



**ENFORCEABLE CONSENT AGREEMENT
FOR
THE LABORATORY-SCALE INCINERATION
TESTING OF FLUOROPOLYMERS**

EPA Docket No. OPPT - 2003 - 0071

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INCINERATION TESTING OF FLUOROPOLYMERS**

EPA Docket No. OPPT-2003-0071

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I. INTRODUCTION

Under the authority of section 4 of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2603, and 40 CFR Part 790 of the Agency's implementing regulations, the United States Environmental Protection Agency (EPA) and AGC Chemicals Americas, Inc., Daikin America, Inc., Dyneon, LLC, and E.I. du Pont de Nemours and Company (hereinafter collectively "the Companies") enter into this enforceable consent agreement (ECA). This ECA will take effect on the date of publication of the notice in the Federal Register announcing the issuance of the testing consent order (Order) that incorporates this ECA.

On April 16, 2003, EPA initiated a public process to negotiate enforceable consent agreements (ECAs) concerning perfluorooctanoic acid (PFOA) and fluorinated telomers to develop environmental fate and transport information, as well as relevant information to enhance understanding of the sources of PFOA in the environment and the pathways by which human exposure to PFOA is occurring (68 FR 18626; April 16, 2003). The goal of the ECAs resulting from these public discussions is to develop data relevant to identifying the pathway or pathways that result in exposures to PFOA by air, water, soil, or food; and to characterize how PFOA gets into those pathways (including the products or processes that are responsible for the presence of PFOA in the environment). EPA anticipates that the data to be developed under such ECAs will be beyond or supplemental to that of ongoing testing efforts described under industry letters of intent (LOIs).^{1 2 3 4}

In preparation for the June 6, 2003, public meeting, EPA developed a preliminary framework document outlining data needs that the Agency deemed appropriate to address the outstanding PFOA source and exposure questions identified in the *Federal Register* notice of

¹ 3M Company, Dr. Larry Wending. Letter of Intent to Stephen L. Johnson, EPA, to continue ongoing environmental, health and safety measures by Company relating to Perfluorooctanoic Acid and its Salts (PFOA). March 13, 2003. (Available from EPA e-docket as: OPPT-2003-0012-0007).

² The Society of the Plastics Industry, Inc, Donald K. Duncan.; The Ammonium Perfluorooctanoate (APFO) Users. Letters of Intent to Stephen L. Johnson, EPA, regarding responsive Voluntary Actions by parties to evaluate and control emissions of Ammonium Perfluorooctanoate (APFO). March 14, 2003. (Available from EPA e-docket as: OPPT-2003-0012-0012).

³ Telomer Research Program (TRP) Member Companies. Letter of Intent to Stephen L. Johnson, EPA, regarding addressing concerns raised by EPA about the possible association of Perfluorooctanoic Acid (PFOA) with telomer-based products. March 14, 2003. (Available from EPA e-docket as: OPPT-2003-0012-0013).

⁴ APFO Users, Telomer Companies, and The 3M Company. Letter of Intent to Stephen L. Johnson, EPA, regarding commitment by Companies to assist the Environmental Protection Agency (EPA) in its investigation of Perfluorooctanoic Acid (PFOA) and Ammonium Perfluorooctanoate (APFO). March 31, 2003. (Available from EPA e-docket as: OPPT-2003-0012-0016).

April 16, 2003.⁵ The intent of EPA's preliminary framework document was to serve as a discussion guide for the June 6, 2003, public meeting and to aid in distinguishing between outstanding EPA data needs and industry LOI commitments. The preliminary framework document was not a predetermined list of information needs defining the outcome of the ECA process.

This ECA provides for a laboratory-scale incineration testing program of fluoropolymers, which is one of the data needs identified in EPA's preliminary framework document for PFOA. On June 6, 2003, the PFOA Plenary Group (consisting of EPA and all interested parties) acknowledged such a testing program as an opportunity for ECA development and tasked the Fluoropolymer Technical Workgroup to work out the details that could be incorporated into an ECA between test sponsors and EPA. On July 9, 2003, the Fluoropolymer Technical Workgroup received proposals from the Companies and EPA for incineration testing of fluoropolymers. Details of this testing program were developed by members of the Fluoropolymer Incineration Subgroup of the Fluoropolymer Technical Workgroup during subsequent meetings. On March 31, 2004, the Fluoropolymer Technical Workgroup acknowledged that this testing program had sufficient merit for consideration by the Plenary Group. On April 1, 2004, the Plenary Group discussed the merit of this testing program and recommended that EPA consider entering into an ECA with test sponsors. The official record for the development of this ECA, including the public version, is established under EPA docket control number [OPPT-2003-0012]. The procedures for ECA negotiations are described at 40 CFR 790.22(b). The official record for the testing conducted under this ECA is EPA Docket No. OPPT-2003-0071

II. TEST SUBSTANCES

For the purposes of testing under this ECA the chemicals listed in Appendix A.1⁶ will be combined to form four composites. These four composites are considered the subject test substances under this ECA. These composites are representative of fluoropolymer products manufactured by the Companies that are currently available in the marketplace. The Companies will provide the fluoropolymers specified in Appendix A.1 for incorporation into the composites

⁵ U.S. Environmental Protection Agency. "Preliminary Framework for Enforceable Consent Agreement (ECA) Data Development for PFOA and Telomers." May 20, 2003. pp. 27. (Available from EPA e-docket as: OPPT-2003-0012-0056).

⁶ There is a Public and confidential business information (CBI) version of Appendices A.1, and A.3 because some of the Companies have asserted that details describing one or more of the chemicals subject to this ECA are entitled to treatment as TSCA CBI (see Part XV of this ECA regarding confidentiality of information).

that will be tested under this ECA.⁷ Criteria for the selection of each composite to be tested under this ECA are described in Appendix A.2. The composition of each composite is described in Appendix A.3.⁶ The four composites to be tested are defined for purposes of this ECA as:

- (A) Dry Non-Melt Resin Composite #1: (containing: Ethene, tetrafluoro-, homopolymer, CAS No. 9002-84-0, Polytetrafluoroethylene, Document Control Number (DCN) 63040000018A, and Propane, 1,1,1,2,2,3,3-heptafluoro-3-[(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene, CAS No. 26655-00-5)
- (B) Dry Melt Fluoropolymer Resin Composite #2: (containing: 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene), CAS No. 25067-11-2; Propane, 1,1,1,2,2,3,3-heptafluoro-3-[(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene, CAS No. 26655-00-5; Ethene, tetrafluoro-, polymer with trifluoro(pentafluoroethoxy)ethene, CAS No. 31784-04-0; 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene, CAS No. 25190-89-0; ETFE, DCN 630400000026; and, 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with ethene and tetrafluoroethene, CAS No. 35560-16-8),
- (C) Dry Non-Melt Fluoroelastomer Resin/Gum Composite #3: (containing: 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene, CAS No. 9011-17-0; 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene, CAS No. 25190-89-0; 1-Propene, polymer with 1,1-difluoroethene and tetrafluoroethene, CAS No. 54675-89-7; 1-Propene, polymer with tetrafluoroethene, CAS No. 27029-05-6; Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene, CAS No. 26425-79-6; and, Ethene, chlorotrifluoro-, polymer with 1,1-difluoroethene, CAS No. 9010-75-7; fluoroelastomer, DCN No. 63040000018C; fluoroelastomer DCN 63040000018D; and a low temperature fluoroelastomer, ACC No. 137678), and

⁷ See the Tables in Part XXIV. of this ECA for the chemicals to be supplied by each Company.

- (D) Aqueous Fluoropolymer Dispersions Composite #4: (containing: Ethene, tetrafluoro-, polymer with trifluoro(pentafluoroethoxy) ethene, CAS No. 31784-04-0; Ethene, tetrafluoro-, homopolymer, CAS No. 9002-84-0; 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene), CAS No. 25067-11-2; Propane, 1,1,1,2,2,3,3-heptafluoro-3- [(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene, CAS No. 26655-00-5; Ethene, tetrafluoro-, polymer with trifluoro(pentafluoroethoxy)ethene, CAS No. 31784-04-0; 1-Propene, 1,1,2,3,3,3- hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene, CAS No. 25190-89-0; and polytetrafluoroethylene, DCN No. 63040000018C).⁸

The procedure for constructing each composite is described in Appendix A.4. The polymer components for each composite will be unfilled first quality product polymer, substantially free of inorganic constituents. Each component of the four composites to be tested under this ECA will be accompanied by a certificate of analysis showing it to meet applicable product specifications.

III. OBLIGATION OF SIGNATORY COMPANIES

A. The Companies are bound by the terms of this ECA as specified below.

B. Each Company shall be responsible for supplying the test substance(s) it manufactures for incorporation into the composite(s) to be tested under this ECA, as specified on each Company signature page and in Appendix A.3. The schedule for the testing program includes the deadline date by which the Companies must submit their contribution(s) to the facility(ies) that will be assembling the composites to be tested under this ECA. Any Company failing to comply with this ECA requirement will be in violation of this ECA as described in 40 CFR 790.65 (see Part XII of this ECA). In the event that one or more of the Companies are in violation as described above then the remaining Companies will inform EPA of the problem and request an EPA determination on how to proceed with the testing program described under this ECA. Each Company required to contribute to a particular composite is obligated to complete the testing required by this ECA for that composite. A Company shall not be responsible for any failure to perform its obligation under this ECA that is caused by circumstances beyond its control, that the Company could not have prevented through the exercise of due diligence. Under

⁸ EPA uses a variety of numerical identification systems for tracking chemicals. These include Chemical Abstract Service Registry numbers (CAS) (assigned to non-confidential listed chemicals), pre-manufacture notice (PMN) numbers (assigned by EPA when chemicals enter EPA's new chemical review process, document control numbers (DCN) (assigned by the Confidential Business Information Center for EPA tracking), and Accession (ACC) numbers (provided by EPA when a chemical identity requires protection as TSCA CBI). In addition, Polymer Exemption products will not have a TSCA Inventory ID number but may have a commercial trade identity.

such circumstances the Company will consult with EPA to reach agreement on what modifications, if any, are needed in the test plan or scope of testing (see Part X of this ECA regarding modification to this ECA as contained in 40 CFR 790.68).

C. A Company's obligation to perform Phase I PFOA Transport Testing is designated as a footnote on the signature page for that Company. See the individual signature pages in Part XXIV of this ECA.

D. The Companies recognize that to implement this ECA, EPA will issue an Order under section 4 of TSCA that incorporates the terms of this ECA (see Appendix F).

IV. PRINCIPAL TEST SPONSOR

The Companies have identified the Fluoropolymer Manufacturers Group (FMG), to communicate with EPA about schedules, study plans, protocols, test standards, and other aspects of the testing program. EPA and the Companies agree that FMG has no legal responsibility for complying with this ECA. Responsibility for complying with the ECA rests at all times with the Companies.

V. PURPOSE OF THE TESTING PROGRAM

The purpose of the testing program specified by this ECA is to assess the potential for waste incineration of fluoropolymers (see Part II and Appendix A.1 of this ECA) to emit PFOA, based on quantitative determination of potential exhaust gas levels of PFOA that may emanate from laboratory-scale combustion testing under conditions representative of typical municipal waste combustor operations in the United States.

EPA believes that these incineration studies of fluoropolymers will develop data needed by the Agency to determine whether municipal and/or medical waste incineration of fluoropolymers is a potential source of PFOA that may contribute as a pathway to environmental and human exposures. The data may also be used to inform screening level human and environmental exposure assessments. In addition, the data may also be used by other Federal agencies (e.g., the Agency for Toxic Substances and Disease Registry (ATSDR), the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), and the Consumer Product Safety Commission (CPSC), the Food and Drug Administration (FDA)) in assessing chemical risks and in taking appropriate actions within their programs. It is intended that the data generated under this ECA will identify whether the incineration of fluoropolymers contributes to the sources and pathways of environmental and human exposure to PFOA.

VI. SCOPE OF THE PROGRAM

The scope of this testing program is described in Parts VII and VIII below and will consist of the testing listed in Table 1 in accordance with the test standards specified in Table 1 and described in Appendix B.1 and C.1 - C.2 as annotated by Appendix D.1- D.4 to this ECA ("Test Standards") and submitting the reports and documents specified in Table 1 in accordance with the deadlines set forth in Table 1 and described in Appendices C.1 - C.2 and E.1- E.3.

VII. DESCRIPTION OF THE TESTING PROGRAM

The program has two segments as follows: Phase I PFOA Transport Testing and Phase II Fluoropolymer Incineration Testing.

A. Phase I PFOA Transport Testing: Phase I will consist of quantitative transport efficiency testing for PFOA. Phase I testing for PFOA transport efficiency is specified in the Phase I PFOA Transport Testing segment of Table 1 and described in Appendix C.1 as annotated by Appendix D.1 and D.2. At the conclusion of Phase I testing, the Companies will provide EPA with a letter report summarizing the results. In the event that the transport efficiency of PFOA or total fluorine (as determined by the formulas in Appendix C.1) is equal to or greater than 70%, testing will proceed to Phase II Fluoropolymer Incineration Testing. In the event the transport efficiency of PFOA and total fluorine (as determined by the formulas in Appendix C.1) are both individually less than 70%, the Companies will initiate a technical consultation with EPA (see Part VII. B. and Part VIII of this ECA).

B. Phase II Fluoropolymer Incineration Testing: This testing, specified in the Phase II Fluoropolymer Incineration Testing segment of Table 1 and described in Appendix C.2 as annotated by Appendices B.1, D.1-D.4, E.2 and E.3 and will include the following for each fluoropolymer composite to be tested under this ECA: 1) elemental analysis, 2) combustion stoichiometry, 3) thermogravimetric analysis, 4) laboratory-scale combustion testing, and, 5) if required under this ECA,⁹ release assessment reporting.

⁹ In the event that Phase II Fluoropolymer Incineration Testing identifies measurable levels of PFOA resulting from the incineration testing for any or all of the fluoropolymer composites tested under this ECA, as defined in Appendix C.2.5.5, the Companies will prepare a release assessment report (see Table 1 and Appendix E.2 to this ECA) to place in perspective the relevance of such measurable levels in the laboratory-scale incineration testing results with respect to full-scale municipal and/or medical waste incinerator operations in the United States.

VIII. PHASE I TECHNICAL CONSULTATION

A. Following completion of Phase I and prior to the initiation of Phase II, the Companies will submit a letter report to EPA with the results for the transport efficiency across the laboratory-scale thermal reactor system, as determined from Phase I testing.

B. If the transport efficiency for either PFOA or Total Fluorine (as determined by the formulas in Appendix C.1) is greater than or equal to 70%, the Companies will proceed to Phase II testing.

C. If the transport efficiency for PFOA and Total Fluorine (as determined by the formulas in Appendix C.1) are both individually less than 70%, a Technical Consultation will be held between the Companies and EPA. The objective of the Technical Consultation will be to reach agreement on how to proceed. The technical consultation will review the outcomes of the Phase I PFOA Transport Testing, discuss the feasibility of proceeding with Phase II Testing as described in this ECA, and discuss whether additional modifications are needed to the test standards and/or protocols described in Appendices B, C and D for Phase I PFOA Transport Testing and/or Phase II Fluoropolymer Incineration Testing. Specifically, the technical consultation will address: (1) whether the data from the Phase I PFOA Transport Testing segment provide a sufficient basis for conducting the laboratory-scale incineration testing specified in the Phase II Fluoropolymer Incineration Testing segment; (2) the nature and scope of any additional Phase I work that may be required prior to the commencement of Phase II testing and reporting (e.g., modifications to the Advanced Thermal Reactor System) as described in Part VII. B. of this ECA), and/or (3) the nature and scope of modifications to the protocols and test standards for Phase I and/or Phase II testing, or the identification of additional testing, that may be needed to complete the testing under this ECA.

Possible outcomes of the Technical Consultation include the following:

1. An agreement to conduct additional Phase I testing, and the schedule and standards for such testing, to inform whether and under what conditions to conduct Phase II testing.
2. An agreement to proceed into Phase II testing with or without agreed-to modifications to plans, test standards and schedules for Phase II testing.
3. An agreement to conduct such other testing, and the schedule and standards for such testing, in Phase II that the Companies and EPA agree may be appropriate, in light of Phase I results, to assist in

determining the potential for release of PFOA from fluoropolymers during waste incineration.

4. No agreement on a path forward, in which case the Company's obligations to conduct testing or reporting beyond Phase I PFOA Transport Testing as described in this ECA are terminated.

D. EPA shall place in the docket (OPPT-2003-0071) a summary of any Technical Consultation that is held under this paragraph. Modifications to this ECA resulting from a Technical Consultation will be governed by 40 CFR 790.68 (see Part XI of this ECA).

IX. STANDARDS FOR CONDUCTING TESTING

A. Testing for the laboratory-scale incineration of the fluoropolymer test substance composites described in Part II of this ECA which contain the fluoropolymers listed in Appendix A.1 of this ECA must be conducted in accordance with the Test Standards listed in Table 1 and described in Appendices B.1 and C.1 - C.2 as annotated in Appendices D.1- D.3 to this ECA. Certain provisions of these Test Standards are considered to be mandatory and are referred to as "requirements." These requirements are identified by the use of the word "shall" in the text of the Test Standard. For the purpose of this ECA, the words "will" and "must," if they appear in the Test Standards, are considered equivalent to the word "shall" and therefore delineate a test requirement to be followed or met.

Provisions that are not mandatory, and are therefore only recommended, are identified by the use of "should" statements. In the event such "should" provisions are not followed, the Companies will not be deemed by EPA to be in violation of this ECA and will not be subject to penalties or other enforcement actions, as described in Part XII. of this ECA. However, in such cases, EPA will use its professional judgement to determine the scientific adequacy of the test results and any repeat testing that is determined by EPA to be necessary will be required either under a separate ECA or pursuant to a rule promulgated under section 4(a) of TSCA, 15 U.S.C. 2603(a).

B. The Companies and EPA will consult in a good faith effort to consider the need for Test Standard modifications if either EPA or the Companies desire such modifications. Modifications to this ECA will be governed by 40 CFR 790.68 (see Part XI. of this ECA).

C. All testing required by this ECA must be conducted in accordance with the EPA Good Laboratory Practice Standards (GLPS) found at 40 CFR part 792. The standard operating procedures (SOPs) required by 40 CFR 792.81 shall consist of Appendices C.1., C.2.3, C.2.4., and D.1 for Phase I PFOA transport efficiency testing, Phase II thermogravimetric analysis, and Phase II combustion testing.

The compositing facility(ies) tasked to assemble the test substance composite(s) will not be subject to GLPS as specified at 40 CFR 792. Assembly of the composite test substances must be performed in accordance with Appendix A.4. A QAPP(s) detailing composite assembly(ies) must be submitted in accordance with EPA QA/R5 guidance to address needed elements to ensure data quality, integrity, and usability (see Part X of this ECA).

X. STUDY PLAN(S) AND QUALITY ASSURANCE PROJECT PLAN(S) (QAPP)

The Companies will submit a study plan to EPA for each test conducted pursuant to this ECA prior to the initiation of testing in accordance with 40 CFR 790.62. (For this ECA, EPA will not require the plan(s) under this Part of the ECA to be submitted "no later than 45 days prior to the initiation of testing," as specified at 40 CFR 790.62(a)). The content of the study plan(s) submitted to EPA will comply with 40 CFR 790.62(b). This ECA and/or its appendices satisfy the applicable requirements of 40 CFR 790.62(b)(2), (8), (9), and (10). A study plan may cross reference the applicable provisions of the ECA and/or its appendices to satisfy these requirements. Modifications to the study plan(s) under this part of the ECA will be governed by the procedures of 40 CFR 790.62(c) except that the 15 day time periods in 40 CFR 790.62(c) (2) and (3) will be 45 day time periods. All study plan(s) will become part of the official record (EPA Docket Control Number OPPT-2003-0071).

The Companies must submit Quality Assurance Project Plan(s) (QAPP) prepared in accordance with EPA guidance.¹⁰

XI. MODIFICATIONS TO THIS ENFORCEABLE CONSENT AGREEMENT

Modifications to this ECA, if any, will be made according to the procedures contained in 40 CFR 790.68.

XII. FAILURE TO COMPLY WITH THE ENFORCEABLE CONSENT AGREEMENT

The Companies acknowledge that a violation of the requirements of this ECA will constitute a "prohibited act" under section 15(1) of TSCA, 15 U.S.C. 2614(1), and will trigger all provisions applicable to a section 15 violation. Further information regarding the implications of failure to comply with the consent agreement is provided in 40 CFR 790.65.

¹⁰ Guidance for developing Quality Assurance Project Plans can be found in the EPA document EPA QA/R-5: *EPA Requirements for Quality Assurance Project Plans*, prepared by: Office of Environmental Information, EPA, March 2001. This is also available from the EPA website at <http://epa.GOV/Quality/qs-docs>.

XIII. EPA MONITORING OF ENFORCEABLE CONSENT AGREEMENT TESTING

EPA may conduct monitoring activities of the testing conducted under this ECA such as laboratory inspections and study audits, as permitted under section 11 of TSCA, 15 U.S.C. 2610.

XIV. SUBMISSIONS TO EPA AND CONFIDENTIALITY OF INFORMATION

A. All reporting required by this ECA must be submitted by the Companies to EPA by the dates specified in Table 1 unless otherwise authorized by EPA pursuant to 40 CFR 790.68. A paper copy of a document shall be deemed submitted when it is either postmarked or placed in the hands of a commercial courier service for overnight delivery to EPA at the appropriate address specified in Part XIV. B. of this ECA. Hand-delivered documents are deemed submitted upon receipt at the appropriate address specified in Part XIV. B. of this ECA. Electronically transmitted documents are deemed delivered upon transmission and must follow the procedures for electronic submissions specified in Part XIV.B. of this ECA. Under any of the above circumstances, it is the responsibility of the Companies to maintain appropriate documentation for proof of transmittal for all reporting required by this ECA.

In accordance with 40 CFR 790.62 (d), the Companies will submit interim progress reports to EPA informing the Agency of the progress of the testing. The schedule for interim progress reports is specified in Table 1 of this ECA. The information required in interim progress reports is specified in Appendix E.1.

B. All documents submitted to EPA under this ECA must be identified by the EPA Docket ID Number (OPPT-2003-0071) and the name: ECA on Laboratory-Scale Incineration Testing of Fluoropolymers.

Submissions made by mail should be sent to: Document Control Office (7407M), Office of Pollution Prevention and Toxics (OPPT), Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460-0001.

Submissions made by hand delivery or courier should be delivered to: OPPT Document Control Office (DCO) in the EPA East Building, Room 6428, 1201 Constitution Avenue, NW, Washington, DC and marked Attention: EPA Docket ID Number OPPT- 2003 -0071. The DCO is open from 8 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The telephone number for the DCO is (202) 564-8930.

Submissions made electronically should be sent to: OPPT Document Control Office at <http://www.oppt.ncic@epa.gov>, Attention: EPA Docket OPPT-2003-0071. Electronic submissions do not supersede the requirements of Part XIV. C. of this ECA. Electronic submissions for all reporting required by this ECA must be submitted as attachments to the e-mail and must be in

text-searchable, PDF format. The e-mail transmitting any report required by this ECA and all electronic attachments will be included as part of the submission. E-mail addresses are automatically captured by the EPA e-mail system and become part of the submission that is placed in the official public docket, and will be made available in the EPA electronic public docket. Upon receipt of the electronic submission, a "receipt date" is entered into the metadata to signify the date the document(s) submitted by the Company(ies) was received by EPA. EPA is not responsible for failure to meet a date of submission requirement if the EPA fire wall rejects an electronic submission containing a virus or other adverse electronic coding. It is the obligation of the submitter to confirm that: 1) electronic submissions are received by EPA on the date of transmission, 2) the electronic submission and all attachments are legible, and 3) the electronic submission and all attachments meet the electronic format requirements of the EPA Document Control Office. Do not submit any report containing confidential business information (CBI) to EPA by e-mail. For submissions containing CBI see Part XIV.D of this ECA.

C. The Companies must submit six (6) paper copies of each version (Public and CBI) for all reports described in Table 1 and Part VII A. and B. of this ECA. In addition, an electronic file, on a disk or CD ROM, of all documents submitted under this ECA (marked as CBI where appropriate and in text-searchable, PDF format) will be provided to EPA. To avoid damage caused by mail scanning technologies, the electronic file on disk or CD ROM must be hand delivered or sent by courier to the address cited in Part XIV. B. See Part XIV. D. regarding submissions containing CBI.

D. Any document submitted to EPA that contains data or information for which a Signatory Company makes a claim of confidentiality (see Part XV of this ECA), must be submitted as two separate versions. One version must be complete, with the information being claimed as confidential marked in the manner described under 40 CFR 790.7. The other, public, version must be identical in all respects except that all of the information claimed as confidential shall be redacted. EPA will place the public version in the Agency's docket. The complete version will be treated in accordance with EPA confidentiality regulations in 40 CFR part 2 and 40 CFR 790.7.

Data or other information that are considered to be CBI must not be submitted electronically to EPA by e-mail. Any part or all of data or other information claimed as CBI must be so marked. If the CBI submission is on diskette or CD ROM, mark the outside of the diskette or CD ROM as CBI and then identify electronically within the diskette or CD ROM the specific information that is CBI. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2 (see Part XV of this ECA).

Any claims of confidentiality for information submitted under this ECA will be made under the terms of 40 CFR 790.7. If no claim of confidentiality is made by the submitter of the information at the time of submission, the information will be deemed by EPA, in accordance

with 40 CFR 790.7, to be public, and may be made available to the public without further notice to the submitter. Information claimed as confidential will be treated in accordance with the procedures in 40 CFR part 2 and to section 14 of TSCA, 15 U.S.C. 2613.

XV. PUBLICATION AND DISCLOSURE OF TEST RESULTS

All results of testing conducted pursuant to this ECA will be announced to the public by EPA in accordance with the procedures specified in section 4(d) of TSCA, 15 U.S.C. 2603(d). Disclosure by EPA of data generated by such testing to the public or other government agencies will be governed by section 14(b) of TSCA, 15 U.S.C. 2613(b), and 40 CFR part 2. The CBI version of a document will only be provided to another U.S. government organization in compliance with the procedures described in the OPPTS TSCA CBI Protection Manual.

XVI. OTHER RESPONSIBILITIES OF THE COMPANIES

A. The Companies will comply with the notification requirements of section 12(b)(1) of TSCA, 15 U.S.C. 2611(b)(1), and 40 CFR part 707, subpart D, if they export or intend to export any of the composite test substances described in Part II and Appendix A.3 of this ECA. Any other person who exports or intends to export any of the composite test substances described in Part II and Appendix A.3 of this ECA is subject to the above cited export notification requirements

B. If any of the fluoropolymer chemicals listed in Appendix A.1 to this ECA become subject to a rule promulgated under TSCA section 5(a)(2), 15 U.S.C. 2604(a)(2), governing significant new uses of any of the fluoropolymer chemicals listed in Appendix A.1 to this ECA, then the Companies will be subject to the data submission requirements imposed by section 5(b)(1)(A) of TSCA, 15 U.S.C. 2604(b)(1)(A), as if the testing under this ECA had been required by a TSCA section 4 test rule.

XVII. SEVERABILITY OF ENFORCEABLE CONSENT AGREEMENT PROVISIONS

In the event that one or more provisions of this ECA are determined by a court decision to be unenforceable, the remaining provisions of this ECA will not be presumed to be valid, and EPA will either initiate a rulemaking proceeding to require testing or publish in the Federal Register the reasons for not initiating such a proceeding.

XVIII. FINAL AGENCY ACTION

For purposes of 5 U.S.C. 704, publication of the FR notice announcing the issuance of the Order incorporating this ECA constitutes final agency action.

XIX. PUBLIC RECORD

EPA has established a public record which will contain this ECA, the Order that incorporates this ECA, the Federal Register notice announcing issuance of the Order incorporating this ECA, and any and all relevant information, subject to the confidentiality provisions of section 14(b) of TSCA and 40 CFR part 2. The official record for this ECA, including the public version, which does not include any information claimed as CBI, has been established under EPA Docket Control Number OPPT-2003-0071.

An electronic version of the public docket is available through EPA's electronic public docket system, EPA Dockets. EPA Dockets may be accessed at <http://www.epa.gov/edocket/> to access the index listing of the contents of the official public docket, and to access those documents in the public docket that are available electronically. Although not all docket materials may be available electronically (for example the materials in the original dockets for this action, [AR-226 and OPPTS-2003-0012], or materials under copyright), any of the publicly available docket materials can be accessed through the EPA Docket Center, Rm. B102-Reading Room, EPA West, 1301 Constitution Avenue, NW, Washington, DC. For materials available in the electronic docket, once in the system, select "search," then key in the appropriate EPA Docket ID number (OPPT-2003-0071).

XX. EFFECTIVENESS

This ECA may be signed in separate counterparts. This ECA will not be effective unless signed by each of the Companies and by EPA. This ECA will take effect on the date of publication of the Federal Register notice announcing the issuance of the Order that incorporates this ECA.

XXI. RIGHTS OF THE COMPANIES

By signing this ECA, the Companies waive their right to challenge EPA's authority to assess penalties for violations of the terms of this ECA. This waiver does not affect any other rights that the Companies may have under TSCA, including the right to dispute the amount of any penalty or to dispute factually whether a violation of the terms of this ECA has occurred, or

to seek judicial review of any rule that may be adopted by EPA that imposes requirements to test any of the fluoropolymer chemicals listed in Appendix A.1 to this ECA.

XXII. RESERVATION OF RIGHTS BY COMPANIES

By signing this ECA, the Companies are not admitting that the requirements of TSCA Section 4 have been satisfied for promulgating a test rule to generate the data required by this ECA.

The Companies contend that the documents generated for the incineration testing program under this ECA are protected from public disclosure under 5 U.S.C. section 552(b)(4) and 15 U.S.C. section 2613(a) and do not constitute studies subject to disclosure under 15 U.S.C. section 2613(b). Accordingly, the public information disclosure provisions of this ECA are, in the view of the Companies, a waiver of legal rights.

XXIII. IDENTITY OF THE COMPANIES AND PRINCIPAL TEST SPONSOR

The Principal Test Sponsor is:

Fluoropolymer Manufacturers Group
Allen Weidman
The Society of the Plastics Industry, Inc.
1801 K Street, N.W., Suite 600K
Washington, DC 20006
202-974-5233

The Companies subject to this ECA are:

AGC Chemicals Americas, Inc.
229 East 22nd Street,
Bayonne, NJ 07002

Dyneon, LLC
6744 33rd Street,
Oakdale, MN 55128

Daikin America, Inc.
20 Olympic Drive,
Orangeburg, NY 10962

E.I. du Pont de Nemours and Company
Route 141 and Henry Clay
Wilmington, DE 19880-0711

XXIV. SIGNATURE

TEST SPONSOR

AGC Chemicals Americas, Inc.^{1, 2}

Company technical contact person for handling correspondence marked as "Confidential"

Name: Noel Misa
 Title: Vice President - Environment, Health and Safety
 Address: 229 East 22nd Street, Bayonne, NJ 07002
 Phone Number: 201-858-8905

ECA Subject Chemicals for AGC Chemicals Americas, Inc.			
Entry	Composite	CAS Registry #	CAS 9CI Name
1	Dry non-melt Fluoropolymer Resin	CAS #9002-84-0	Ethene, tetrafluoro-, homopolymer
2	Dry non-melt Fluoroelastomer Gum	CAS #27029-05-6	1-Propene, polymer with tetrafluoroethene
3	Aqueous Dispersion	CAS #9002-84-0	Ethene, tetrafluoro-, homopolymer

Date: _____

 Minoru Kawai
 President
 AGC Chemicals Americas, Inc.
 229 East 22nd Street
 Bayonne, NJ 07002

¹ Data in the table lists the chemical(s) and composite contributions for which AGC Chemicals Americas, Inc. is responsible. The Company developed these data in response to EPA's letter of January 6, 2004.

² AGC Chemicals Americas, Inc. is not obligated under this ECA to perform Phase I PFOA Transport Testing (see Part III. C. and VII.A. of this ECA).

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XXIV. SIGNATURE

TEST SPONSOR

Daikin America, Inc.^{1, 2}

Company technical contact person for handling correspondence marked as “Confidential”

Name: Takayuki Nakamura
 Title: Senior Market Development Specialist
 Address: Umeda Center Building, 22F
 2-4-12 Nakazaki-Nishi,
 Kita, Osaka, 530-8323, Japan
 Phone Number: 81-6-6373-4349

ECA Subject Chemicals for Daikin America, Inc. *			
Entry	Composite	CAS Registry #	CAS 9CI Name
1	Dry non-melt Fluoropolymer Resin		
2	Aqueous Dispersion		
3	Dry non-melt Fluoroelastomer Gum		
4	Dry non-melt Fluoroelastomer Gum		

* Entries “X’d” out indicate redacted information claimed as CBI by the Company.

¹ Data in the table lists the chemical(s) and composite contributions for which Daikin America, Inc. is responsible. The Company developed these data in response to EPA’s letter of January 6, 2004. There is both a Public and CBI version of this page because the Company has asserted that data in this table are considered by them to be entitled to treatment as TSCA confidential business information (CBI) (see Part XIV. D. of this ECA regarding confidentiality of information) .

² Daikin America, Inc. is not obligated under this ECA to perform Phase I PFOA Transport Testing (see Part III. C. and VII.A. of this ECA).

continued: Daikin America, Inc.

ECA Subject Chemicals for Daikin America, Inc.			
Entry	Composite	Generic ID †	Generic Name
1	Dry non-melt Fluoropolymer Resin	DCN # 63040000018A	Polytetrafluoroethylene
2	Aqueous Dispersion	DCN # 63040000018B	Polytetrafluoroethylene
3	Dry non-melt Fluoroelastomer Gum	DCN # 63040000018C	Fluoroelastomer
4	Dry non-melt Fluoroelastomer Gum	DCN # 63040000018D	Fluoroelastomer
† The CBI protected CAS Registry numbers have been substituted with Document Control Numbers (DCN) for the Company claimed CBI information held by the EPA. The DCN is assigned by EPA to a company claimed CBI submission that is tracked by the Confidential Business Information Center (CBIC); the terminating letter indicates which substance is being referenced.			

Date: _____

 Satoshi Doi
 President
 Daikin America, Inc.
 20 Olympic Drive
 Orangeburg, NY 10962

XXIV. SIGNATURE

**TEST SPONSOR
Dyneon, LLC^{1, 2}**

Company technical contact person for handling correspondence marked as “Confidential”

Name: George H. Millet
 Title: Director, Quality, Environment, Health and Safety
 Address: 6744 33rd Street, Oakdale, MN 55128
 Phone Number: 651-733-5637

ECA Subject Chemicals for Dyneon, LLC *			
Entry	Composite	CAS Registry #	CAS 9CI Name
1	Dry non-melt Fluoropolymer Resin	CAS #9002-84-0	Ethene, tetrafluoro-, homopolymer
2	Dry non-melt Fluoropolymer Resin	CAS #26655-00-5	Propane, 1,1,1,2,2,3,3-heptafluoro-3-(trifluoroethyl)oxy]-, polymer with tetrafluoroethene
3	Dry melt Fluoropolymer Resin	CAS #25067-11-2	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene
4	Dry melt Fluoropolymer Resin	CAS #26655-00-5	Propane, 1,1,1,2,2,3,3-heptafluoro-3-(trifluoroethyl)oxy]-, polymer with tetrafluoroethene
5	Dry melt Fluoropolymer Resin	CAS #25190-89-0	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene
6	Dry melt Fluoropolymer Resin	X	X

¹ Data in the table lists the chemical(s) and composite contributions for which Dyneon, LLC is responsible. The Company developed these data in response to EPA’s letter of January 6, 2004. There is both a Public and CBI version of this page because the Company has asserted that data in this table are considered by them to be entitled to treatment as TSCA confidential business information (CBI) (see Part XIV. D. of this ECA regarding confidentiality of information).

² Dyneon, LLC is obligated under this ECA to perform Phase I PFOA Transport Testing (see Part III. C. and VII.A. of this ECA).

Continued: ECA Subject Chemicals for Dyneon, LLC			
Entry	Composite	CAS Registry #	CAS 9CI Name
7	Dry melt Fluoropolymer Resin	CAS #35560-16-8	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with ethene and tetrafluoroethene
8	Dry non-melt Fluoroelastomer Gum	CAS #27029-05-6	1-Propene, polymer with tetrafluoroethene
9	Dry non-melt Fluoroelastomer Gum	CAS #54675-89-7	1-Propene, polymer with 1,1-difluoroethene and tetrafluoroethene
10	Dry non-melt Fluoroelastomer Gum	CAS #26425-79-6	Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy) ethene
11	Dry non-melt Fluoroelastomer Gum	CAS #9010-75-7	Ethene, chlorotrifluoro-, polymer with difluoroethene
12	Dry non-melt Fluoroelastomer Gum	X	X
13	Aqueous Dispersion	CAS #9002-84-0	Ethene, tetrafluoro-, homopolymer
14	Aqueous Dispersion	CAS #25067-11-2	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene
15	Aqueous Dispersion	CAS #26655-00-5	Propane, 1,1,1,2,2,3,3-heptafluoro-3-(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene
16	Aqueous Dispersion	CAS #25190-89-0	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene
* Entries "X'd" out indicate redacted information claimed as CBI by the Company.			

continued: Dyneon LLC.

ECA Subject Chemicals for Dyneon, LLC		
Entry	Generic Identification #	Generic Name
1	CAS # 9002-84-0	PTFE
2	CAS # 26655-00-5	modified PTFE
3	CAS # 25067-11-2	FEP
4	CAS # 26655-00-5	PFA
5	CAS # 25190-89-0	THV
6	DCN # 63040000026 †	ETFE **
7	CAS # 35560-16-8	HTE
8	CAS # 54675-89-7	Base Resistant Elastomer
9	CAS # 27029-05-6	Base Resistant Elastomer
10	CAS # 26425-79-6	Perfluoro Elastomer
11	CAS # 9010-75-7	CTFE Elastomer
12	ACC # 137678 †	Low Temperature Elastomer
13	CAS # 9002-84-0	PTFE Dispersion
14	CAS # 25067-11-2	FEP Dispersion
15	CAS # 26655-00-5	PFA Dispersion
16	CAS # 25190-89-0	THV Dispersion
<p>** The term ETFE is associated with a variety of chemical substances having different CAS Registry numbers and chemical names / identities. The CBI document (see item 6 above) details the specific ETFE chemical used for the ECA testing.</p> <p>† The CBI protected CAS Registry numbers have been substituted with either TSCA Accession numbers (ACC) or Document Control Numbers (DCN) for Company claimed CBI information held by the EPA.</p>		

continued: Dyneon, LLC.

Date: _____

William R. Myers
President
Dyneon, LLC
6744 33rd Street
Oakdale, MN 55128

XXIV. SIGNATURE

TEST SPONSOR

E.I. du Pont de Nemours and Company^{1, 2}

Company technical contact person for handling correspondence marked as “Confidential”

Name: David W. Boothe
 Title: Strategic Planning Manager - DuPont Fluorosolutions
 Address: Route 141 & Henry Clay, Wilmington, DE 19880-0711
 Phone Number: 302-999-4091

ECA Subject Chemicals for E. I. du Pont de Nemours and Company			
Entry	Composite	CAS Registry #	CAS 9CI Name
1	Dry non-melt Fluoropolymer Resin	CAS #9002-84-0	Ethene, tetrafluoro-, homopolymer
2	Dry melt Fluoropolymer Resin	CAS #25067-11-2	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene
3	Dry melt Fluoropolymer Resin	CAS #26655-00-5	Propane, 1,1,1,2,2,3,3-heptafluoro-3-(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene
4	Dry melt Fluoropolymer Resin	CAS #31784-04-0	Ethene, tetrafluoro-, polymer with trifluoro(pentafluoroethoxy)ethene
5	Aqueous Dispersion	CAS #9002-84-0	Ethene, tetrafluoro-, homopolymer
6	Aqueous Dispersion	CAS #25067-11-2	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene
7	Aqueous Dispersion	CAS #26655-00-5	Propane, 1,1,1,2,2,3,3-heptafluoro-3-(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene

¹ Data in the table lists the chemical(s) and composite contributions for which E.I. du Pont de Nemours and Company is responsible. The Company developed these data in response to EPA’s letter of January 6, 2004.

² E.I. du Pont de Nemours and Company is not obligated under this ECA to perform Phase I PFOA Transport Testing (see Part III. C. and VII.A. of this ECA).

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continued: E.I. du Pont de Nemours and Company

Date: _____

Francine C. Shaw
Vice President Corporate Operations
E.I. du Pont de Nemours and Company
Route 141 & Henry Clay
Wilmington, DE 19880-0711

XXIV. SIGNATURE



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Date: _____

Susan B. Hazen
Principal Deputy Assistant Administrator
Office of Prevention, Pesticides and Toxic Substances

Address:

U.S. Environmental Protection Agency
Office of Prevention, Pesticides and Toxic Substances
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

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Table 1 REQUIRED TESTING, TEST STANDARDS, REPORTING AND OTHER REQUIREMENTS FOR THE LABORATORY-SCALE INCINERATION TESTING OF FLUOROPOLYMERS

Phase I PFOA Transport Testing	Test Standard	Deadline ¹ (Days)
Phase I Study Plan(s)	40 CFR 790.62 (b) as annotated by Part X of the ECA	60 ³
Phase I QAPP(s)	EPA QA/R5	90 ³
Quantitative PFOA transport testing ²	Appendix C.1 of the ECA	240 ^{4 5}

¹ Number of days, starting with the day following the event starting the period in question. Interim progress reports must be submitted by the Companies to EPA every 180 days beginning 180 days from the effective date of this ECA until the end of the ECA testing program (see Part XIV and Appendix E.1 of the ECA).

² At the conclusion of Phase I PFOA transport efficiency testing, and prior to initiation of Phase II, the Companies, will provide a letter report to EPA summarizing the results of Phase I testing (see Part VII. A. of the ECA). In the event that the transport efficiency of PFOA or of total fluorine (as determined by the formulas in Appendix C.1) is greater than or equal to 70% then the Companies will proceed to Phase II Incineration Testing. In the event that the transport efficiency of PFOA and of total fluorine (as determined by the formulas in Appendix C.1) are both individually less than 70%, then the Companies will initiate a Technical Consultation with EPA. The outcomes of the Technical Consultation are described in Part VIII of this ECA.

³ Number of days after the effective date of this ECA when submission is due.

⁴ Number of days after EPA approval of the Study Plan(s) and QAPP(s) for Phase I testing when a letter report describing transport efficiency test result(s) and what contingency testing was performed is due to EPA (see Part VII. A. and Appendix C.1.3 of the ECA). If the Study Plan(s) and QAPP(s) are not approved within 60 days of submission of the Phase I QAPP(s), then this deadline is extended by 180 days to accommodate re-scheduling with the thermal reactor system laboratory.

⁵ The final report for Phase I testing will be submitted to EPA within 60 days of the completion of the Technical Consultation if the consultation does not result in an agreement to conduct further testing. If the Technical Consultation results in an agreement to conduct further testing, the final report for Phase I testing will be included in the final report for such further testing, unless agreed otherwise in the Technical Consultation (see Part VIII of the ECA regarding Phase I Technical Consultation).

Phase II Fluoropolymer Incineration Testing	Test Standard	Deadline ¹ (Days)
Phase II Study Plan(s)	40 CFR 790.62 (b) as annotated by Part X of the ECA	180 ³
Phase II QAPP(s)	EPA QA/R5	360 ³
Receipt of components by compositing facility(ies)	Part XXIV and Appendix A.3 of the ECA	180 ⁷
Elemental Analysis ⁶	Appendix C.2.1 of the ECA	450 ⁸
Combustion Stoichiometry ⁶	Appendix C.2.2 of the ECA	450 ⁸
Thermogravimetric Analysis ⁶	ASTM E1868, as modified in Appendix B.1 of the ECA	450 ⁸
Laboratory-scale combustion Testing ⁶	Appendices C.2.4 and C.2.5, as annotated / supplemented by Appendices D.1, D.2, D.3, and D.4 of the ECA	450 ⁸
Release assessment report	Appendix E.2 of the ECA	450 ⁹

⁶ The results of this testing will be provided in the final report for Phase II testing (see Appendix C.2.5 and Appendix E.3 of the ECA).

⁷ Number of days from the submission of a Phase I letter report signifying that Phase II testing can proceed and the approval of the Phase II QAPP(s) that the Companies must meet their individual obligations to provide the designated facility(ies) with the components for each composite to be tested under this ECA (see Part III. B. of the ECA). If Phase II testing is required by Technical Consultation agreement (see footnote 2), the deadline shall be as agreed in the Technical Consultation.

⁸ Number of days from the date of the final report from the ECA for the Laboratory-Scale Incineration Testing of Fluorotelomer Based Polymers (see EPA Docket No. OPPT-2004-0001) and the approval of study plan(s) and QAPP(s) for Phase II testing when this report is due, if all components of each composite are received, or EPA determines that testing shall proceed with a partial composite(s) (see Part III.B. of this ECA). An extension of the deadline for submitting the final report from the ECA for the Laboratory-Scale Incineration Testing of Fluorotelomer Based Polymers (see EPA docket No. OPPT-2004-0001) does not extend this deadline, unless expressly so provided.

⁹ In the event that Phase II laboratory-scale incineration testing identifies measurable levels of PFOA resulting
(continued...)

⁹ (...continued)

from the incineration testing for any or all of the fluoropolymer composites tested under this ECA, as defined in Appendix C.2.5.5, the Companies will prepare a Release Assessment Report to place in perspective the relevance of such measurable levels in the laboratory-scale incineration testing results with respect to full-scale municipal and/or medical waste incinerator operations in the United States. If required, the Release Assessment Report will be submitted in conjunction with the Final Report for Phase II testing (see footnote 6 and 8).

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APPENDIX A.1**LIST OF CHEMICAL COMPONENTS OF THE COMPOSITES¹**

The following table lists the thirteen commercial fluoropolymer chemicals (made using ammonium perfluorooctanoate (APFO)) that are the subject to this ECA.

The identities of the fluoropolymers (made using APFO) that are components of the composites that are subject to this ECA were provided to EPA as support documentation of the Companies' LOI commitments. Some of this documentation, including certain aspects related to the identity of the test substance as described in Part II of this ECA and the table below, contains Confidential Business Information (CBI). In such instances EPA creates a comprehensive database for evaluation and comparison, and, when possible, provides a public version sanitized of CBI.

Subsequent analysis of the list of fluoropolymers received by EPA supported the conclusion that the individual chemicals listed below are representative of all known commercial fluoropolymer chemicals and the basic chemistries are represented by the four composite test substances that are subject to testing under this ECA (i.e., dry melt fluoropolymer resin, dry non-melt PTFE homopolymer resin/gum, dry non-melt fluoroelastomer resin/gum, aqueous fluoropolymer dispersions) (see ECA Appendix A.2 and A.3). The fluoropolymer structure is predominantly $-(CF_2)_x-$ which is a potential source of PFOA. For all fluoropolymer products used in commerce, the $-(CF_2)-$ moiety is common to all polymers and the composites to be tested under this ECA testing program (see Appendix A.2-A.4) are representative of the individual component and non-component fluorochemicals.

A.1-1

¹ There is a Public and CBI version of Appendix A.1 because one or more of the Companies have asserted that details describing their chemical(s) are considered by them to be entitled to treatment as TSCA confidential business information (CBI) (see Part XIV. D. of this ECA regarding confidentiality of information).

FLUOROPOLYMERS SUBJECT TO THIS ECA		
No.	CAS # / DCN # / or ACC # ²	Chemical Name
1	CAS # 9002-84-0	Ethene, tetrafluoro-, homopolymer
2	CAS # 25067-11-2	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene)
3	CAS # 26655-00-5	Propane,1,1,1,2,2,3,3-heptafluoro-3-[(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene
4	CAS # 25190-89-0	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene
5	DCN # 63040000026	ETFE
6	CAS #35560-16-8	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with ethene and tetrafluoroethene
7	CAS #9011-17-0	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene
8	CAS #54675-89-7	1-Propene, polymer with 1,1-difluoroethene and tetrafluoroethene
9	CAS #27029-05-6	1-Propene, polymer with tetrafluoroethene
10	CAS #26425-79-6	Ethene, tetrafluoro-, polymer with trifluoro(trifluoroethoxy)ethene
11	CAS #9010-75-7	Ethene, chlorotrifluoro-, polymer with 1,1-difluoroethene
12	CAS #31784-04-0	Ethene, tetrafluoro-, polymer with trifluoro(pentafluoroethoxy)ethene
13	DCN # 6304000018A	Polytetrafluoroethylene
14	DCN # 6304000018B	Polytetrafluoroethylene
15	DCN # 6304000018C	Fluoroelastomer
16	DCN # 6301000018D	Fluoroelastomer
17	ACC # 137678	Low Temperature Fluoroelastomer

A.1-2

² EPA uses a variety of numerical identification systems for tracking chemicals. These include Chemical Abstract Service Registry numbers (CAS) (assigned to non-confidential listed chemicals), pre-manufacture notice (PMN) numbers (assigned by EPA when chemicals enter EPA's new chemical review process, document control numbers (DCN) (assigned by the Confidential Business Information Center for EPA tracking), and Accession (ACC) numbers (provided by EPA when a chemical identity requires protection as TSCA CBI). In addition, Polymer Exemption products will not have a TSCA Inventory ID number but may have a commercial trade identity.

APPENDIX A.2

RATIONALE FOR SELECTING COMPOSITES TO BE TESTED

Review of Figure A.2-1 demonstrates that fluoropolymers industry products can be divided into 3 broad categories as follows:

- Dry melt resins
- Dry non-melt resins and gums
- Aqueous dispersions

These three broad categories can in turn be divided into four representative classes as follows:

- Dry melt resins
 1. FEP, PFA, THV, ETFE, HTE
- Dry non-melt resins and gums
 2. Dry non-melt resins
 3. Fluoroelastomers (dry non-melt gums)
- Aqueous dispersions
 4. PTFE, FEP, PFA, THV

Composite samples of each of these four representative classes were selected as the test substance for this testing program in order to represent the entire range of fluoropolymers involved.

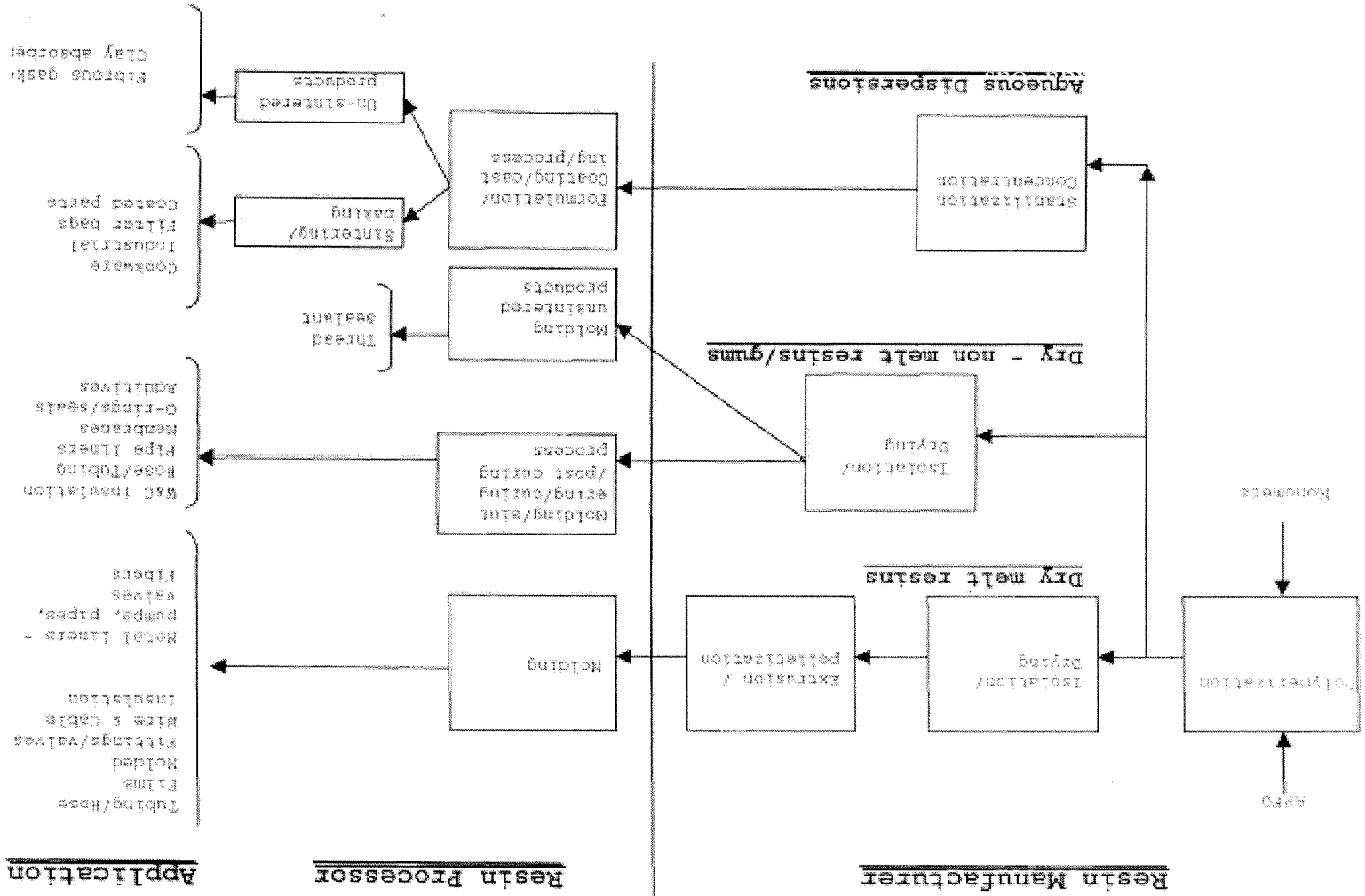


Figure A.2-1. Fluoropolymer Industry Overview

A.2-2

**APPENDIX A.3
COMPOSITION OF COMPOSITES TO BE TESTED**

The four composite test substances for this test program are presented below in Table A.3-1 with the fluoropolymer types, CAS numbers, and associated monomers for these fluoropolymers. Each fluoropolymer used in each relevant test substance composite will have been made using APFO.

Table A.3-1. Test Substance Composites by Type

Test Substance	Fluoropolymer Type	CAS Number	Associated Monomers
Composite 1 - Dry non-melt resin	PTFE	9002-84-0	TFE
	Modified PTFE	26655-00-5	TFE, PPVE
Composite 2 - Dry melt resins	FEP	25067-11-2	TFE, HFP
	PFA	26655-00-5	TFE, PPVE
		31784-04-0	TFE, PEVE
	THV	25190-89-0	TFE, HFP, VDF
	ETFE	68258-65-5	TFE, E
HTE	35560-16-8	TFE, HFP, E	
Composite 3 - Fluoroelastomers	Fluoroelastomer Copolymers	9011-17-0	VDF, HFP
	Fluoroelastomer Terpolymers	25190-89-0	TFE, HFP, VDF
	Base resistant elastomers	54675-89-7,	TFE, VDF, P
		27329-05-6	TFE, P
	Perfluoroelastomers	26425-79-6	TFE, PMVE
	CTFE elastomers	9010-75-7	CTFE, VDF
Low temperature elastomers	CBI	TFE, VDF	
Composite 4 - Aqueous Dispersions	PTFE	9002-84-0	TFE
	FEP	25067-11-2	TFE, HFP
	PFA	26655-00-5	TFE, PPVE
		31784-04-0	TFE, PEVE
THV	25190-89-0	TFE, HFP, VDF	

Confidential business information (CBI) regarding the chemical identity of low temperature elastomers has been submitted to EPA under separate cover.

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**APPENDIX A.4
PREPARATION OF COMPOSITES TO BE TESTED**

4.1 Approach

A composite mixture of representative fluoropolymers, as solids, will be prepared for each of the four test substance composites.

The polymer samples will be first quality product polymer, substantially free of inorganic constituents. Each sample will be from a representative grade for each applicable fluoropolymer type from each applicable company.

A hypothetical example for Composite Z in Table A.4-1 below shows how the composites will be assembled. In this example with 4 types across 4 companies, there are 11 x's. Hence, composite Z would be made up of 11 equal proportions of the materials indicated with an x.

Table A.4-1. Example for Compositing Across Companies & Types

Test Substance	Fluoropolymer Type	Company A	Company B	Company C	Company D
Composite Z	Type 1		x	x	x
	Type 2	x	x	x	x
	Type 3			x	
	Type 4	x	x	x	

4.2 Preparation

Representative samples of each component from each applicable company for each composite will be sent to the compositing facility(ies) in packaging customarily used for product sample packaging or in polyethylene, polypropylene, or glass containers.

Each composite will be prepared under conditions designed to prevent cross-contamination and designed to assure solids temperatures less than or equal to 60 °C.

Following preparation of each composite, the composite will be placed in a polyethylene, polypropylene, or glass container.

4.2.1 Composite 1

Dry non-melt resins are available in powder form. Equal weights of the powder form of each of the two types of components (following the approach in the example for Composite Z in Section 4.1 above) will be mixed together in dry form to yield Composite 1.

4.2.2 Composite 2

EEP, PEA, THV, ETEE, and HTE dry melt resins are available in powder form. Equal weights of the powder form of each component (following the approach in the example for Composite Z in Section 4.1 above) will be mixed together in dry form to yield Composite 2.

4.2.3 Composite 3

Fluoroelastomers are available in slab, lump, or sheet form. Composite 3 will be prepared following one of the following approaches:

- a) Equal weights of each component (following the approach in example for Composite Z in Section 4.1) will be mixed on a rubber mill to produce a homogenous slab of preset thickness to yield Composite 3.

Or

- b) Each component of Composite 3 will be cryogenically cooled (to make the elastomers brittle) and size-reduced (e.g., ground) to produce powder. Equal weights of the powder form of each component (following the approach in the example for Composite Z in Section 4.1) will be mixed together in dry form to yield Composite 3.

4.2.4 Composite 4

Aqueous dispersions of PTFE, FEP, PFA, and THV are available as dispersions containing 20 to 60% fluoropolymer solids by weight. Composite 4 will be prepared following one of the following approaches:

- a) Equal weights (on a dry solids basis) of each component in aqueous dispersion form (following the approach in example for Composite Z in Section 4.1) will be mixed together in liquid form. Solids will be separated from the resulting liquid composite to yield low water content (i.e., drip free) fine solids.

Or

- b) Solids will be separated from liquid for each component of Composite 4 to yield low water content (i.e., drip free) fine solids for each component. Equal weights of the solids form of each component (following the approach in the example for Composite Z in Section 4.1) will be mixed together to yield Composite 4.

4.3 Verification

In order to assure that composite samples in this testing program have been made up of clearly identified materials, the preparation of the composites will include formal Chain of Custody procedures. A chain of custody form will be included with each component material going into the composite to show the identity of the component material and each transfer of custody from its point of origination to preparation of the composite.

Once prepared, each composite will be accompanied by a new chain of custody until it reaches the incineration testing facility.

For documentation, the facility preparing a given composite will generate a report to be submitted to EPA with the final report for Phase II incineration testing.

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