

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



In the Matter of

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

Respondent.

Docket No. 9358

PUBLIC VERSION REDACTED

**ECM BIOFILM'S MOTION TO SANCTION COMPLAINT COUNSEL FOR
UNAUTHORIZED INTENTIONAL DISSUASION OF RESPONSE TO SUBPOENA
DUCES TECUM**

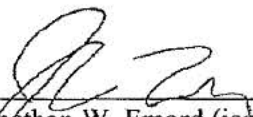
Pursuant to Rule 3.38, ECM hereby moves this Court to sanction Complaint Counsel for unlawful interference with a subpoena duces tecum issued February 28, 2014 by ECM to Dr. Frederick Michel of Ohio State University ("Michel"). *See* Exh. RX-E. On March 14, 2014, Complaint Counsel instructed Michel by letter not to produce any responsive documents he possessed "that were submitted to the FTC by third parties" until March 28, 2014, over a week after the subpoena return date and four business before fact discovery closes. *See* Exh. RX-B. Complaint Counsel thereby usurped the exclusive authority over subpoena compliance vested in this Court and presumptuously instructed Michel writing, "*unless we direct you otherwise, we have no objection to you producing the remaining responsive documents on March 28.*" *See* Exh. RX-B (emphasis added). Following that instruction, Michel has in fact refused to produce the documents in question on the return dates of March 18th and 24th, reciting that he will only supply the documents on the time specified by Complaint Counsel. *See* Exh. RX-A:3. Thus, Complaint Counsel's unlawful interference with the subpoena response has achieved the intended obstruction.

Federal courts have held precisely analogous conduct sanctionable under similar circumstances. *See, e.g. Price v. Trans Union, LLC*, 847 F.Supp. 2d 788, 794 (E.D. Pa. 2012). Moreover, the unlawful conduct is a violation of the District of Columbia Rules of Professional Responsibility 3.4(a) and (f).

To preserve the integrity of the discovery process, to prevent precedent that condones similar abuses in future, and to remedy harm caused to ECM, sanctions are appropriate. Given the egregious nature of the offense, dismissal or removal of counsel would be fully supportable. At a minimum, and for the reasons explained in the accompanying memorandum of law, ECM requests that this Court issue the following sanctions:

- 1) Censure Complaint Counsel and refer this matter for further investigation by the Legal Ethics Chair of the District of Columbia Bar and the Inspector General of the Federal Trade Commission.
- 2) Exclude the Michel document attached here as Exhibit RX-C, and preclude Complaint Counsel from relying on it in any way.
- 3) Extend ECM's fact discovery deadline to permit ECM a limited opportunity to conduct additional discovery from Michel, OSU, and others involved in the article attached as Exhibit RX-C.

Respectfully submitted,


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

DATED: March 19, 2014

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

In the Matter of

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

Respondent.

Docket No. 9358

PUBLIC VERSION REDACTED

**RESPONDENT'S MEMORANDUM IN SUPPORT OF MOTION TO SANCTION
COMPLAINT COUNSEL FOR UNAUTHORIZED INTENTIONAL DISSUASION OF
RESPONSE TO SUBPOENA DUCES TECUM**

Pursuant to Rule 3.22(a), 3.34, and 3.38, ECM hereby moves for sanctions against Complaint Counsel for unlawful interference with response to ECM's subpoena duces tecum to Michel. Complaint Counsel have, without leave of Court, unlawfully dissuaded a subpoena recipient from providing responsive documents by the subpoena return date of March 18th. Under apposite precedent and D.C. Ethics Rule 3.4(a) and (f), that intentional dissuasion is sanctionable.

FACTS:

On December 3, 2013, Respondent served on Complaint counsel its Initial Document Requests. Respondent sought *inter alia* "all documents that concern whether plastics in general and ECM Plastics in particular will break down and decompose into elements found in nature after customary disposal or in a landfill." See Exh. RX-E, at 7. On January 2, Complaint Counsel confirmed that it supplied all responsive, non-privileged documents. Complaint Counsel did not produce, and made no mention of, the article marked here as Exhibit RX-C (Michel and Gomez, "Polymer Degradation and Stability," (hereinafter, the "Michel Article")).

In its “Clarification” to the Court, filed March 13th, and through documents produced on March 18, Complaint Counsel now reveals that it possessed the Michel Article and related emails and attachments since November 2012 but did not produce them. *See, e.g.*, Exh. RX-D.

On February 18th and 19th, Complaint Counsel deposed ECM President Robert Sinclair. In the afternoon of February 19th, Complaint Counsel surprised Sinclair with first production of the Michel Article, and questioned Sinclair about it at length over Respondent’s objections. Respondent filed a Motion for Sanctions on February 28, 2014, asking this Court to exclude the Michel Article as a sanction for Complaint Counsel’s wrongful withholding and ambush use of the article. *See* ECM Mot. for Sanctions (Feb. 28, 2014).

Complaint Counsel’s Opposition:

On March 10, 2014, in opposition to Respondent’s Motion, Complaint Counsel averred that they had only recently learned of the Michel Article, and that the recent discovery somehow justified the withholding of the document until its disclosure was deemed beneficial during depositions. *See* CC’s Opp. to Resp.’s Mot. for Sanctions, at 5 (March 10, 2014). In a sworn statement, one of Complaint Counsel stated that they first “received the article ... well after business hours on Friday, February 14, 2014, at approximately 8:00pm.” *See* J. Cohen Dec. ¶ 6 (Mar. 10, 2013). Complaint Counsel further stated that they had “not communicated in any way with Frederick Michel, Eddie Gomez, OARD (Ohio State Agricultural Research & Development Center], or anyone at Ohio State.” *Id.* at ¶ 7.

Meanwhile, on February 28th, Respondent had subpoenaed Michel. *See* Exh. RX-E. That same day ECM supplied a copy of that subpoena to Complaint Counsel. *See* Exh. RX-A:2. Through that subpoena, Respondent sought to investigate peculiarities in the Michel Article.

Michel's testing had purportedly assessed the biodegradability of polypropylene plastics¹ infused with ECM's additive by using an ASTM D5511 test methodology (the very same test methodology Complaint Counsel argues in their Complaint should not be used to determine ultimate biodegradability in landfills). *See* CC's Complaint, Dkt. 9358, at ¶ 8 (Oct. 28, 2014). The Michel Article allegedly showed that ECM's additive did not biodegrade. *See* Exh. RX-C. However, the study authors chose not to test certain other "ECM" infused polymers. *Id.* at 2589-90. Moreover, the sources of the ECM plastics tested by Michel are suspicious because the product tested include additives at higher load levels than ECM customarily sells (5% in the Michel Article vs. 1%). Michel published his article in a less prestigious peer-reviewed journal, and his Article did not include any raw data. In fact, contrary to Complaint Counsel's argument, ECM and its customers conducted many ASTM D5511 tests through various independent laboratories, including tests specifically designed by a well-qualified environmental scientist, Dr. Timothy Barber, to mimic landfill conditions over time. *See, e.g.*, Exh. RX-H (Barber Tr.). In over twenty such tests, plastics manufactured with ECM's additive did biodegrade at significant levels when compared to negative controls (i.e., untreated plastics).²

Documents disclosed to ECM on March 18, 2014 from Complaint Counsel reveal that Michel was, in fact, not a disinterested scientist. He had been a paid consultant to FTC in the investigation of similar matters and was connected with, and perhaps influenced by, the Biodegradable Plastics Institute (BPI), an organization that lobbies for companies that, and technologies which, compete with ECM and its additive. [REDACTED]

¹ Polypropylene is a type of plastic polymer known for its ruggedness. ECM advertises its additive product for use in many types of plastics, nearly all of which are plastics made with polymers other than polypropylene.

² Those many tests will be presented before this Court, and addressed by ECM's experts, at hearing.

See Clarification, at 1. However, Complaint Counsel also explained in a footnote that “[o]ne of the two attorneys was involved in the pre-Complaint investigation of Respondent, but departed the agency approximately eight months before the Complaint was filed.” *Id.* at n.1.

At least two of the “other companies” investigated by Complaint Counsel during that period included ECM customers MacNeil Engineering and American Plastic Mfg. Complaint Counsel also conceded that one attorney working directly with Michel had also participated in the investigation of ECM BioFilms.

Lead counsel for the Complainants, Katherine Johnson, was assigned to the investigation of ECM BioFilms since at least September of 2011. *See* Exh. RX-G. She therefore worked alongside that unnamed attorney investigating ECM BioFilms, its customers, and the “other companies,” and she was assigned to the ECM matter when Complaint Counsel received Michel’s 2012 materials concerning ECM. It therefore defies credulity to suggest that Complaint Counsel lacked knowledge of the 2012-2013 activities of Michel. *C.f.* CC Clarification, at n.1. The facts show that Complaint Counsel (and their agents) worked directly with Michel while he published the study and participated in an investigation of ECM’s customers. ECM intends to file a companion motion seeking sanctions for Complaint Counsel’s failure to comply with its discovery obligations.

Complaint Counsel Intentionally Dissuades Compliance with this Court’s Subpoena:

On March 14, 2014, just two business days before Michel’s production deadline, FTC attorneys sent Michel instructions to delay production to ECM of responsive documents past the subpoena return date of March 18th. *See* Exh. RX-B. Complaint Counsel proceeded without any Court Order. In that letter, FTC counsel advised Michel:

[The] documents are governed by the nondisclosure agreement you executed before receiving those materials. That agreement provides that you will not divulge any materials or information you receive from the FTC to outside parties, unless directed to do so by FTC Staff in connection with an adjudicative proceeding... [W]e request that you delay production of those materials until March 28, 2014. This is necessary to give the submitters 'an opportunity to seek an appropriate protective order or *in camera* order' regarding any confidential materials. *See* 16 C.F.R. § 4.10(g).

Moreover, Complaint Counsel usurped this Court's authority presumptuously and contumaciously, writing, "*unless we direct you otherwise*, we have no objection to you producing the remaining responsive documents on March 28." *See* RX-B. Significantly, as Complaint Counsel well knows, this Court has already issued a Protective Order that prevents disclosure of confidential information, which would also encompass any documents provided by Michel to Respondent that were designated "confidential." Immediately after receipt of the March 14 FTC Letter, ECM Counsel informed OSU counsel and Michel that Complaint Counsel's interference was unlawful, was without this Court's authorization, and that the Court's protective order governed (that order accompanied the original subpoena, as required). *See* Exh. RX-A:2 (Mar. 13, 2014 Email).

Complaint Counsel nevertheless maintained its direction to Michel to violate the subpoena return date without leave of Court and to delay production of responsive information until less than four business days before the close of fact discovery. That direction applied to all but one ECM subpoena request (item 20).

On March 18, 2014, Michel served ECM with a letter, stating that he would abide by Complaint Counsel's direction and violate the subpoena return date (he did not file any motion so to do with this Court). *See* Exh. RX-A:3 (March 17th Michel Letter). Michel parroted FTC counsel's advice, claiming that "[i]t is my understanding that disclosing these protected documents would violated a non-disclosure agreement between me and the FTC" and that

“*unless directed otherwise by FTC staff, I will produce all responsive documents in my possession in native format by March 28th, 2014.*” *See id.* (emphasis added). Michel’s correspondence thus demonstrates unequivocally that he followed precisely the advice given him, and understood that position to be dispositive. Complaint Counsel’s usurpation of this Court’s authority combined with its purposeful dissuasion of subpoena compliance violates the law governing subpoenas and is unethical conduct.

ARGUMENT

A. Michel and Complaint Counsel Have No Sound Justification to Withhold Responsive Information in Light of This Court’s January 10 Order

Complaint Counsel’s March 13, 2014 letter to Michel instructs him to withhold documents to “give the submitters ‘an opportunity to seek an appropriate protective or *in camera* order’ regarding any confidential materials.” *See* Exh. RX-B (citing 16 C.F.R. § 4.10(g)). However, Rule 4.10(g) is merely a safeguard to ensure confidential documents do not enter the public domain. Here the Court has specifically entered a protective order that reaches confidential information even when subject to a non-disclosure agreement, as this Court made abundantly clear in its January 10, 2014 Order in this case. In that Order, the Court unequivocally stated: “*The Protective Order Governing Discovery issued in this case on October 22, 2013 ... is designed to protect against competitive harm resulting from disclosure of confidential business information produced in the course of discovery.*” *See* Jan. 10 Order, at 5-6 (emphasis added). “Because adequate safeguards are in place to ensure sensitive information will not be misused,” ECM was not permitted to “withhold the requested discovery even if such information [was] confidential ...” *Id.* Thus, Complaint Counsel’s action not only exceeded their authority by proceeding without leave of Court but also contradicted this Court’s discovery

orders. ECM provided Michel with a copy of the Protective Order along with the February 28, 2014 subpoena.

B. Complaint Counsel's Conduct is *Per Se* Sanctionable

Federal Courts condemn harshly interference by adverse parties with subpoenas issued to non-parties, finding such interference sanctionable per se. *See, e.g., Price v. Trans Union, L.L.C.*, 847 F. Supp. 2d 788, 793 (E.D. Pa. 2012); *Fox Indus., Inc. v. Gurovich*, CV03-5166(TCP)(WDW), 2006 WL 2882580 (E.D.N.Y. Oct. 6, 2006). In *Price*, the Eastern District of Pennsylvania concluded: “[n]owhere in the Rule is it contemplated that the adversary of the party seeking the information may advise, no matter the reasons, the person commanded by the subpoena to produce the information to ignore the subpoena’s command.” *Id.* at 794. By sending the “advice letters,” the attorney in *Price* had “arrogated to himself a power assigned to the Court . . . The violation [was] clear and . . . sanctionable.” *Id.*; *see also Fox Indus.*, 2006 WL 2882580.

C. Complaint Counsel Has Violated the Rules of Professional Responsibility

Rule 3.4 of the District of Columbia Rules of Professional Responsibility states that a lawyer shall not “obstruct another party’s access to evidence . . . or counsel or assist another person to do so . . .” *See* Wash. D.C. R. Prof’l Conduct, R. 3.4(a). Rule 3.4(f) prohibits an attorney from “[r]equest[ing] a person other than a client to refrain from voluntarily giving relevant information to another party . . .” *See* Wash. D.C. R. Prof’l Conduct, R. 3.4(f). Rule 3.4(f) provides narrow exceptions that are not applicable here. Complaint Counsel has violated the rule by counseling a non-party witness not to produce documents by the return date in ECM’s validly issued subpoena. Federal Courts interpreting identical ethical rules have found the violations “serious” and have imposed sanctions. *See, e.g., Harlan v. Lewis*, 141 F.R.D. 107,

115 (E.D. Ark. 1992); *In re Minniti*, 99-11652DWS, 2000 WL 275852 (Bankr. E.D. Pa. Jan. 4, 2000).

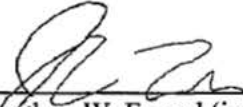
D. Appropriate Sanctions Include Censure, Exclusion of Complaint Counsel, Extended Discovery, and Exclusion of Evidence

Complaint Counsel should be sanctioned for its unlawful interference with the ECM subpoena. This Court has power to “fashion an appropriate sanction for conduct which abuses the judicial process.” *See In the Matter of: Daniel S. Somerson v. Mail Contractors of Am.*, 2003 WL 22855212, at *5 (D.O.L Nov. 25, 2003) (quoting *Chambers v. NASCO, Inc.*, 501 U.S. 32, 44–45 (1991)); *see also U.S. Dep’t of Housing and Urban Dev. v. First Source Fin. USA, Inc.*, 2007 WL 3173360, at *4 (D.O.L. Oct 12, 2007) (citing *Nat’l Hockey League v. Metro. Hockey Club, Inc.*, 427 U.S. 639 *1976)). The conduct is particularly egregious because Complaint Counsel proceeded without leave of Court and has no legally tenable basis to interfere in light of this Court’s protective order and January 10 discovery ruling. Unquestionably, because Complaint Counsel was served with a copy of the subpoena on February 28, 2014 (*see* Exh. RX-B), they had ample time to move this Court for relief but, instead, they unlawfully assumed the Court’s power and acted unilaterally. The most severe sanctions are appropriate, including case dismissal, or removal of existing Complaint Counsel from this case. At a minimum, this Court should grant the sanctions ECM enumerates in the motion accompanying this memorandum.

CONCLUSION

For the foregoing reasons, ECM respectfully requests that his Honor specifically rule that Complaint Counsel in its March 14, 2014 letter to Frederick Michel acted unlawfully, without requisite leave of Court, and contrary to the rules of ethics governing practice in this jurisdiction and impose the relief requested hereinabove in the ECM motion.

Respectfully submitted,




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

DATED this 19th day of March 2014.

STATEMENT CONCERNING MEET AND CONFER

Pursuant to Rule 3.22(g), 21 C.F.R. § 3.22(g), the undersigned counsel certifies that, on March 18, 2014, Respondent's counsel conferred with Complaint Counsel in a good faith effort to resolve by agreement the issues raised in the foregoing Motion for Sanctions. The parties have been unable to reach an agreement on the issue raised in the attached motion.

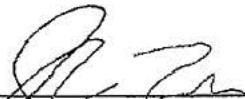
Respectfully submitted,


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

STATEMENT CONCERNING CONFIDENTIALITY

The undersigned Respondent's Counsel hereby states that the content of the foregoing motion and certain exhibits contain information properly designated by third party witnesses as "confidential" under the standing Protective Order in this case. Accordingly, ECM will submit a public version with the exhibit content redacted.

Respectfully submitted,


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

DATED: March 19, 2014.

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

In the Matter of

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

Respondent.

Docket No. 9358

PUBLIC

**[PROPOSED] ORDER GRANTING RESPONDENT ECM BIOFILMS, INC.'S MOTION
FOR SANCTIONS**

This matter having come before the Administrative Law Judge on March 19, 2014, upon a Motion for Sanctions (“Motion”) filed by Respondent ECM BioFilms, Inc. (“ECM”) pursuant to Commission Rule 3.22, 3.34, and 3.38, for an Order sanctioning Complaint Counsel.

Having considered ECM’s Motion and all supporting and opposing submissions, and for good cause appearing, it is hereby ORDERED that ECM’s Motion is granted. The Court specifically finds that Complaint Counsel in its March 14 letter to Frederick Michel acted unlawfully, without requisite leave of Court, violated this Court’s subpoena and the rules of ethics governing practice in this jurisdiction. It is hereby further ORDERED that Complaint Counsel shall be precluded from introducing into evidence or otherwise relying on, in support of any claim or defense, the article identified in Exhibit C of ECM’s Motion, entitled: Eddie F. Gomez and Frederick C. Michel Jr., “Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation” *Polymer Degradation and Stability* 98 (2013) 2583-2591, and shall not make any reference to Dr.

Michel at hearing; and it is ORDERED that Respondent ECM BioFilm's shall have an extended period of Fact discovery of up to 30 days to conclude discovery concerning the aforementioned Exhibit C. A copy of this Order shall be provided by the Office of the Administrative Law Judge to the Legal Ethics Chair of the District of Columbia Bar and the Inspector General of the Federal Trade Commission for further investigation.

ORDERED:

D. Michael Chappell
Chief Administrative Law Judge

Date:

CERTIFICATE OF SERVICE

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

One hardcopy original and one courtesy copy to the **Office of the Secretary** via overnight mail:

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

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

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

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

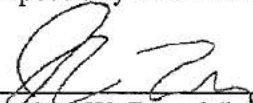
Katherine Johnson (kjohnson3@ftc.gov)
Federal Trade Commission
600 Pennsylvania Avenue, NW
Mail stop M-8102B
Washington, D.C. 20580

Elisa Jillson (ejillson@ftc.gov)
Federal Trade Commission
600 Pennsylvania Avenue, NW
Mail stop M-8102B
Washington, D.C. 20580

Jonathan Cohen (jcohen2@ftc.gov)
Federal Trade Commission
600 Pennsylvania Avenue, NW
Mail stop M-8102B
Washington, D.C. 20580

I certify that I retain a paper copy of the signed original of the foregoing document that is available for review by the parties and adjudicator consistent with the Commission's Rules.

Respectfully submitted,


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

DATED: March 19, 2014

EXHIBIT RX-A

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

In the Matter of

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

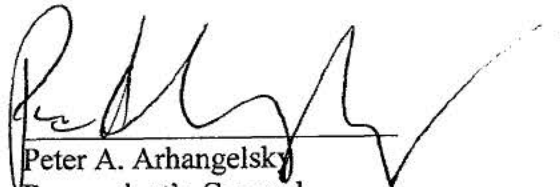
Respondent.

Docket No. 9358

**DECLARATION OF PETER ARHANGELSKY IN SUPPORT OF RESPONDENT
ECM'S MOTION FOR SANCTIONS**

In accord with 28 U.S.C. § 1746, I declare under penalty of perjury that the following is true and correct:

1. I am over the age of eighteen years and I make this affidavit on personal knowledge of its contents and in further support of Respondent's Motion for a Protective Order.
2. I am employed by the law firm Emord & Associates, P.C., which represents ECM BioFilms in matters before the Federal Trade Commission. I am an attorney of record in the above-captioned case.
3. **Attachment 1** hereto is a true and correct copy of an email sent to Complaint Counsel on February 28, 2014.
4. **Attachment 2** hereto is a true and correct copy of an email sent to Complaint Counsel and Dr. Michel on March 14, 2014.
5. **Attachment 3** hereto is a true and correct copy of a letter Respondent received from Dr. Michel on March 18, 2014.



Peter A. Arhangelsky
Respondent's Counsel

Executed this 19th day of March 2014 in Chandler, Arizona.

EXHIBIT RX-A:1

Peter Arhangelsky

From: Lou Caputo
Sent: Friday, February 28, 2014 3:31 PM
To: kjohnson3@ftc.gov
Cc: ejillson@ftc.gov; jcohen2@ftc.gov; Jonathan Emord; Peter Arhangelsky
Subject: Third-Party Subpoenas Duces Tecum
Attachments: Subpoena (EcoSmart).pdf; Subpoena (Elsevier).pdf; Supp. Subpoena (Narayan).pdf; Subpoena (Gomez).pdf; Subpoena (Michel).pdf; Subpoena (Almenar).pdf

Counsel,

Per the ALJ's Scheduling Order, please find the attached subpoenas *duces tecum* that were sent earlier today to the respective subjects.

Best,

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

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

EXHIBIT RX-A:2

Peter Arhangelsky

From: Jonathan Emord
Sent: Friday, March 14, 2014 11:15 AM
To: Wilshire, Matthew; Michel, Frederick (michel.36@osu.edu)
Cc: Johnson, Katherine; 'neiger.4@osu.edu'; Peter Arhangelsky; Lou Caputo
Subject: RE: In the Matter of ECM Biofilms, Inc.

Importance: High

To Frederick Michel and all recipients of this email:

We are in receipt of the below referenced email correspondence and its letter attachment. The letter attachment to the email seeks to obstruct compliance with a legally issued subpoena to Frederick Michel. It comes fully 13 days after FTC was served with a copy of the subpoena and on the eve of Frederick Michel's production deadline. It proceeds without proper legal authority, and we do not recognize it as having any validity. Under Rule 3.34 of the Commission's rules, parties subject to a subpoena may seek a motion to quash if they object to compliance; otherwise, they are obliged to comply. In this instance, FTC Complaint Counsel has no standing to object to a third party subpoena. Reliance on the legally invalid letter by Michel will, therefore, be no defense against non-compliance.

Further, despite 13 days advance notice, FTC Complaint Counsel has failed to file any motion related to this subpoena with the Administrative Law Judge. As such, the letter not only exceeds the authority of FTC Complaint Counsel under the rules, but also endeavors to supersede the power invested in the Administrative Law Judge governing these proceedings. We therefore demand that Frederick Michel produce the documents subpoenaed for which we have agreed production is required by March 18 (as amended by verbal agreement with counsel to OSU) or we will move to compel production of those documents.

We have previously accompanied the subpoena with a copy of the Administrative Law Judge's Protective Order Governing Discovery Material. We invite you to examine that Protective Order because it contains provisions that define means by which you may designate confidentiality, and that Protective Order, not FTC Complaint Counsel's correspondence to you, governs.

Separately, we will seek sanctions against Complaint Counsel from the Administrative Law Judge for its rule violations.

Sincerely,

Jonathan W. Emord
Peter A. Arhangelsky
Lou F. Caputo
Counsel to ECM BioFilms, Inc.

From: Wilshire, Matthew [mailto:mwillshire@ftc.gov]
Sent: Friday, March 14, 2014 1:37 PM
To: Michel, Frederick (michel.36@osu.edu)
Cc: Johnson, Katherine; Jonathan Emord; 'neiger.4@osu.edu'
Subject: In the Matter of ECM Biofilms, Inc.

Good Afternoon Dr. Michel,

Please see the attached correspondence regarding the subpoena you received in this matter.

Sincerely,

Exh. RX-A:2

Matthew J. Wilshire
Federal Trade Commission
Bureau of Consumer Protection, Division of Financial Practices
Direct Dial: 202-326-2976

EXHIBIT RX-A:3

PUBLIC DOCUMENT

Frederick C. Michel
1031 Douglas Dr.
Wooster, OH
44691

Jonathan Emord
Peter A. Arhangelsky
Lou F. Caputo

March 17, 2014

Gentlemen,

In response to subpoena duces tecum from ECM Biofilms, Inc., Docket No. 9358, the enclosed CD contains documents responsive to Item # 20 on page 6, requesting, "all correspondence between you, any member, employee, representative, or officer of the United States Federal Trade Commission".

All of the documents supplied here are confidential.

The names of people whose files were searched are: Fred Michel, PhD, 1031 Douglas Dr. Wooster, OH. 44691, Consultant.

All documents related to Item 20 on page 6 of the subpoena were collected. The search for documents related to Item 20 was complete. The remainder of the documents in response to items 1 to 19 and item 21 of the subpoena will be supplied separately by the Ohio State University.

All of the documents are produced with the exception of documents that contain information submitted by 3rd Parties to the FTC, hereby known as "protected documents". It is my understanding that disclosing these protected documents would violate a non-disclosure agreement between me and the FTC. I understand that third parties who submitted these documents to the FTC have the right to object to their disclosure according to FTC rules. I am willing to produce these protected documents immediately to the administrative law judge for his review only. Furthermore, the non-protected parts of these documents have been copied in their entirety with the exception of the protected content, into a Microsoft Word file included with this submission. The file is named, "Confidentialemailsnoattachments.docx"

Unless directed otherwise by FTC staff, I will produce all responsive documents in my possession in native format by March 28th, 2014. To my knowledge no documents requested in the subpoena have been misplaced, stolen or destroyed.

Sincerely,



Frederick C. Michel

Affadavit

In the matter of ECM Biofilms Inc., Docket 9358

I, Frederick C. Michel Jr., declare this 17th day of March, 2014, under penalty of perjury, that the following is true and correct.

In response to a *subpoena duces tecum* from ECM Biofilms, Inc., Docket No. 9358, this CD contains documents responsive to Item # 20 on page 6, requesting, "all correspondence between you, any member, employee, representative, or officer of the United States Federal Trade Commission."

The names of people whose files were searched are:

Fred Michel, PhD
1031 Douglas Dr.
Wooster, OH. 44691
Consultant


All documents related to Item 20 on page 6 of the subpoena were collected. All of the documents supplied here are confidential. The remainder of the documents in response to items 1 to 19 and item 21 of the subpoena will be supplied separately by the Ohio State University.

The search for documents related to Item 20 was complete. All of the documents are produced with the exception of documents that contain information submitted by 3rd Parties to the FTC hereby known as protected documents. It is my understanding that disclosing these protected documents would violate a non-disclosure agreement that I agreed to with the FTC. I understand that third parties who submitted these documents to the FTC have the right to object to their disclosure according to FTC rules. I am however willing to produce these protected documents immediately to the administrative law judge for his review only. Furthermore, the non-protected parts of these documents have been copied in their entirety with the exception of the protected content attachments, into a Microsoft Word file included with this submission named, "Confidentialemailsnoattachments.docx"

Unless directed otherwise by FTC staff, I will produce all responsive documents in my possession in native format by March 28th, 2014.

To my knowledge no documents requested in the subpoena have been misplaced, stolen or destroyed.

Signed



Frederick C. Michel

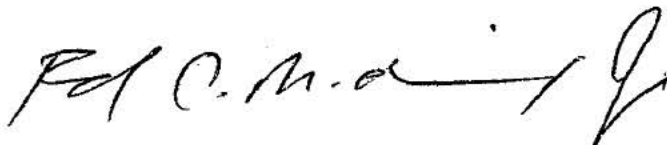


EXHIBIT RX-B

UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
WASHINGTON, D.C. 20580

Bureau of Consumer Protection
Division of Enforcement
Matthew Wilshire
202-326-2976
mwilshire@ftc.gov

March 14, 2014

By Email

Frederick C. Michel
The Ohio State University-OARDC
1680 Madison Ave.
Wooster, OH 44691

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

Dear Dr. Michel:

I am writing regarding the February 28, 2014 subpoena issued to you in the above-captioned matter. The subpoena's Document Request 21 demands production of "[a]ll correspondence between you and any member, employee, representative, or officer of the United States Federal Trade Commission." The subpoena demands production on March 17, 2014.


You have advised me that documents responsive to this request include materials that were submitted to the FTC by third parties. Any such documents are governed by the nondisclosure agreement you executed before receiving those materials. That agreement provides that you will not divulge any materials or information you receive from the FTC to outside parties, unless directed to do so by FTC Staff in connection with an adjudicative proceeding.

Because the third party materials in question may be entitled to confidential treatment under the FTC Rules of Practice, we request that you delay production of those materials until **March 28, 2014**. This is necessary to give the submitters "an opportunity to seek an appropriate protective or *in camera* order" regarding any confidential materials. See 16 C.F.R. § 4.10(g).

We have no objection to you producing any other requested documents on March 17, including communications between you and FTC staff. However, we request that you stamp any FTC communications you produce as confidential. Unless we direct you otherwise, we have no objection to you producing the remaining responsive documents on March 28.

Thank you for your cooperation in this matter. Please contact me if you would like to discuss these issues further.

Sincerely,

A handwritten signature in black ink, appearing to read 'Matthew J. Wilshire', with a long horizontal flourish extending to the right.

Matthew J. Wilshire

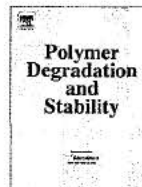
Cc: Jonathan W. Emord, Esq.
Katherine Johnson, Esq.
Jan Alan Neiger, Esq.

EXHIBIT RX-C



Contents lists available at ScienceDirect

Polymer Degradation and Stability

journal homepage: www.elsevier.com/locate/polydegstab

Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation

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ABSTRACT

Plastics are a major constituent of municipal solid waste that pose a growing disposal and environmental pollution problem due to their recalcitrant nature. To reduce their environmental impacts and allow them to be transformed during organic waste recycling processes, various materials have recently been introduced to improve the biodegradability of plastics. These include conventional plastics amended with additives that are meant to enhance their biodegradability, bio-based plastics and natural fiber composites. In this study, the rate and extent of mineralization of a wide range of commercially available plastic alternative materials were determined during composting, anaerobic digestion and soil incubation. The biodegradability was assessed by measuring the amount of carbon mineralized from these materials during incubation under conditions that simulate these three environments and by examination of the materials by scanning electron micrography (SEM). The results showed that during a 660 day soil incubation, substantial mineralization was observed for polyhydroxyalkanoate plastics, starch-based plastics and for materials made from compost. However, only a polyhydroxyalkanoate-based plastic biodegraded at a rate similar to the positive control (cellulose). No significant degradation was observed for polyethylene or polypropylene plastics or the same plastics amended with commercial additives meant to confer biodegradability. During anaerobic digestion for 50 days, 20–25% of the bio-based materials but less than 2% of the additive containing plastics were converted to biogas ($\text{CH}_4 + \text{CO}_2$). After 115 days of composting, 0.6% of an additive amended polypropylene, 50% of a plastarch material and 12% of a soy wax permeated paper pulp was converted to carbon dioxide. SEM analysis showed substantial disintegration of polyhydroxyalkanoate-based plastic, some surface changes for other bio-based plastics and coconut coir materials but no evidence of degradation of polypropylene or polypropylene containing additives. Although certain bio-based plastics and natural fibers biodegraded to an appreciable extent in the three environments, only a polyhydroxyalkanoate-based resin biodegraded to significant extents during the time scale of composting and anaerobic digestion processes used for solid waste management.

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1. Introduction

Plastics are synthetic and semi-synthetic polymeric compounds, derived primarily from fossil carbon sources such as crude oil and natural gas. Their mechanical properties and characteristics such as low-cost, durability and processability, have led to their widespread use for diverse applications. However most commonly used plastics are very resistant to biological degradation [1]. This has led to major challenges for waste management operations especially those that

are moving toward more sustainable waste management practices such as recycling, composting and anaerobic digestion.

It is estimated that of the 31 million tons of plastic waste generated annually in the U.S. only 8% is recycled [2]. Therefore, a large percentage of plastic waste is currently landfilled, or released into the environment. Throughout the world, roadsides, parks, beaches, oceans and natural areas are inundated with plastic debris pollution [3]. Waste management systems are also affected by high volumes of plastics that are often commingled with organic wastes (food scraps, wet paper, yard trimmings, soil and liquids), making it difficult and impractical to recycle both organic fractions and/or the plastics mixed with them without expensive cleaning, separation and sanitizing procedures [4].

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The fact that plastics are made from non renewable resources and their persistence in the environment and during organic recycling has resulted in global concern and intensive efforts to develop plastic materials that not only have acceptable prices and similar performance to conventional plastics, but also are made from renewable feedstocks and/or undergo biodegradation in a reasonable amount of time without leaving toxic residues [5].

Although biodegradable bio-based plastics are meant to improve the sustainable use of resources, a complete life-cycle analysis including disposal must be conducted [6] to insure that the solution is not worse than the problem. Many factors impact the life-cycle carbon balance of plastics including the source of the feedstock used to make them, whether the material is recycled and the extent and type of biodegradation during disposal. For example, most plastics are derived largely from fossil sources such as natural gas or crude oil [7]. However the monomers used to make them can also be made from renewable resources. In Brazil, ethylene, the building block of one of the most widely used plastics, polyethylene [8] is made from ethanol derived from sugar cane. Although made from a biomass feedstock, this type of polyethylene is still essentially not biodegradable. On the other hand, petroleum can also be used to make plastics that are biodegradable. The lactic acid used to make polylactic acid (PLA) can be produced both by fermentation and synthetically from petroleum [9], and either type is biodegradable. On this basis, plastics can be classified into four types with respect to whether they are biodegradable and the source of the feedstock used to make them. These four types are conventional plastic, bio-based plastic, biodegradable plastic and biodegradable bio-based plastic (Table 1). Understanding the environmental benefits of these four classes of materials (Table 1) and the impact of their use on GHG emissions can be confusing and is not always straightforward.

Plastics made from petroleum, such as polyethylene, have a well-defined life cycle. When landfilled, the carbon in the plastic will be sequestered and not contribute to global warming. Recycled polyethylene may contribute even less fossil CO₂ to the environment if less energy is used to recycle it than is used to make it in the first place. In these cases, conventional plastics may have less impact on GHG emissions than those designed to biodegrade.

For reasons presented above, efforts have been made to develop durable plastics made from renewable biomass feedstocks [5]. These are called “bio-based plastics”. On balance this type of plastic offers a great potential to reduce greenhouse gases in the atmosphere by sequestering carbon. This is because atmospheric CO₂ is fixed into the carbohydrates used as their feedstock. If the plastic is eventually landfilled, this carbon will become locked for millennia within the landfill and on balance reduce atmospheric CO₂. However these plastics also pose pollution problems [10].

Biodegradable bio-based plastics, are also made from biomass but are designed to be compostable and/or biodegradable. These types include PLA and polyhydroxyalkanoates-based resins (PHA)

made from corn. This class of polymer is carbon neutral from the standpoint of the carbon in the plastic, but a substantial amount of fossil energy is used to produce the plastic and the biomass feedstocks.

The class with perhaps the greatest potential to contribute to greenhouse gas emissions is biodegradable plastics made from petroleum. This is because not only is fossil energy used to produce them in the first place, but fossil carbon is released when the material ultimately biodegrades. If this biodegradation occurs in a landfill, then it usually will generate methane (CH₄), which is a greenhouse gas with 21 times the warming potential of CO₂. Most landfills do a poor job of capturing this gas, even those with methane recovery systems [11]. So landfilled biodegradable plastics, eventually contribute both methane and carbon dioxide to the atmosphere when they degrade.

Some novel polymers combine both biomass and fossil derived resins to decrease production prices, increase the bio-based content and improve material performance [5] (e.g. a plastarch containing a blend of a starch-based polymer and conventional plastics such as polypropylene). The biogenic renewable carbon contained in these and other biomaterials can be determined from the radioactive C₁₄ signature of the product [12]. Yet these hybrid materials likely are neither recyclable nor completely biodegradable and therefore are likely worse than conventional plastics from a GHG emissions perspective.

Composting plays an important and growing role in sustainable organic waste management and recycling. However, plastics are one of the main contaminants in composts. Biodegradable plastics are meant to address this problem. Composting of these materials also reduces their environmental impact in that they will largely be converted to CO₂ and not to CH₄ as they would be in a landfill. Since this CO₂ was originally fixed from the atmosphere into renewable biomass, on balance it will not increase atmospheric CO₂.

Biodegradation is the mineralization of materials as a result of the action of naturally-occurring microorganisms such as bacteria and fungi [13]. The biodegradation of plastics is limited by their molecular weight, chemical structure [14], water solubility and the fact that most plastics are xenobiotic. That is, they were not present in the environment until very recently so that the evolution of metabolic pathways necessary for their biodegradation, a process that takes millions of years, has yet to occur.

In contrast, the biodegradation of natural polymers, such as starch or cellulose by microorganisms occurs relatively rapidly. It begins with the excretion of extracellular enzymes that depolymerize these materials. Once the polymer is reduced to a size that is water soluble and able to be transported through the cell wall, microbial metabolic pathways can then mineralize it [15]. Even though microorganisms drive the biodegradation process, other non-biotic chemical processes such as photo-oxidation and chemical degradation may also take place before or in parallel.

Biodegradable materials are used in diverse applications. Many different biodegradable plastics are used for food packaging and for waste containment. They have also been developed for medical applications, including medical devices and for drug delivery [16]. Biodegradable plastics are used widely in agriculture, as mulching films and low tunnels [17,18] as well as guide strings and plant nursery containers [19]. The physical properties and performance of biodegradable plastics made from PLA and natural fibers were found to be similar to conventional plastics for greenhouse crop production [20]. In addition, biodegradable potting containers have gained a high degree of acceptance among consumers [21].

Recently, various materials have begun to be marketed that claim to be biodegradable or compostable. Terms such as “degradable”, “oxo-biodegradable”, “biological”, “compostable” and “green” are often used to describe and promote different

Table 1
Classes of plastics.

Class	Source	Biodegradable	Example	Reference
I	Petroleum/natural gas	No	Polyethylene, polypropylene.	[7]
II	Petroleum/natural gas	Yes	PLA ^a from petroleum.	[9]
III	Biomass (Corn, sugar cane, etc)	No	Polyethylene derived from corn ethanol.	[8]
IV	Biomass (Corn, sugar cane, etc)	Yes	PHA ^b , PLA derived from starch.	[14]

^a Polylactic acid.

^b Polyhydroxyalkanoates-based resin.

plastics. These materials include conventional plastics amended with additives meant to enhance biodegradability as well as bio-based plastics and natural fiber composites. There has been little research on the extent to which these materials truly degrade and/or biodegrade over the time scale of waste management processes such as composting and anaerobic digestion (AD) or in natural settings [22].

The objective of this study was to compare the relative biodegradability of a range of novel plastics and natural fiber composites during composting, AD and in soil conditions. The hypothesis was that materials that are referred to as biodegradable, compostable (or similar terms), and plastics containing additives designed to enhance biodegradability, mineralize during the time scale of waste treatment processes and in reasonable amounts of time in the environment and at rates comparable to natural materials known to be biodegradable and or compostable (e.g. cellulose paper).

2. Materials and methods

Standardized laboratory-scale experiments were conducted to study the biodegradability of various materials during soil incubation, composting and AD conditions [23–25]. The extent of biodegradation was calculated by measuring the average carbon (CO₂ and or CH₄) mineralized from each treatment minus the average carbon evolved from blanks, and dividing this by the total amount of sample carbon added to each treatment. Reactors containing only the inoculum (AD), soil (soil tests) or compost (compost tests) were used as blanks.

2.1. Materials

Materials tested included plastics designed to be biodegradable, conventional plastics amended with additives that are meant to enhance biodegradability, bio-based plastics and natural fiber composites (Tables 2 and 3). The positive and negative controls used for all experiments were cellulose paper (Fisher Scientific, PA, U.S.) and 100% conventional polypropylene (PP), respectively. Materials were tested both after grinding (a preliminary soil experiment only) and as 1 × 1 cm squares (thicknesses shown in Table 3).

2.2. Biodegradation in soil incubation

The extent of long-term biodegradation of polymeric materials in contact with soil was determined based on ASTM D5988-03 [24]. These included PP + 2% additive, polystyrene (PS) + 2% additive,

polyethylene terephthalate (PETE) + 1% additive, plastarch, a copolyester + corn-based plastic, a wheat starch-derived plastic and PHA (Tables 2 and 3). Six natural fiber composite materials were also tested: paper pulp, paper pulp + asphalt, coconut coir, rice hull, composted cow manure and peat fiber. All samples were incubated in triplicate for a period of 660 days.

The soil media used for the experiments was a mixture of 43% certified organic top soil, 43% no-till farm soil collected at coordinates: 40.778633, -81.930873 and 14% sand. Soil was sieved to less than 2 mm particle size and large plant materials, stones, and other inert materials were removed. The chemical properties of the soil mixture are shown in Table 4. The soil media was amended with ammonium phosphate (Fisher Scientific, PA, U.S.) to maintain a C:N ratio of 20:1 based on the carbon content of the test specimen.

The soil mixture (300 g dry) was placed in the bottom of a 2-L (working volume) wide mouth jar (Ball® Corporation, item # 383178). Distilled water was added to bring the moisture content of the mixture to 60% of the moisture holding capacity. The test specimens (1 g of sample carbon) were then mixed thoroughly into the soil. A solution containing 20 ml of potassium hydroxide (KOH) 0.5 N (Fisher Scientific, PA, U.S.) was placed in a cup suspended from the lid of each vessel to trap evolved CO₂. All vessels were sealed and incubated at room temperature (20 ± 2 °C).

Carbon dioxide produced in each vessel reacted with the KOH in the cup to form potassium bicarbonate. The amount of CO₂ produced was determined by titrating the KOH solution with 0.25 N hydrochloric acid (Fisher Scientific, PA, U.S.) to a phenolphthalein end-point. The experiment was designed so that the headspace volume was sufficient to prevent the oxygen concentration in the vessel from falling below 18%. The KOH traps were removed and titrated at time intervals that assured that their absorption capacity was not exceeded. The KOH traps were refilled at a rate dependent on the rate of CO₂ generation in each flask. At the time of removal of the traps, the vessel was flushed and allowed to sit open to allow fresh air to fill the headspace. In addition, distilled water was added to the soil to the original weight to maintain adequate moisture.

The effect of particle size on biodegradation rate was determined by comparing the biodegradability of 1 cm squares to ground samples. Samples were ground in liquid nitrogen using a IKA® A11 basic Analytical mill (IKA® Works Inc., NC, U.S.) for 10 s. Test specimens included PP + 2% additive, co-polyester + corn-based plastic, wheat starch-derived plastic, paper pulp, paper pulp + asphalt, coconut coir and rice hull (Tables 2 and 3). Samples were incubated in triplicate for 660 days.

Table 2

Material information for commercially available bio-based plastics, plastics amended with additives and natural fiber composites.

Material	Material description	Formation process ^a
PP + 2% additive	Blend of polypropylene (PP) with 2% ECM MasterBatch Pellets™ additive (ECM BioFilms Inc., OH, U.S.)	1
PS + 2% additive	Blend of polystyrene (PS) with 2% ECM MasterBatch Pellets™ additive (ECM BioFilms Inc., OH, U.S.)	1
PETE + 1% additive	Blend of polyethylene terephthalate (PETE) with 1% EcoPure® additive (Bio-Tec Environmental LLC., NM, U.S.)	2
Plastarch	A blend of polypropylene with corn starch.	3
Co-polyester + corn-based plastic	Blend of an aliphatic aromatic co-polyester with a corn starch-derived polymer (Ecobras™, BASF).	1
Wheat starch-derived plastic	Made from a wheat starch-derived resin (OP-47 Bio®, Summit Plastic Company, OH, U.S.)	3
PHA	Made from polyhydroxyalkanoates-based resin (Metabolix, MA, U.S.)	1
Paper pulp + soy wax	Paper pulp pot permeated with soy wax.	4
Paper pulp	Recycled (74% minimum) paper pulp.	4
Paper pulp + asphalt	Blend of recycled (74% minimum) paper pulp + asphalt.	4
Coconut coir	Made from coconut husk.	7
Rice hull	Made from rice hull.	5
Composted cow manure	Made from composted cow manure.	6
Peat fiber	Made from Canadian sphagnum peat moss + wood pulp.	6

^a 1 = injection molding; 2 = blow molding; 3 = thermoforming; 4 = vacuum forming; 5 = compression forming; 6 = pressure forming; 7 = other.

Table 3
Chemical and physical properties of the test specimens.

Material	Chemical and physical properties ^a				
	Total solids (%)	Volatile solids (%dw)	Total carbon (%dw)	Total nitrogen (%dw)	Film thickness (mm)
Positive	90.3 ± 5	57.4 ± 1.1	41.8 ± 0.1	0.03 ± 0.01	0.35 ± 0.01
Negative	99.8 ± 0.1	96.3 ± 2	82.9 ± 0.1	0.06 ± 0.003	0.37 ± 0.01
PP + 2% additive	99.8 ± 0.1	97.7 ± 0.1	82.9 ± 0.3	0.04 ± 0.01	0.37 ± 0.03
PS + 2% additive	99.9 ± 0.1	97.0 ± 1.5	88.8 ± 1	0.05 ± 0.01	0.23 ± 0.01
PETE + 1% additive	99.4 ± 0.5	99.9 ± 0.1	64.6 ± 0.1	0.01 ± 0.002	0.36 ± 0.01
Plastarch	90.9 ± 2.1	57.5 ± 3	60.9 ± 0.2	0.07 ± 0.01	0.48 ± 0.03
Co-polyester + corn-based plastic	95.2 ± 0.1	99.8 ± 0.1	51.9 ± 0.3	0.10 ± 0.01	0.72 ± 0.02
Wheat starch-derived plastic	97.8 ± 0.4	98.5 ± 0.5	49.4 ± 0.1	0.74 ± 0.004	0.50 ± 0.01
PHA	99.4 ± 0.4	90.4 ± 0.5	50.7 ± 0.3	0.45 ± 0.01	0.62 ± 0.01
Paper pulp + soy wax	94.3 ± 1	91.0 ± 0.4	46.9 ± 0.3	0.06 ± 0.01	2.14 ± 0.03
Paper pulp	92.0 ± 0.1	92.0 ± 0.1	42.1 ± 0.1	0.10 ± 0.01	2.74 ± 0.01
Paper pulp + asphalt	93.4 ± 0.5	90.6 ± 0.3	46.9 ± 0.03	0.22 ± 0.02	2.61 ± 0.1
Coconut coir	96.8 ± 0.3	98.5 ± 0.5	46.7 ± 0.3	0.26 ± 0.002	1.09 ± 0.02
Rice hull	94.0 ± 0.4	89.6 ± 0.4	38.3 ± 0.1	14.1 ± 0.06	1.24 ± 0.02
Composted cow manure	92.5 ± 0.1	89.4 ± 1.0	40.5 ± 0.01	1.12 ± 0.05	2.40 ± 0.1
Peat fiber	92.1 ± 0.3	97.8 ± 0.5	45.4 ± 0.3	0.49 ± 0.07	1.74 ± 0.05

^a Values are means ± SD of three replicates.

2.3. Biodegradation during composting

Three materials were tested under simulated composting conditions. These included PETE + 1% additive, plastarch and paper pulp + soy wax (Tables 2 and 3). The experiments were conducted in triplicate for a period of 115 days.

The test conditions used were based on a protocol described in ASTM D5338-98 (2003) [25]. This test is a measure of the degree and rate of carbon conversion to CO₂ under conditions that mimic a commercial scale industrial composting facility.

An 80 g sample of each test specimen was mixed with 350 g dry of mature compost inoculum (Table 4). The compost inoculum was obtained from a full-scale windrow composting facility featuring a concrete surface and controlled aeration system at OARDC. The compost contained a mixture of dairy manure and hardwood sawdust as described elsewhere [26].

The compost was collected at various locations on the windrow and screened to less than 10 mm and large inert items were discarded. The screened compost was amended with ammonium phosphate (Fisher Scientific, PA, U.S.) to give a C:N ratio of 20:1 including the carbon content of the test specimen. The initial moisture content of the mixture was adjusted to 60% (wet-weight basis).

The compost and test specimens were incubated in 4-L (working volume) vessels (length 30 cm and diameter 15 cm), made of PVC pipe placed in a 55 °C incubator (BioCold Environmental Inc., MO, U.S.). Each vessel contained approximately 1100 g of material on a wet-weight basis. The reactors were aerated from below at 100 ± 1 ml/min to maintain aerobic conditions. To avoid drying during the experiment, air was saturated by bubbling

through bottles containing water at the incubator temperature. The air exiting the vessels was passed through flasks in a separate water bath set at 9 °C to condense moisture from the off-gas. The off-gas was then analyzed for percent CO₂ using an infrared gas analyzer (Vaisala model GMT 220, range 0–20%). CO₂ data was automatically recorded using a Campbell Scientific model 23XL data logger for each vessel every hour. Each vessel was also equipped with a K-type thermocouple to measure the temperatures of the composts mix near the center of the compost vessel, and was recorded automatically every 12 min. A more complete description of the laboratory-scale composting system can be found elsewhere [27].

2.4. Biodegradation during anaerobic digestion

The biodegradation of four materials was compared during high solids batch anaerobic digestion. These included PP + 2% additive, PETE + 1% additive, plastarch and a co-polyester + corn-based plastic (Tables 2 and 3). The experiments were conducted in triplicate for a period of 50 days.

The anaerobic degradation of the polymeric materials was compared under high-solids AD conditions based on a protocol described in ASTM D5511-02 [23] international standard. The test measured the conversion of samples to CO₂ and CH₄ during incubation under controlled anaerobic conditions. For this study test specimens were exposed to an active methanogenic inoculum derived from a full-scale anaerobic digester treating municipal sewage sludge. These conditions resemble those found in high-solids AD digestors and in biologically active landfills, but not in typical landfills where water is excluded and removed.

Table 4
Initial mean characteristics of the aerobic and anaerobic organic substrates.

Organic substrate	Chemical and physical properties ^a				
	Total solids (% ww)	Volatile solids (% dw)	Total carbon (% dw)	Total nitrogen (% dw)	pH
Compost ^b inoculum	24.3 ± 2.0	88.9 ± 1.0	48.7 ± 5.5	2.37 ± 0.2	7.95 ± 0.04
Soil mixture ^c	87.4 ± 0.1	2.96 ± 0.1	1.19 ± 0.2	0.13 ± 0.02	7.43 ± 0.4
Anaerobic seed ^d sludge	8.92 ± 0.5	59.5 ± 2.0	36.8 ± 1.0	7.21 ± 0.2	8.30 ± 0.01
Medina County ^e OFMSW	47.2 ± 7.2	60.3 ± 1.2	89.6 ± 1.3	0.92 ± 0.2	7.50 ± 0.4

^a Values are means ± SD of three replicates.

^b Dairy manure and hardwood sawdust mature compost.

^c This is the value before adding water to reach 60% of the water holding capacity.

^d Methanogenically active municipal sewage sludge.

^e OFMSW = the organic fraction of municipal solid waste.

The AD assays were conducted in 2-L (working volume) laboratory-scale batch reactors. Temperatures were maintained at a mesophilic (37 ± 1 °C) range by means of incubators. Test specimens (25 g of sample carbon) were mixed with 750 g wet of methanogenically active sludge obtained in October of 2010 from a full-scale (3000 m³) anaerobic digester located at the City of Akron wastewater treatment plant and operated by KB Compost Services, Akron, Ohio [28]. This was mixed with 187.5 g wet of the organic fraction of municipal solid waste (OFMSW) of the Medina County, Ohio Solid Waste District to achieve the desired solids content for the test and to provide supplemental nutrients for the anaerobic microbial consortia. The chemical properties of the seed sludge and OFMSW substrate are shown in Table 4. Ammonium phosphate (Fisher Scientific, PA, U.S.) was added to the mixture to adjust the C:N ratio to a value of 20:1 considering the carbon content of the test specimen.

The volumetric production and CO₂ and CH₄ content of the biogas produced in the AD experiments were analyzed by volume displacement and gas chromatography as described by Gómez et al. [28], respectively. This information was used to calculate the moles of carbon emitted from each reactor.

2.5. Analytical methods

Solids content in soil, organic substrates and test specimens was determined by drying samples to a constant weight at 80 °C. The volatile solids content was determined using an ashing oven set at 500 °C for 4 h. pH was determined using a pH electrode (TMECC 04.11-A 1:5 slurry method, mass basis). Carbon (TMECC 04.01-A combustion with CO₂ detection) and nitrogen content (TMECC 04.02-D oxidation, Dumas method) were determined by the Service Testing and Research laboratory at the OARDC.

Selected test specimens were also analyzed before and after soil incubation using scanning electron microscopy (SEM) (Hitachi S-3500N, Hitachi High Technologies America, Inc., CA, U.S.). Samples were coated with platinum to a thickness of 0.2 kÅ using a Hummer[®] 6.2 sputtering system (Anatech USA, CA, U.S.). A 15 Kv electron beam was applied.

2.6. Statistical analysis

Three independent replicates were used for each treatment. Analysis of variance (ANOVA) was calculated for the average final cumulative percent of carbon loss for each of the studies. Comparisons for all pairs of final cumulative biodegradation means were performed using Tukey–Kramer HSD analysis. All conclusions were based on a significant difference level of $\alpha = 0.05$. The statistical analyses were performed using JMP statistical program version 9 (SAS Institute Inc., SAS Campus Drive, NC, U.S.).

3. Results and discussion

3.1. Biodegradation during soil incubation

The importance of understanding the biodegradability of plastics in soil has increased since these are released inadvertently into the environment where they may persist. Plastics comprise a relatively large fraction of the ubiquitous pollution found worldwide in both land and ocean environments [29]. In addition, intensive and semi-intensive agriculture utilizes large quantities of these materials annually in the form of mulches, as plantable pots, nursery containers [30]. This has resulted in the recent development of biodegradable agricultural plastics for these applications [31,32]. One example of this is biodegradable plant nursery pots. Some containers are designed to be plantable pots (e.g. rice hull and

coconut coir) allowing them to degrade in the soil after planting, or to be composted at plant nurseries rather than being landfilled.

An initial experiment was conducted to assess the effect of particle size on biodegradation during soil incubation. Seven materials were tested and the amount of carbon converted to CO₂ was compared using student's *t* method for particle size effect. Student's *t* method revealed that out of the seven materials studied in this experiment, only one, a co-polyester + corn-based plastic, showed a significant effect of particle size on biodegradability. A significantly greater extent of biodegradation was observed for co-polyester + corn-based plastic in 1 × 1 cm square film form ($55.1 \pm 2.1\%$) after 660 days as compared to a ground sample of the same material ($39.71 \pm 2.4\%$). For the rest of the materials, there was not a significant effect of particle size on biodegradation. Results from this study suggested that for most of the materials studied, biodegradability in soil was not greatly affected by particle size under the experimental conditions used in the study.

A second soil experiment was conducted to evaluate the relative biodegradability of thirteen different test specimens in 1 × 1 cm square film form. These included bio-based plastics, plastics amended with additives that are meant to enhance biodegradability and natural fiber composites. The experiment was conducted for a period of 660 days. The initial moisture content of the mixes was $16.6 \pm 2.1\%$ and the final mean soil moisture content on a wet-weight basis across all treatments was $14.3 \pm 3.3\%$ (wet-weight basis) which is $84.9 \pm 2.4\%$ of the 60% moisture holding capacity of the soil mixture. The positive control (cellulose paper) exhibited $74.2 \pm 4.5\%$ conversion during the period of incubation.

For some bio-based plastics and the positive controls (cellulose paper), the initial rate of mineralization was rapid (Fig. 1). Most of the mineralization took place during the first 300 days of incubation (Fig. 1). The most rapid initial rate of conversion was observed for co-polyester + corn-based plastic with almost $34.6 \pm 2.4\%$ mineralized during the first 55 days of the experiment. The extent of PHA biodegradation was initially lower, but its extent surpassed that of co-polyester + corn-based plastic after approximately 280 days reaching a value of $48.5 \pm 4.6\%$. For the wheat starch-derived plastic and plastarch conversion rates were 14.2 ± 0.8 and $24.6 \pm 1.4\%$ after 110 and 280 days of experiment, respectively.

Final (660 days) cumulative biodegradation values during soil incubation for the positive control, PHA and co-polyester + corn-based plastic were 74.2 ± 4.5 , 69.2 ± 6.4 and $55.1 \pm 6.1\%$, respectively. For the wheat starch-derived plastic and plastarch the final conversion reached 19.7 ± 1.1 and $31.3 \pm 1.7\%$, respectively.

SEM images of PHA and co-polyester + corn-based plastic before and after mineralization showed substantial changes in the

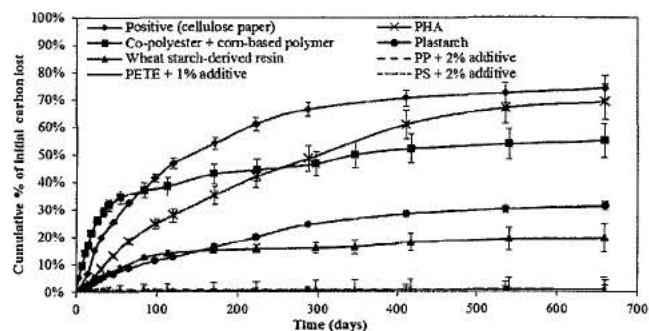


Fig. 1. Cumulative carbon loss (CO₂-C) as percentage of initial carbon (\pm cumulative standard error) for bio-based plastics and for conventional plastics amended with additives during 660 days of soil incubation. For some data points standard error bars are smaller than markers.

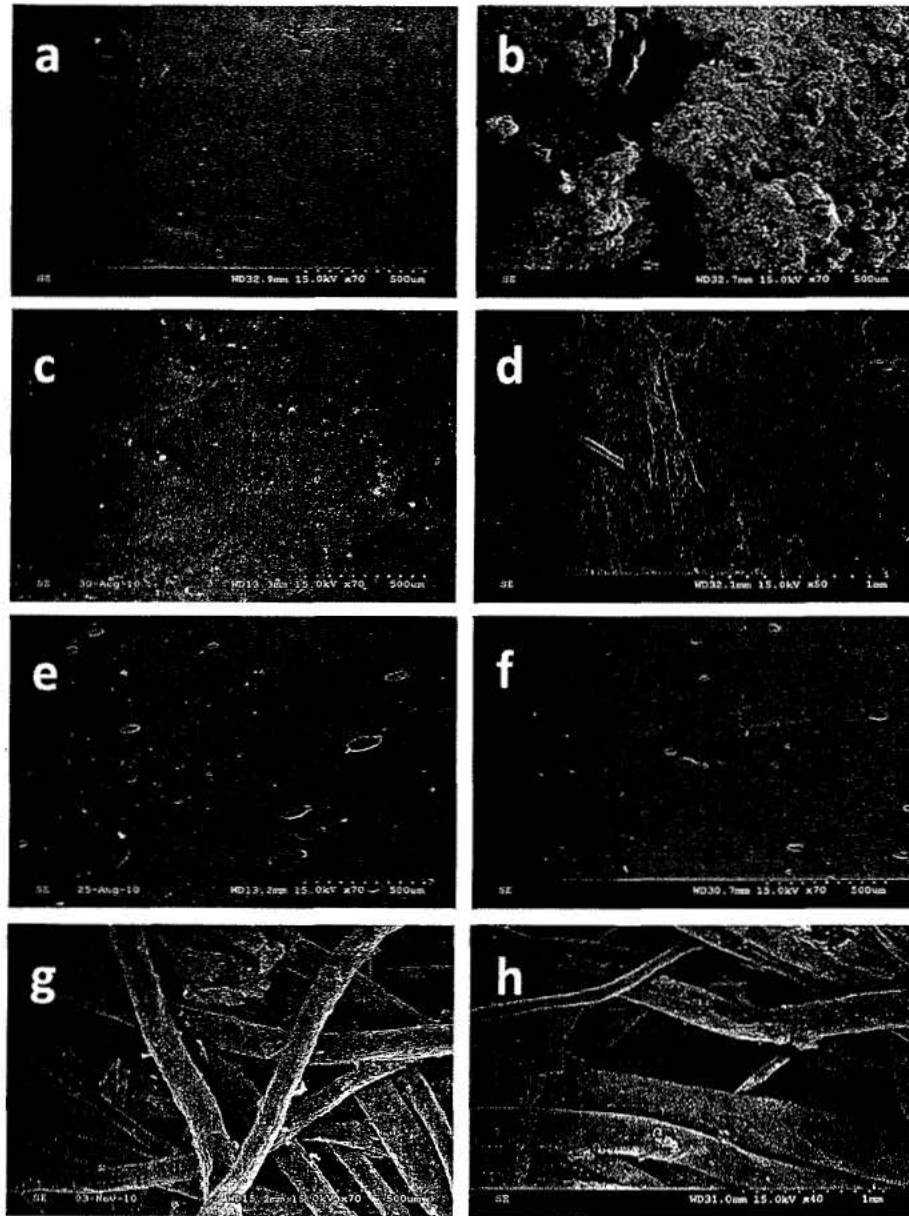


Fig. 2. Scanning electron micrographs of plastics during 2 years of soil incubation. From top to bottom: PHA (a: initial, b: final), co-polyester + corn-based plastic (c: initial, d: final), polypropylene + 2% additive (e: initial, f: final) and coconut coir (g: initial, h: final).

surface of the PHA material (Fig. 2A and B) and some degradation of the co-polyester + corn-based plastic (Fig. 2C and D).

For conventional plastics and the same plastics amended with additives that were supposed to enhance biodegradability, almost no biodegradation was observed after nearly two years of incubation in soil (Fig. 1). The highest observed conversion during soil incubation was $1.0 \pm 0.1\%$ (PP + 2% additive). For all other plastics amended with additives, the final cumulative biodegradation ranged between 0.9 and 1%. These values were less than that measured for the negative control (PP) which reached a final cumulative conversion of $1.3 \pm 0.7\%$. Although they were not significantly different. SEM images did not reveal qualitative changes in the appearance of PP or PP + 2% additive after the 2 year incubation period (Fig. 2E and F).

The mineralization in soil of the natural fiber composite materials was most rapid during the first 65 days of the experiment

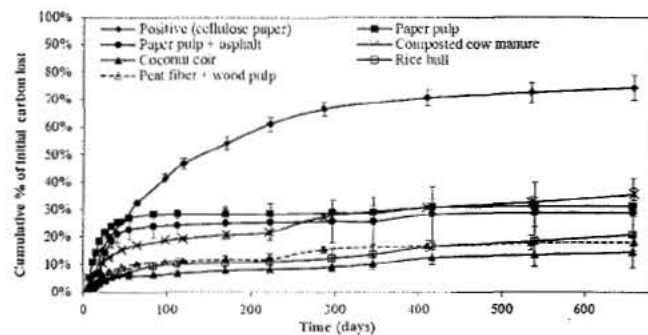


Fig. 3. Cumulative carbon loss ($\text{CO}_2\text{-C}$) as percentage of initial carbon (\pm cumulative standard error) for natural fiber composites during 600 days of soil incubation. For some data points standard error bars are smaller than markers.

(Fig. 3). This was followed by a period of slow mineralization until the termination of the experiment (Fig. 3). After 660 days, the mineralization percent of the composted cow manure, paper pulp and paper pulp + asphalt were 35.5 ± 2.3 , 31.3 ± 3.6 , $29.4 \pm 2.1\%$, respectively. Lower final conversion values were observed for rice hull, peat fiber and coconut coir with values of 21.1 ± 2.6 , 18.3 ± 0.7 and $14.4 \pm 2.5\%$, respectively. SEM images of coconut coir revealed some surface changes indicative of biodegradation (Fig. 2G and H).

Approximately 74.2% of cellulose added to soil was converted to CO_2 after 660 days. This is similar to the conversion of cellulose of 80% reported in a 800 day soil incubation conducted to evaluate how carbon substrates affect microbial biomass yield in soil biodegradation tests [33].

The highest biodegradability observed during soil incubation was reported for PHA (70%); a polyhydroxyalkanoate-based plastic. This was similar in magnitude to the extent of mineralization of the cellulose positive control (cellulose paper). Bacterial polyhydroxyalkanoates are intracellular aliphatic polyesters of various chain lengths [34]. Several studies have been conducted to study the biodegradability of aliphatic polyesters under different conditions [35–38]. Mineralization of these polymers is mainly achieved by cleavage of the ester bonds which occurs due to both enzymatic and chemical hydrolysis [39].

Statistically analysis revealed that significant differences in the extent of biodegradation ($F_{15,32} = 822.2$, $P < 0.0001$) existed between group means. Tukey–Kramer HSD analysis revealed that among bio-based plastics, the difference between PHA and the positive control (cellulose paper) was not significant. Analyses also revealed that differences were not significant between plastics amended with additives that are meant to enhance biodegradability and the negative control (PP). For natural fiber composites all test specimens differed significantly from both the positive and negative controls (Fig. 3).

The results of this study indicate that conventional plastics containing additives do not biodegrade any faster than non-additive containing plastics in soil. Manufacturers of these additives claim that if at least 1–5% (by weight) of their additive is added to plastics products, these will fully biodegrade when disposed of in microbe-rich environments. These claims are not supported by the findings of this study.

The greatest extent of biodegradation among the fiber composite materials tested was the composted cow manure (35%). This was unexpected since low carbon conversion rates were anticipated for the composted cow manure since it had previously been biologically degraded. After undergoing a composting cycle, much of the carbon contained in the cow manure was expected to be stable and humified [26,40]. However, much less extents of degradation were observed for uncomposted composites produced from rice hulls, from peat fiber pot and coconut coir. For these materials, the extent of degradation in soil ranged from 14 to 21% (Fig. 3). These materials have been used as natural composites due to their low price and structural strength [41,42]. Approximately 46% of coconut coir is lignin [43] as is 21–40% of rice hulls [44] which may have limited their biodegradation.

3.2. Biodegradation during composting

Three different materials were evaluated for their relative rate of degradation during composting. The materials were composted at 55°C under aerobic conditions for a period of 115 days. The tested materials included plastarch, paper pulp + soy wax and PETE + 1% additive (Tables 2 and 3).

The initial moisture content was adjusted to 60% and the final mean compost moisture content across all treatments was $64.2 \pm 3.3\%$ (wet-weight basis).

Mineralization under composting conditions occurred at a rapid initial rate for both the positive control and the plastarch material during the first 80 days (Fig. 4). Overall, the positive control (cellulose paper) exhibited $78.4 \pm 3.5\%$ conversion during composting.

For paper + soy wax, a majority of the mineralization took place during the first 15 days. For PETE + 1% additive no significant conversion was observed over the entire period of study (Fig. 4). The final cumulative biodegradation during composting for plastarch, paper + soy wax and PETE + 1% additive was 51.3 ± 4.9 , 12.4 ± 2.7 and $0.6 \pm 3.7\%$, respectively. The ANOVA indicated that statistically significant differences in the extent of biodegradation ($F_{4,7} = 496.6$, $P < 0.0001$) existed between group means. Tukey–Kramer HSD analysis revealed that all test specimens differed from the positive control. However, PETE + 1% additive did not differ significantly from the negative control.

None of the tested materials mineralized at rates comparable to the positive control material. The highest cumulative biodegradation during composting was observed for the plastarch containing material (51.3%). Starch is made of repeating glucose units linked by glucosidic bonds that are susceptible to enzymatic attack. Uses and applications of starch in its native form or blended with other materials have been discussed [45,46]. Biodegradation of the starch containing portion of the material has been reported [47,48]. However the reason that the plastarch degraded more slowly than cellulose is not known.

After 20 days, only 12% of the paper pulp composite was converted to CO_2 during composting. The low level of cumulative degradation could be related to inhibitory properties of the soy derived wax on the microbial consortia or limiting water accessibility. For plastics containing additives, no degradation was observed. Additives did not improve the biodegradability of PETE during composting.

3.3. Biodegradation during anaerobic digestion

Understanding the biodegradation of different materials in anaerobic conditions such as in industrial sewage sludge AD systems, landfills and anoxic environments is important since under these conditions, microorganisms mineralize organic substrates to both CO_2 and methane. Methane itself can be used as a fuel source but if not captured it has a global warming potential 21 times stronger than CO_2 . Since in the U.S. only 30% of the landfills capture methane and among those that do capture, only a small percentage of the methane produced is recovered, then biodegradable plastics in landfills have a greater potential than composted biodegradable plastics to contribute to global warming.

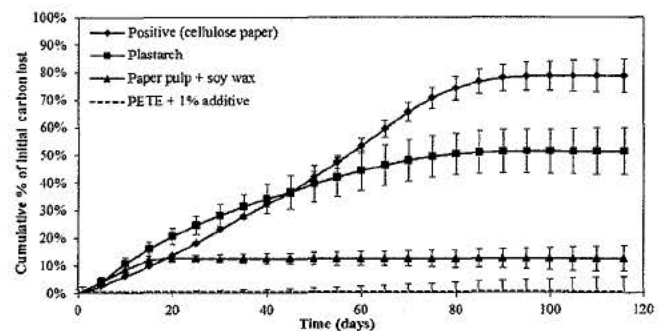


Fig. 4. Cumulative carbon loss ($\text{CO}_2\text{-C}$) as percentage of initial carbon (\pm cumulative standard error) for bio-based plastics, conventional plastics amended with additives and natural fiber composites during 115 days of thermophilic composting. For some data points standard error bars are smaller than markers.

The biodegradability of polymeric materials exposed to an active methanogenic inoculum was studied under controlled laboratory conditions that resemble those found during active AD for a period of 50 days. They likely differ somewhat from the conditions within a landfill where moisture is usually removed and a greater diversity of materials is present. Yet the extent of biodegradation is likely similar to what would ultimately occur over many years in a landfill environment.

Materials tested included plastarch, co-polyester + corn-based plastics, PP + 2% additive and PETE + 1% additive (Tables 2 and 3). The mean methane content in the biogas across treatments during the entire period of study was $54.1 \pm 6.1\%$.

During the AD incubation, the positive control (cellulose paper) exhibited $74.1 \pm 4.8\%$ conversion. For plastarch, the carbon conversion rate to biogas was similar to the positive control (cellulose paper) for the first 7 days (Fig. 5). However, after this period, the rate of conversion slowed as compared to the positive control through day 28. In contrast, no significant mineralization was observed for the plastics containing additive samples over the entire period of the study.

The final cumulative carbon conversion during AD for plastarch and co-polyester + corn-based plastic were 26.4 ± 3.5 and $20.2 \pm 4.4\%$, respectively. The final conversion values for PP + 2% additive and PETE + 1% additive were 3.1 ± 3.7 and $2.2 \pm 1.6\%$, respectively. The ANOVA indicated that statistically significant differences in the extent of biodegradation ($F_{5,12} = 50.7$, $P < 0.0001$) existed between group means. The Tukey–Kramer HSD analysis revealed that the bio-based plastics were significantly different than the positive control but not different from each other. There was no significant difference in the carbon conversion of the negative control (PP) and the plastic containing the additive.

The biodegradability of different bio-based materials including cellulose and starch [49,50] has been investigated previously under anaerobic conditions [51,52]. Yagi et al. [53] studied the biodegradability of cellulose powder under mesophilic (35 °C) and thermophilic (55 °C) AD conditions. Cellulose powder reached a cumulative conversion of 80% under both temperature conditions. Other authors have also studied the anaerobic mineralization of aliphatic polyesters. Abou-Zeid et al. [54] conducted a study to determine the biodegradability of the natural polyesters poly(b-hydroxybutyrate) (PHB), poly(b-hydroxybutyrate-co-11.6%-b-hydroxyvalerate) (PHBV) and the synthetic polyester poly(ϵ -caprolactone) (PCL) using different anaerobic sludges and individual strains. Biodegradability of the powdered materials was measured as the percent of weight loss. They found that almost all the PHB was converted in 9 days, but only 60 and 30% weight loss

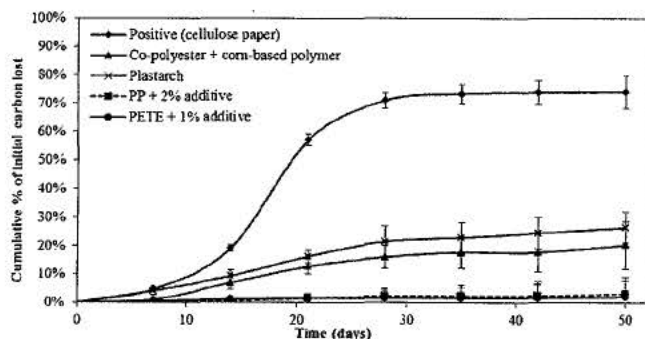


Fig. 5. Cumulative carbon loss ($\text{CO}_2\text{-C}$) as percentage of initial carbon (\pm cumulative standard error) for bio-based plastics, conventional plastics amended with additives and natural fiber composites during 50 days of anaerobic digestion. For some data points standard error bars are smaller than markers.

was observed for the PHBV and PCL, respectively. Similar results were reported by Shin et al. [55] in which nearly complete conversion was observed for the natural bacterial polyester but no biodegradability for synthetic analogs was observed under simulated landfill conditions.

The results of this study indicate that materials have different rates of mineralization under different end of life scenarios. For example, the positive control reached 70% conversion in 25 days during AD while 75 and 400 days were needed to reach the same extent of conversion under composting and soil incubation conditions, respectively. The plastarch material degraded faster under composting conditions reaching 50% conversion in 85 days than under AD and soil incubation conditions where only 26 and 30% was converted after 50 and 660 days, respectively. For co-polyester + corn-based plastic 20% of the material was converted during 20 days of soil incubation while 50 days were needed to reach the same value during AD. Ultimately, co-polyester + corn-based plastic reached 55% conversion after 660 days of soil incubation. Conventional plastics and those containing additives did not degrade at all under any of the three conditions.

Biodegradable plastics are potential alternatives to petroleum-based materials that can be incorporated into organic recycling schemes based on anaerobic digestion or composting. They also could potentially reduce the pollution associated with conventional plastics and therefore lead to the development of products that are more environmentally friendly. Ideally, biodegradable materials must be useful for a predetermined service life and then biodegrade in a short period of time, leaving no visible fragments and no toxic residues when composted or anaerobically digested. Disposal of these materials in landfills as opposed to anaerobic digestions is not recommended since under anaerobic conditions they biodegrade to form methane and most landfills capture only a small fraction of the methane created [56].

4. Conclusion

In this study, the relative biodegradability of a range of polymeric materials and natural fiber composites used for various commercial applications was investigated under composting, soil incubation and anaerobic digestion conditions. The validity of the tests was confirmed in that positive controls (cellulose paper) biodegraded by more than 70% in all three systems in a reproducible manner.

While some of the bio-based plastics and natural fibers biodegraded to an appreciable extent, plastics containing additives that supposedly confer biodegradability to polymers such as polyethylene and polypropylene did not improve the biodegradability of these recalcitrant polymers. SEM analysis confirmed that substantial biodegradation of polyhydroxyalkanoate-based plastics occurred and that some surface changes occurred in co-polyester + corn-based plastic and coconut coir materials. However, SEM confirmed that no degradation of polypropylene and polyethylene occurred, even after amendment with additives meant to confer biodegradability.

The relative biodegradability of the materials during long-term soil incubation was PHA > co-polyester + corn-based plastic > composted cow manure > plastarch > paper pulps > natural fibers > conventional plastics containing additives to enhance biodegradability = conventional plastics. For anaerobic digestion and composting the relative biodegradability was plastarch > co-polyester + corn-based plastic > conventional plastics with additives and plastarch > paper pulp + soy wax > conventional plastic with additives, respectively.

Over the time scale of organic recycling processes (composting and anaerobic digestion) most of the bioplastics biodegraded to

only a limited extent. Furthermore, under anaerobic incubation, some of the bio-based plastics biodegraded to generate methane, a potent greenhouse gas that unless captured may negate the perceived environmental benefits of using these materials. Biodegradable plastics made from petroleum (Class II), may have more adverse environmental impacts than conventional plastics (Class I) if their ultimate fate is landfilling and anaerobic conversion to methane.

Acknowledgments

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EXHIBIT RX-D

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EXHIBIT RX-E



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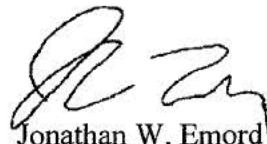
Re: In the Matter of ECM BioFilms, Inc., Docket No. 9358

Dear Mr. Michel:

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

Please provide all requested documents no later than March 17, 2014. We welcome you to contact us with questions.

Sincerely,



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



SUBPOENA DUCES TECUM

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

1. TO Frederick C Michel Jr. Ohio State University 207 Hayden Hall 1680 Madison Avenue Wooster, Ohio 44691	2. FROM <p style="text-align: center;">UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION</p>
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This subpoena requires you to produce and permit inspection and copying of designated books, documents (as defined in Rule 3.34(b)), or tangible things, at the date and time specified in Item 5, and at the request of Counsel listed in Item 9, in the proceeding described in Item 6.

3. PLACE OF PRODUCTION Emord & Associates, P.C. 3210 S. Gilbert Road, Suite 4 Chandler, AZ 85286	4. MATERIAL WILL BE PRODUCED TO Peter Arhangelsky 5. DATE AND TIME OF PRODUCTION March 17, 2014, 5:00 PM EST
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6. SUBJECT OF PROCEEDING In the matter of ECM BioFilms, Inc., Docket No. 9358

7. MATERIAL TO BE PRODUCED See Attached Schedule A for description of all documents and materials.
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8. ADMINISTRATIVE LAW JUDGE Chief Administrative Law Judge D. Michael Chappell Federal Trade Commission Washington, D.C. 20580	9. COUNSEL AND PARTY ISSUING SUBPOENA Jonathan W. Emord, Peter Arhangelsky, Lou Caputo Emord & Associates, P.C. for Respondent ECM BioFilms, Inc.
---	--

DATE SIGNED 2/28/14	SIGNATURE OF COUNSEL ISSUING SUBPOENA
-----------------------------------	--

GENERAL INSTRUCTIONS

APPEARANCE

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

MOTION TO LIMIT OR QUASH

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

TRAVEL EXPENSES

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

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

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

SCHEDULE "A" TO SUBPOENA DUCES TECUM DIRECTED TO

FREDERICK C MICHEL JR.

INSTRUCTIONS

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

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

- I. The Federal Trade Commission's Rules of Practice describes withholding requested material responsive to a subpoena under Rule 3.38A. For your convenience, Rule 3.38A states:

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

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

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

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

- K. Some documents that you are requested to provide may be confidential. In the Protective Order dated October 22, 2013, Chief Administrative Law Judge D. Michael Chappell ordered that a party conducting discovery from third parties shall provide such third parties a copy of the Protective Order so as to inform third parties of his, her, or its rights. *See* ALJ Protective Order at 2, ¶4. Accordingly, a copy of the Protective Order is attached with this subpoena.
- L. If any requested material is withheld based on a claim of privilege, submit together with such claim a schedule of the items withheld. For each item withheld, the schedule should state: (a) the item's type, title, specific subject matter and date; (b) the names, addresses, positions and organizations of all authors or recipients of the item; and (c) the specific grounds for

claiming that the item is privileged. If only part of a responsive document is privileged, all non-privileged portions of the document must be submitted.

DESCRIPTION OF DOCUMENTS REQUESTED

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

1. All documents concerning² ECM BioFilms, Inc.
2. All correspondence between you and ECM BioFilms, Inc.
3. All documents sent or received by you making reference to ECM BioFilms,

Robert Sinclair, or ECM BioFilms Master Batch Pellets.

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

² The term "concerning" is intended, used, and defined in its broadest sense allowable under the FTC Rules of Practice and should be considered to be synonymous with regarding, relating to, mentioning, discussing, referencing, implicating, explaining, or about the documents subject to any and all individual requests in this subpoena.

4. All documents concerning any test or report (including any and all notes and raw data) performed or written about a product or substance containing any product of ECM BioFilms, Inc., including "ECM Masterbatch Pellets."

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

6. All drafts and notes concerning the article, Gómez, EF, Michel Jr., FC. "Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation" Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591.

7. All documents concerning the involvement of any and all individuals with the article, Gómez, EF, Michel Jr., FC. "Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation" Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591, and/or the tests and procedures described in such article.

8. All documents concerning the actual tests and procedures (including any and all notes, drafts, protocols, identity and sources of the ECM additives received and used, and all raw data) described in "Gómez, EF, Michel Jr., FC. "Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation" Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591.

9. Reserve samples of all plastics allegedly containing the ECM additive that are referenced in the article, "Gómez, EF, Michel Jr., FC. "Biodegradability of conventional and bio-

based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation” Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591.

10. All documents specifically concerning all funding and sources of funding for the article, Gómez, EF, Michel Jr., FC. “Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation” Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591.

11. All documents and correspondence concerning Ohio State University’s knowledge and/or approval of the article, Gómez, EF, Michel Jr., FC. “Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation” Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591.

12. All documents concerning any presentations, official discussions, lectures, interviews and/or publications in which the article Gómez, EF, Michel Jr., FC. “Biodegradability of conventional and bio-based plastics and natural fiber composites during composting, anaerobic digestion and long-term soil incubation” Polymer Degradation and Stability. Vol. 98 (December 2013): 2583-2591 was discussed.

13. All documents concerning any other test, article, report, and/or project involving all versions of ASTM International standard D5511.

14. All correspondence between you and Eddie F. Gómez concerning biodegradable products; biodegradable plastic products; compostable products; compostable plastic products; ECM BioFilms; ECM additives and/or plastic products allegedly containing ECM additives; Dr. Ramani Narayan; all versions of ASTM D5511, D5526, D5338, D6400; and/or Biodegradable Products Institute (“BPI”).

15. All documents concerning Dr. Ramani Narayan.
16. All correspondence between you and Dr. Ramani Narayan.
17. All documents concerning the BPI.
18. All correspondence between you and the BPI.
19. All correspondence between you and any member, employee, or representative of ASTM International.
20. All correspondence between you and any member, employee, representative, or officer of the United States Federal Trade Commission.
21. All documents concerning your education, training, and experience, including a list of all current and pending articles and written works that you have authored or co-authored.

INSTRUCTIONS FOR COMPLIANCE BY DELIVERY OF DOCUMENTS

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

The names, addresses, positions, and organizations of all persons whose files were searched and all persons who participated in or supervised the collection of the documents³, and a brief description of the nature of the work that each person performed in connection with the collecting the documents.

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

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

³ "Document" and "documents" as used in this Attachment are defined in this subpoena's "Description of Documents Requested" section.

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

A declaration that states:

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

Executed on [date].

[Signature of party executing the declaration]

Respectfully submitted,

/s/ Jonathan W. Emord

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


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

In the Matter of)	
)	
ECM BioFilms, Inc.,)	DOCKET NO. 9358
a corporation, also d/b/a)	
Enviroplastics International,)	
Respondent.)	

PROTECTIVE ORDER GOVERNING DISCOVERY MATERIAL

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

ORDERED:



D. Michael Chappell
Chief Administrative Law Judge

Date: October 22, 2013

ATTACHMENT A

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

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

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

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

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

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

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

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

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

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

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

EXHIBIT RX-F

United States of America
FEDERAL TRADE COMMISSION

Katherine Johnson
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-2185; kjohnson3@ftc.gov

Elisa Jillson
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-3001; ejillson@ftc.gov

Jonathan Cohen
600 Pennsylvania Ave. NW, M-8102B
Washington, DC 20580
(202) 326-2551; jcohen2@ftc.gov

January 29, 2014

VIA FEDERAL EXPRESS

Poly-America Gp, LLC
c/o Michael A. Ross, President
2000 West Marshall Drive
Grand Prairie, TX 75051

Re: **In the Matter of ECM BioFilms, Inc, Dkt. No. 9358**
Subpoena Duces Tecum to Poly-America Gp, LLC ("Poly-America")

Dear Mr. Ross:

The Federal Trade Commission ("FTC") has recently initiated an adjudicative proceeding against ECM BioFilms, Inc., Docket No. 9358. The Commission Rules of Practice state that "counsel for a party may sign and issue a subpoena on a form provided by the Secretary of the Commission, commanding a person to produce and permit inspection and copying of designated books, documents, or tangible things. 16 C.F.R. § 3.34(b). This letter is to notify you that Complaint Counsel has issued a subpoena *duces tecum* for certain of Poly-America's documents. The subpoena with attached schedule and exhibits is enclosed.

On October 22, 2013, the Federal Trade Commission's Office of the Administrative Law Judges issued a Protective Order Governing Discovery Material ("Protective Order") in the above-referenced action. The Protective Order protects confidential materials from discovery in the case. A copy of the Protective Order signed by Chief Administrative Law Judge D. Michael Chappell is enclosed as an exhibit to the subpoena's schedule.

Any documents you produce to the Commission that are confidential must include the notice "CONFIDENTIAL – FTC Docket No. 9358" in accordance with the Protective Order. If you produce confidential documents in electronic or other media, you may place the "CONFIDENTIAL – FTC Docket No. 9358" designation on the CD.

Please call at your earliest convenience to discuss any issues regarding production. You may reach me at (202) 326-3001.

Sincerely,

A handwritten signature in black ink, appearing to read "Elisa Jillson", with a long horizontal flourish extending to the right.

Elisa Jillson
Complaint Counsel

Enclosures



SUBPOENA DUCES TECUM

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

1. TO Poly-America Gp, LLC c/o Michael A. Ross, President 2000 West Marshall Drive Grand Prairie, TX 75051	2. FROM <p style="text-align: center;">UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION</p>
--	--

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

3. PLACE OF PRODUCTION Federal Trade Commission 600 Pennsylvania Ave, NW, Mailstop M-8102B Washington, DC 20580	4. MATERIAL WILL BE PRODUCED TO Elisa Jillson
	5. DATE AND TIME OF PRODUCTION February 12, 2014 at 9:00 A.M.

6. SUBJECT OF PROCEEDING In the Matter of ECM Biofilms, Inc., Docket No. 9358
--

7. MATERIAL TO BE PRODUCED See documents and materials identified on the attached Schedule and Exhibits, including the Protective Order Governing Discovery Material.
--

8. ADMINISTRATIVE LAW JUDGE The Honorable D. Michael Chappell Federal Trade Commission Washington, D.C. 20580	9. COUNSEL AND PARTY ISSUING SUBPOENA Complaint Counsel Katherine Johnson (202) 326-2185 Jonathan Cohen (202) 326-2551 Elisa Jillson (202) 326-3001
--	---

DATE SIGNED <div style="font-size: 1.5em; font-family: cursive;">1/29/2014</div>	SIGNATURE OF COUNSEL ISSUING SUBPOENA <div style="font-size: 1.5em; font-family: cursive;">Elisa Jillson</div>
---	---

GENERAL INSTRUCTIONS

APPEARANCE

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

MOTION TO LIMIT OR QUASH

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

TRAVEL EXPENSES

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

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

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

RETURN OF SERVICE

I hereby certify that a duplicate original of the within subpoena was duly served: (check the method used)

in person.

by registered mail. By Federal Express overnight mail, pursuant to Rule 4.4(a)(2) of the Federal Trade Commission's Rules of Practice.

by leaving copy at principal office or place of business, to wit:

on the person named herein on:

January 29, 2014

(Month, day, and year)

Elisa Jillson

(Name of person making service)

Attorney, Federal Trade Commission

(Official title)

**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

PUBLIC

**COMPLAINT COUNSEL'S SCHEDULE FOR PRODUCTION OF DOCUMENTS
PURSUANT TO SUBPOENA**

Pursuant to Complaint Counsel's attached Subpoena *Duces Tecum* issued January 29, 2014, under Commission Rule of Practice § 3.34(b), Complaint Counsel requests that the following materials be produced to the Federal Trade Commission, 600 Pennsylvania Ave, NW, Mailstop M-8102B, Washington, DC 20580.

DEFINITIONS

- A. "And," as well as "or," shall be construed both conjunctively and disjunctively, as necessary, in order to bring within the scope of any Specification all information that otherwise might be construed to be outside the scope of the specification.
- B. "Any" shall be construed to include "all," and "all" shall be construed to include the word "any."
- C. "Communication" includes, but is not limited to, any transmittal, exchange, transfer, or dissemination of information, regardless of the means by which it was accomplished, and includes all communications, whether written or oral, and all discussions, meetings, telephone communications, or email contacts.
- D. "Document" shall mean the complete original and any non-identical copy (whether different from the original because of notations on the copy or otherwise), regardless of origin or location, of any written, typed, printed, transcribed, filmed, punched, or graphic matter of every type and description, however and by whomever prepared, produced, disseminated or made, including but not limited to any advertisement, book, pamphlet, periodical, contract, correspondence, file, invoice, memorandum, note, telegram, report, record, handwritten note, working paper, routing slip, chart, graph, paper, index, map, tabulation, manual, guide, outline, script, abstract, history, calendar, diary, agenda, minute, code book or label. "Document" shall also include Electronically Stored Information.
- E. "ECM" shall mean ECM Biofilms, Inc., including without limitation, its agents, employees, officers, or anyone else acting on its behalf.

- F. **“ECM Additive”** means the plastic additive manufactured by ECM, including but not limited to “Masterbatch Pellets.”
- G. **“ECM Plastic”** means any plastic treated with or incorporating an ECM Additive.
- H. **“Electronically Stored Information”** or **“ESI”** shall mean the complete original and any non-identical copy (whether different from the original because of notations, different metadata, or otherwise), regardless of origin or location, of any information created, manipulated, communicated, stored, or utilized in digital form, requiring the use of computer hardware or software. This includes, but is not limited to, text messages, electronic mail, instant messaging, videoconferencing, and other electronic correspondence (whether active, archived, or in a deleted items folder), word processing files, spreadsheets, databases, and video and sound recordings, whether stored on: cards; magnetic or electronic tapes; disks; computer hard drives, network shares or servers, or other drives; cloud-based platforms; cell phones, PDAs, computer tablets, or other mobile devices; or other storage media. “ESI” also includes such technical assistance or instructions as will enable conversion of such ESI into a reasonably usable form.
- I. **“Include”** and **“including”** mean “without limitation,” or “including but not limited to,” so as to avoid excluding any documents or information that might otherwise be construed to be within the scope of any specification.
- J. **“Referring to,” “relating to,”** or **“related to”** shall mean discussing, describing, reflecting, containing, analyzing, studying, reporting, commenting, evidencing, constituting, setting forth, considering, recommending, concerning, or pertaining to, in whole or in part.
- K. **“You”** and **“Your”** means Poly-America Gp, LLC.

INSTRUCTIONS

- A. **Applicable time period:** Unless otherwise directed in the specifications, the applicable time period for the request shall be from January 1, 2007, until the date of full and complete compliance with this subpoena.
- B. **Petitions to Limit or Quash:** Pursuant to Commission Rule of Practice 3.34(c), any motion to limit or quash this subpoena must be filed within ten days of service hereof.
- C. **Protective Order:** On October 22, 2013, the Court entered an order governing discovery material in this matter. A copy of the Protective Order is attached hereto as Exhibit A with instructions on the handling of confidential information.
- D. **Sensitive Personally Identifiable Information:** If any material called for by these Specifications contains sensitive personally identifiable information or sensitive health information of any individual, please contact us before sending those materials to discuss ways to protect such information during production or whether it would be appropriate to redact the sensitive information.

For purposes of these requests, sensitive personally identifiable information includes: an individual's Social Security number alone; or an individual's name or address or phone number in combination with one or more of the following: date of birth, Social Security number, driver's license number or other state identification number, or a foreign country equivalent, passport number, financial account number, credit card number, or debit card number. Sensitive health information includes medical records and other individually identifiable health information relating to the past, present, or future physical or mental health or conditions of an individual, the provision of health care to an individual, or the past, present, or future payment for the provision of health care to an individual.

- E. **Scope of Search:** This subpoena covers documents and information in your possession or under your actual or constructive custody or control including, but not limited to, documents and information in the possession, custody, or control of your attorneys, accountants, directors, officers, partners, employees, and other agents and consultants, whether or not such documents and information were received from or disseminated to any person or entity.

Document Production: You shall produce the documentary material to Katherine Johnson, Federal Trade Commission, 600 Pennsylvania Ave., NW, M-8102B, Washington, DC 20580. Because postal delivery to the Commission is subject to delay due to heightened security precautions, please use a courier service such as Federal Express or UPS. Please see the attached Bureau of Consumer Protection Production Guide for detailed instructions for submitting ESI or digitally imaged hard copies. Please mark the exterior of all packages containing electronic media sent through the U.S. Postal Service or other delivery services as follows:

**MAGNETIC MEDIA – DO NOT X-RAY
MAY BE OPENED FOR POSTAL INSPECTION.**

- F. Documents that may be responsive to more than one specification of this subpoena need not be submitted more than once; however, your response should indicate, for each document submitted, each specification to which the document is responsive. If any documents responsive to this subpoena have been previously supplied to the Commission, you may comply with this subpoena by identifying the document(s) previously provided and the date of submission. Documents should be produced in the order in which they appear in your files or as electronically stored and without being manipulated or otherwise rearranged; if documents are removed from their original folders, binders, covers, containers, or electronic source in order to be produced, then the documents shall be identified in a manner so as to clearly specify the folder, binder, cover, container, or electronic media or file paths from which such documents came. In addition, number by page (or file, for those documents produced in native electronic format) all documents in your submission, preferably with a unique Bates identifier, and indicate the total number of documents in your submission.
- G. **Production of Copies:** Unless otherwise stated, legible photocopies (or electronically rendered images or digital copies of native electronic files) may be submitted in lieu of original documents, provided that the originals are retained in their state at the time of receipt of this subpoena. Further, copies of originals may be submitted in lieu of originals only if they are true, correct, and complete copies of the original documents; provided, however, that submission of a copy shall constitute a waiver of any claim as to the authenticity of the copy should it be necessary to introduce such copy into evidence in any Commission proceeding or court of law; and provided further that you shall retain the original documents and produce them to Commission staff upon request.

- H. A complete copy of each document should be submitted even if only a portion of the document is within the terms of the request. The document shall not be edited, cut, or expunged in any way and shall include all covering letters and memoranda, transmittal slips, appendices, tables or other attachments.
- I. Each request includes any and all copies of the responsive document and, to the extent applicable, preliminary drafts or documents that differ in any respect from the original or final draft or from each other (e.g., by reason of differences in form or content or by reason of handwritten notes or comments having been added to one copy of a document but not the original or other copies thereof).
- J. In the event that any document covered by this subpoena was in your possession or actual or constructive custody or control and has been lost or destroyed, the document is to be identified in writing as follows: addressee, person who prepared or authored the document, date of preparation or transmittal, substance of the document and its subject matter, number of pages, attachments, or appendices, all persons to whom distributed, shown or explained, date of loss or destruction, and, if destroyed, the manner of destruction, the reason for destruction, the persons authorizing destruction, and the persons who destroyed the document.
- K. If an objection is made to any request herein, all documents covered by the request not subject to the objection should be produced. Similarly, if an objection is made to production of a document, the portion of that document not subject to objection should be produced with the portion objected to redacted and clearly indicated as redacted.
- L. All objections to these requests or to any individual request must be raised in the initial response or are otherwise waived.
- M. **Claims of Privilege:** Pursuant to Federal Trade Commission Rules of Practice 3.38A, 16 C.F.R. § 3.38A, if any documents are withheld from production on a claim of privilege or any similar claims, you shall provide, not later than the date set for production of materials, a schedule that describes the nature of the documents, communications, or tangible things not produced or disclosed with sufficient detail to enable Complaint Counsel to assess the claim of privilege. The schedule shall state individually for each item withheld:
1. The custodian of the document;
 2. The type of document, including any attachments (e.g., letter, memorandum);
 3. The date of the document;
 4. The general subject matter of the document;
 5. The sender, author, and all recipients of the document; and
 6. The basis on which you contend you are entitled to withhold the document from production.

If only a part of a responsive document is privileged, all non-privileged parts must be submitted.

- N. **Certification of Records of Regularly Conducted Activity:** Attached as Exhibit B is a Certification of Records of Regularly Conducted Activity, which may reduce the need to subpoena you to testify at future proceedings in order to establish admissibility of the documents produced in response to this subpoena. You are asked to execute this certification and provide it with your response.

SPECIFICATIONS

Demand is hereby made for the following documents:

- (1) Provide all documents regarding ECM and the ECM Additive, including:
 - a. any communications with ECM;
 - b. any marketing materials provided by ECM;
 - c. any testing materials or scientific or product information provided by ECM;
 - d. any testing documents regarding the ECM Additive;
 - e. any internal communications regarding the ECM Additive;
 - f. any communications with third parties regarding the ECM Additive;
 - g. any marketing materials for your products containing the ECM Additive regarding biodegradability.

Respectfully submitted,



Katherine Johnson
Jonathan Cohen
Elisa Jillson
Division of Enforcement
Bureau of Consumer Protection
Federal Trade Commission
600 Pennsylvania Ave., NW, M-8102B
Washington, DC 20580
Telephone: (202) 326-2185
Facsimile: (202) 326-2558
Email: kjohnson3@ftc.gov

Attachment A

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

In the Matter of)
)
)

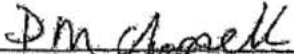
ECM BioFilms, Inc.,)
a corporation, also d/b/a)
Enviroplastics International,)
Respondent.)

DOCKET NO. 9358

PROTECTIVE ORDER GOVERNING DISCOVERY MATERIAL

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

ORDERED:



D. Michael Chappell
Chief Administrative Law Judge

Date: October 22, 2013

ATTACHMENT A

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

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

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

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

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

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

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

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

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

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

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

Attachment B

- c) were made by the regularly conducted activity as a regular practice of the Company.

I certify under penalty of perjury that the foregoing is true and correct.

Executed on _____, 2014.

(Name, Title)

CERTIFICATE OF SERVICE

I hereby certify that on January 29, 2014, I caused a true and correct copy of the foregoing document to be served by email to **Counsel for the Respondent**:

Jonathan W. Emord
Emord & Associates, P.C.
11808 Wolf Run Lane
Clifton, VA 20124
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Dated: January 29, 2014

Respectfully submitted,



Katherine Johnson (kjohnson3@ftc.gov)
Jonathan Cohen (jcohen2@ftc.gov)
Elisa Jillson (ejillson@ftc.gov)
Federal Trade Commission
600 Pennsylvania Ave., N.W. M-8102B
Washington, DC 20580
Phone: 202-326-2185; -2551; -3001
Fax: 202-326-2551

EXHIBIT RX-G

REDACTED

REDACTED

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EXHIBIT RX-H

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CONFIDENTIAL

EXHIBIT RX-I

REDACTED