradation. This disclosure is needed because a product will not necessarily biodegrade completely when there is partial biodegradation, let alone at the same rate demonstrated in a short term test.¹⁶² For example, if ECM had **valid** testing that demonstrates 10% biodegradation in a landfill in a year, it could represent that result in their marketing but

¹⁶¹ Sub-paragraph B of the definition of Competent and Reliable Scientific Evidence sets forth the scientific standards needed to substantiate qualified biodegradable claims.

¹⁶² FOF ¶ 158 (showing that at least a significant minority of consumers extrapolate rate and extent information concerning biodegradation times).

must clearly and conspicuously disclose that there is no evidence that biodegradation continues beyond 10%. Finally, if ECM's substantiation only applies to limited disposal environments, it can make claims based on such substantiation so long as it accurately,¹⁶³ clearly, and conspicuously discloses that limitation. In short, the Notice Order would permit ECM to make truthful claims, while preventing it from using incomplete test data to deceive consumers.

2. The Proposed Relief Is Needed To Stop Ongoing Deception.

ECM has been misusing incomplete test data to deceive consumers for years. In fact, ECM's repeated and willful misrepresentations to its customers and end-users about the efficacy of its product, and about its purported scientific "proof" of that efficacy, justify strong injunctive relief. As the Commissioner recently noted in POM:

when determining whether an order is reasonably related to the unlawful practices, the Commission should consider **"(1) the seriousness and deliberateness of the violation; (2) the ease with which the violative claim may be transferred to other products; and (3) whether the respondent has a history of prior violations."** *Stouffer Foods Corp.*, 118 F.T.C. at 811; *see also Telebrands Corp.*, 457 F.3d 354, 358 (4th Cir. 2006); *Kraft, Inc.*, 970 F.2d at 326. "The reasonable relationship analysis operates on a sliding scale—one factor's importance varies depending on the extent to which the others are found. . . . All three factors need not be present for a reasonable relationship to exist." *Telebrands Corp.*, 457 F.3d at 358-59I. (Emphasis added.)

POM Wonderful, 2013 FTC LEXIS 6, at *49. Here, ECM's violations were serious, repeated, and blatant.

¹⁶³ ECM currently misrepresents the conditions represented by its testing by qualifying its biodegradability claim with "in biologically-active environments (including most landfills) . . ." See FOF ¶ 37 ("After the Green Guides were issued, ECM removed many of its nine-month-to-five-years claims, replacing them with a disclaimer stating that "Plastic products produced with our additives will biodegrade in biologically-active environments (including most landfills) in some period greater than a year."). In fact, the "biologically-active environment," or bioreactor, replicated by ASTM D-5511 tests is rare. RX-853 at 5. Dr. Barlaz concedes that only about 10% of all landfills are bioreactors. FOF ¶ 471. According to EPA estimates, only 2% of all landfills are bioreactors. FOF ¶ 434

The seriousness of ECM's violations stems from at least three factors. ECM's claims exploited consumers' environmental consciousness.¹⁶⁴ Second, ECM's customers could not assess the validity of the claims.¹⁶⁵ See *In re Stouffer Foods Corp.*, 118 F.T.C. 746, 812-13 (1994) (seriousness of the violations is "enhanced by the fact that consumers cannot readily judge for themselves the truth or falsity of [respondent's] claim"). Third, violations also have been found to be "serious" where "claims were consciously made despite flaws in the studies relied upon by [the respondent]." *In re Schering Plough Corp.*, 118 F.T.C. 1030, 1121 (Oct. 21, 1994). ECM claimed that tests scientifically established its additives efficacy in a short, specified time period. It did so even though experts in the field believe that conventional plastics do not fully biodegrade in a period anywhere close to five years or less, and the fact that the tests ECM relied on had gross, methodological flaws and did not replicate typical landfill conditions.¹⁶⁶

The Commission can also consider the size and duration of the deceptive advertising campaign in evaluating the "seriousness . . . of the violations." *Stouffer Foods Corp.*, 118 F.T.C. at 812-13; *Kraft, Inc.*, 114 F.T.C. at 140. Since at least 2005, ECM engaged in a deceptive marketing campaign, in multiple media (including its website, e-mails, and printed marketing materials) to promote its additive as capable of making plastics fully biodegradable.¹⁶⁷ In the course of its marketing campaign, ECM repeatedly passed along its false and unsubstantiated

¹⁶⁴ See FOF ¶¶ 14, 17.

¹⁶⁵ See FOF ¶¶ 87-90.

¹⁶⁶ See FOF ¶¶ 127, 130-50, 153 -57, 166, 170, 178, 182.

¹⁶⁷ See FOF ¶¶ 18, 26-29, 31-33, 38-48, 50, 54, 63; 136-44.

biodegradability claims to its customers who, in turn, pass them along in commerce in their own advertising.¹⁶⁸

Finally, Robert Sinclair, ECM's President and CEO, "acted in blatant and utter disregard of the law." *See Standard Oil Co. v. FTC*, 577 F.2d 653, 662 (9th Cir. 1978). Sinclair had complete control over every aspect of ECM's marketing and testing.¹⁶⁹ He was responsible for ECM's prominent and express "9 months to 5 years" claim, even though he knew that the claim was unsubstantiated, and, at a minimum, acted with reckless disregard for its truth.¹⁷⁰ He testified that he always qualified this claim during discussions with his customers, but there is overwhelming evidence, including dozens of emails and testimony from several customers, that this is patently untrue. Indeed, on August 13, 2007, Mr. Sinclair signed a sworn affidavit repeating the nine month to five year claim and stating, without qualification, that he possessed scientific tests proving that "most customers "should see biodegradation times shorter than five years" with much shorter time frames for bioreactors.¹⁷¹ Of course, at the time, he had no tests to substantiate that sworn claim.

Mr. Sinclair was also instrumental in the dissemination of the bogus and misleading McLaren-Hart study.¹⁷² He also knew about **five** different adverse adjudications regarding the

¹⁶⁸ *See* FOF ¶¶ 24, 25, 36, 52-65, 107-108.

¹⁶⁹ FOF ¶ 72.

¹⁷⁰ FOF ¶¶ 103, 104.

¹⁷¹ CCX-1099.

¹⁷² *See supra* Statement of Facts Section B.

efficacy of ECM Plastics,¹⁷³ and multiple bad test results,¹⁷⁴ but concealed this information from his customers and continued to promulgate the same debunked claims about his product's efficacy and the strength of supporting "independent" scientific evidence. In fact, he aggressively discouraged his customers from doing their own testing, insisting that existing tests were sufficient to prove ECM's biodegradability claim.¹⁷⁵ Finally, even after promulgation of the Green Guides, and during an FTC investigation, he directed ECM to switch its marketing to the facially misleading "some period greater than a year claim."¹⁷⁶ As in *POM*, ECM has a "demonstrated propensity to misrepresent to [its] advantage the strength and outcomes of scientific research." *POM* at 51.

B. ECM's Arguments that the Notice Order Violates Its First Amendment Rights and Federal Environmental Policy Have No Merit.

ECM's argument that entry of the Notice Order would violate its First Amendment right to communicate truthful commercial speech about important environmental benefits has no merit. Specifically, ECM argues that that the government must use less restrictive alternatives under *Pearson v. Shalala*, 165 F.3d 650, 658 (D.C. Cir. 1999); and that the proposed injunction would prevent it from providing truthful information to its customers about important

¹⁷³ There is strong documentary evidence that Mr. Sinclair had contemporaneous knowledge of each of these proceedings, and communicated with his customers about them. FOF ¶ 103. Nonetheless, in his deposition, he flatly denied any knowledge. See CCX-819 at 352 ("Q: Are you aware of any other lawsuits or challenges raised against any of your customers [besides Masternet]? A: No. Q: Anything outside the United States? A: No."); CCX-819 at 349 (denying knowledge of lawsuits or claims).

¹⁷⁴ See FOF ¶¶97, 99.

¹⁷⁵ *Supra* Statement of Facts, Section D-E

¹⁷⁶ *Supra* Statement of Facts Section A.

environmental benefits of its products in conflict with federal environmental policy. *See* Respondent's Answer, 7th Affirmative Defense.

These arguments fail for three reasons. First, ECM's assertion that the Notice Order would require "complete elimination of plastic within one year as a condition precedent to use of the term 'biodegradable,'" conveniently ignores the two permissible qualified claims. As discussed in detail above, ECM can make truthful claims about biodegradation, and about its test results, as long as it has competent and reliable scientific evidence to support those claims and makes disclosures needed to dispel deceptive implied claims.

Second, Respondent's commercial speech argument is legally flawed. Although the First Amendment protects commercial speech, the government can regulate deceptive commercial speech through adjudication. The Supreme Court has long held that "the Constitution accords less protection to commercial speech than to other constitutionally safeguarded forms of expression." *Bolger v. Youngs Drug Prods. Corp.*, 463 U.S. 60, 64 (1983). Commercial speech receives less protection than other forms of expression under the First Amendment because "commercial speech may be more durable than other kinds. Since advertising is the *sine qua non* of commercial profits, there is little likelihood of its being chilled by proper regulation and foregone entirely." *Virginia State Bd. of Pharmacy v. Virginia Citizens Consumer Council*, 425 U.S. 748, 772 (1976).

Importantly, for commercial speech to receive the protections of the First Amendment, the commercial speech "at least must concern lawful activity and not be misleading." *Central*

Hudson Gas & Elec. Corp. v. Pub. Serv. Comm'n, 447 U.S. 557, 566 (1980).¹⁷⁷ In this case, ECM's ongoing marketing is deceptive and misleading, and will continue to mislead consumers without appropriate injunctive relief. Furthermore, unlike its customers and end-use consumers of ECM Plastics, who lack the ability to independently verify the veracity of ECM's claims, ECM has "extensive knowledge of both the market and of their products and are thus well situated to evaluate the accuracy of their messages and the lawfulness of the underlying activity." *Central Hudson* at 564 (citing *Bates v. State Bar of Arizona*, 433 U.S. 350, 381 (1977)).

Furthermore, ECM's reliance on *Pearson* is misplaced. *Pearson* held that an FDA rule effectively banning specific health claims was an unduly restrictive means to regulate *potential* deceptive speech, and that the FDA needed to consider possible curative disclosures. *Pearson v. Shalala*, 165 F.3d at 659-660. In contrast, this case involves adjudication of actual deceptive claims in commerce. The Commission recently rejected this argument in *POM*, reasoning that:

In addition, the Commission's approach to address misleading advertising, which is a case-by-case adjudication *after* ads have been disseminated, differs from regulatory efforts that prohibit categories of speech or rely on *prior* approval of the language to be used. The latter serve as illustrations of "bars" on commercial speech and are inapplicable to the detailed *ex post* analysis we engage in here, based on a full record about the ads in question. [Internal citations omitted].

POM Wonderful, 2013 FTC LEXIS 6, at *44.

Finally, Respondent's federal environmental policy argument is ludicrous. The FTC need not permit deceptive commercial speech in furtherance of environmental policy. Indeed, the FTC's role is to protect consumers in the marketplace from such unfair or deceptive acts or

¹⁷⁷ Moreover, the government may prohibit false or misleading commercial speech entirely. See *In re R. M. J.*, 455 U.S. 191, 203 (1982) ("Misleading speech may be prohibited entirely").

practices. In this case, the instant action and proposed relief further that role. Furthermore, even if environmental policy were the FTC's charge, ECM has not, and cannot, establish that lying to consumers about the efficacy of its product furthers any such policy.

VII. 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 Court enter the relief proposed in the Commission's Notice Order.

Dated: September 25, 2014

Respectfully submitted,

/s/ Katherine Johnson
Katherine Johnson (kjohnson3@ftc.gov)
Jonathan Cohen (jcohen2@ftc.gov)
Artie Decastro (adecastro@ftc.gov)
Elisa Jillson (ejillson@ftc.gov)
Federal Trade Commission
600 Pennsylvania Ave., N.W. CC-9528
Washington, DC 20580
Phone: 202-326-2185; -2551; -2747; -3001
Fax: 202-326-2551

CERTIFICATE OF SERVICE

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

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

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

One electronic copy and three hard copies 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
Emord & Associates, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
Email: jemord@emord.com

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

Eric J. Awerbuch
Emord & Associates, P.C.
3210 S. Gilbert Road, Suite 4
Chandler, AZ 85286
Email: eawerbuch@emord.com

Date: September 25, 2014

/s/Katherine Johnson
Katherine Johnson (kjohnson3@ftc.gov)
Jonathan Cohen (jcohen2@ftc.gov)
Arturo DeCastro (adecastro@ftc.gov)
Federal Trade Commission
600 Pennsylvania Ave., N.W. M-8102B
Washington, DC 20580
Phone: 202-326-2185; -2551; -2747
Fax: 202-326-2558