



INTERESTED PARTY REVIEW

FINAL DRAFT

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

Docket No. OPPT - 2003 - 0071

Public Version - Contains No Confidential Business Information

MARCH 2, 2004

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

Docket No. OPPT-2003-0071

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1 **I. INTRODUCTION**

2
3 Under the authority of section 4 of the Toxic Substances Control Act (TSCA), 15 U.S.C.
4 2603, and 40 CFR Part 790 of the Agency's implementing regulations, the United States
5 Environmental Protection Agency (EPA) and AGC Chemicals Americas, Inc., Daikin America,
6 Inc., Dyneon, LLC, and E.I. du Pont de Nemours and Company (hereinafter collectively "the
7 Companies") enter into this enforceable consent agreement (ECA). This ECA will take effect on
8 the date of publication of the notice in the Federal Register announcing the issuance of the testing
9 consent order (Order) that incorporates this ECA.

10
11 On April 16, 2003, EPA initiated a public process to negotiate enforceable consent
12 agreements (ECAs) concerning perfluorooctanoic acid (PFOA) and fluorinated telomers to
13 develop environmental fate and transport information, as well as relevant information to enhance
14 understanding of the sources of PFOA in the environment and the pathways by which human
15 exposure to PFOA is occurring (68 FR 18626; April 16, 2003). The goal of the ECAs resulting
16 from these public discussions is to develop data relevant to identifying the pathway or pathways
17 that result in exposures to PFOA by air, water, soil, or food; and to characterize how PFOA gets
18 into those pathways (including the products or processes that are responsible for the presence of
19 PFOA in the environment). EPA anticipates that the data to be developed under such ECAs will
20 be beyond or supplemental to that of ongoing testing efforts described under industry letters of
21 intent (LOIs) (Refs 1-4). [OPPT-2003-0012-0007,0012,0013,0016]

22
23 In preparation for the June 6, 2003, public meeting, EPA developed a preliminary
24 framework document outlining data needs that the Agency deemed appropriate to address the
25 outstanding PFOA source and exposure questions identified in the *Federal Register* notice of
26 April 16, 2003 (Ref 5)[OPPT-2003-0012-0056]. The intent of EPA's preliminary framework
27 document was to serve as a discussion guide for the June 6, 2003, public meeting and to aid in
28 distinguishing between outstanding EPA data needs and industry LOI commitments. The
29 preliminary framework document was not a predetermined list of information needs defining the
30 outcome of the ECA process.

31
32 This ECA provides for a laboratory-scale incineration testing program of fluoropolymers,
33 which is one of the data needs identified in EPA's preliminary framework document for PFOA.
34 On June 6, 2003, the PFOA Plenary Group (consisting of EPA and all interested parties)
35 acknowledged such a testing program as an opportunity for ECA development and tasked the
36 Fluoropolymer Technical Workgroup to work out the details that could be incorporated into an
37 ECA between test sponsors and EPA. On July 9, 2003, the Fluoropolymer Technical Workgroup
38 received proposals from the Companies and EPA for incineration testing of fluoropolymers.
39 Details of this testing program were developed by members of the Fluoropolymer Incineration
40 Subgroup of the Fluoropolymer Technical Workgroup during subsequent meetings. On
41 [Month/Date], 2003, the Fluoropolymer Technical Workgroup acknowledged that this testing

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1 program had sufficient merit for consideration by the Plenary Group. On [Month/Date], 2003,
2 the Plenary Group discussed the merit of this testing program and recommended that EPA
3 consider entering into an ECA with test sponsors. The official record for the development of this
4 ECA, including the public version, is established under EPA docket control number [OPPT-
5 2003-0012]. The procedures for ECA negotiations are described at 40 CFR 790.22(b). The
6 official record for the testing conducted under this ECA is Docket No. OPPT-2003-0071
7
8

9 II. TEST SUBSTANCES

10
11 For the purposes of testing under this ECA the chemicals listed in Appendix A.1¹ will be
12 combined to form four composites. These four composites are considered the subject test
13 substances under this ECA. These composites are representative of fluoropolymer products
14 manufactured by the Companies that are currently available in the marketplace. The Companies
15 will provide the fluoropolymers specified in Appendix A.1 for incorporation into the composites
16 that will be tested under this ECA.² Criteria for the selection of each composite to be tested
17 under this ECA are described in Appendix A.2. The composition of each composite is described
18 in Appendix A.3¹. The four composites to be tested are defined for purposes of this ECA as:
19

20 **[Note to the Interested Parties: Further information on the chemicals that will comprise**
21 **each composite is being gathered from the Companies.]**
22

- 23 (A) Dry Non-Melt Resin Composite: (containing: Ethene, tetrafluoro-,
24 homopolymer, CAS No. 9002-84-0, and Propane, 1,1,1,2,2,3,3-
25 heptafluoro-3-[(trifluoroethenyl)oxy]-, polymer with
26 tetrafluoroethene, CAS No. 26655-00-5)
27
- 28 (B) Dry Melt Fluoropolymer Resin Composite: (containing: 1-
29 Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene),
30 CAS No. 25067-11-2; Propane, 1,1,1,2,2,3,3-heptafluoro-3-
31 [(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene, CAS No.
32 26655-00-5; Ethene, tetrafluoro-, polymer with
33 trifluoro(pentafluoroethoxy)ethene, CAS No. 31784-04-0; 1-

¹ 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).

² See the Tables in Part XXIV. of this ECA for the chemicals to be supplied by each Company.

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1 Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene
2 and tetrafluoroethene, CAS No. 25190-89-0; 1-Hexene,
3 3,3,4,4,5,5,6,6,6-nonafluoro-, polymer with ethene and
4 tetrafluoroethene, CAS No. 68258-85-5; and, 1-Propene,
5 1,1,2,3,3,3-hexafluoro-, polymer with ethene and tetrafluoroethene,
6 CAS No. 35560-16-8),
7

8 (C) Dry Non-Melt Fluoroelastomer Gum Composite: (containing: 1-
9 Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene,
10 CAS No. 9011-17-0; 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer
11 with 1,1-difluoroethene and tetrafluoroethene, CAS No. 25190-89-
12 0; 1-Propene, polymer with 1,1-difluoroethene and
13 tetrafluoroethene, CAS No. 54675-89-7; 1-Propene, polymer with
14 tetrafluoroethene, CAS No. 27029-05-6; Ethene, tetrafluoro-,
15 polymer with trifluoro(trifluoromethoxy) ethene, CAS No. 26425-
16 79-6; and, Ethene, chlorotrifluoro-, polymer with 1,1-
17 difluoroethene, CAS No. 9010-75-7; and ??generic name??,
18 Accession No. ? ?), and
19

20 (D) Aqueous Fluoropolymer Dispersions Composite: (containing:
21 Ethene, tetrafluoro-, polymer with trifluoro(pentafluoroethoxy)
22 ethene, CAS No. 31784-04-0; Ethene, tetrafluoro-, homopolymer,
23 CAS No. 9002-84-0; 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer
24 with tetrafluoroethene), CAS No. 25067-11-2; Propane,
25 1,1,1,2,2,3,3-heptafluoro-3-[(trifluoroethenyl)oxy]-, polymer with
26 tetrafluoroethene, CAS No. 26655-00-5; Ethene, tetrafluoro-,
27 polymer with trifluoro(pentafluoroethoxy)ethene, CAS No. 31784-
28 04-0; and 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-
29 difluoroethene and tetrafluoroethene, CAS No. 25190-89-0).
30
31

32 The procedure for constructing each composite is described in Appendix A.4. The
33 polymer components for each composite will be unfilled first quality product polymer,
34 substantially free of inorganic constituents. Each component of the four composites to be tested
35 under this ECA will be accompanied by a certificate of analysis showing it to meet applicable
36 product specifications.
37
38

39 III. OBLIGATION OF SIGNATORY COMPANIES

40
41 A. The Companies are bound by the terms of this ECA as specified below.

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1 B. Each Company shall be responsible for supplying the test substance(s) it
2 manufactures for incorporation into the composite(s) to be tested under this ECA, as specified on
3 each Company signature page and in Appendix A.3. The schedule for the testing program
4 includes the deadline date by which the Companies must submit their contribution(s) to the
5 facility(ies) that will be assembling the composites to be tested under this ECA. Any Company
6 failing to comply with this ECA requirement will be in violation of this ECA as described in 40
7 CFR 790.65 (see Part XII of this ECA). In the event that one or more of the Companies are in
8 violation as described above then the remaining Companies will inform EPA of the problem and
9 request an EPA determination on how to proceed with the testing program described under this
10 ECA. Each Company required to contribute to a particular composite is obligated to complete
11 the testing required by this ECA for that composite. A Company shall not be responsible for any
12 failure to perform its obligation under this ECA that is caused by circumstances beyond its
13 control, that the Company could not have prevented through the exercise of due diligence. Under
14 such circumstances the Company will consult with EPA to reach agreement on what
15 modifications, if any, are needed in the test plan or scope of testing (see Part X of this ECA
16 regarding modification to this ECA as contained in 40 CFR 790.68).

17
18 C. A Company's obligation to perform Phase I PFOA Transport Testing is
19 designated as a footnote on the signature page for that Company. See the individual signature
20 pages in Part XXIV of this ECA.

21
22 D. The Companies recognize that to implement this ECA, EPA will issue an Order
23 under section 4 of TSCA that incorporates the terms of this ECA (see Appendix G).

24 25 26 **IV. PRINCIPAL TEST SPONSOR**

27
28 The Companies have identified the Fluoropolymer Manufacturers Group (FMG), to
29 communicate with EPA about schedules, study plans, protocols, test standards, and other aspects
30 of the testing program. EPA and the Companies agree that FMG has no legal responsibility for
31 complying with this ECA. Responsibility for complying with the ECA rests at all times with the
32 Companies.

33 34 35 **V. PURPOSE OF THE TESTING PROGRAM**

36
37 The purpose of the testing program specified by this ECA is to assess the potential for
38 waste incineration of fluoropolymers (see Part II and Appendix A.1 of this ECA) to emit PFOA,
39 based on quantitative determination of potential exhaust gas levels of PFOA that may emanate
40 from laboratory-scale combustion testing under conditions representative of typical municipal
41 waste combustor operations in the United States.

1 EPA believes that these incineration studies of fluoropolymers will develop data needed
2 by the Agency to determine whether municipal and/or medical waste incineration of
3 fluoropolymers is a potential source of PFOA that may contribute as a pathway to environmental
4 and human exposures. The data may also be used to inform screening level human and
5 environmental exposure assessments. In addition, the data may also be used by other Federal
6 agencies (e.g., the Agency for Toxic Substances and Disease Registry (ATSDR), the National
7 Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health
8 Administration (OSHA), and the Consumer Product Safety Commission (CPSC), the Food and
9 Drug Administration (FDA)) in assessing chemical risks and in taking appropriate actions within
10 their programs. It is intended that the data generated under this ECA will identify whether the
11 incineration of fluoropolymers contributes to the sources and pathways of environmental and
12 human exposure to PFOA.
13
14

15 **VI. SCOPE OF THE PROGRAM**

16
17 The scope of this testing program is described in Parts VII and VIII below and will
18 consist of the testing listed in Table 1 in accordance with the test standards specified in Table 1
19 and described in Appendix B.1 and C.1 - C.2 as annotated by Appendix D.1- D.4 to this ECA
20 ("Test Standards") and submitting the reports and documents specified in Table 1 in accordance
21 with the deadlines set forth in Table 1 and described in Appendices C.1 - C.2 and E.1- E.3.
22
23

24 **VII. DESCRIPTION OF THE TESTING PROGRAM**

25
26 The program has two segments as follows: Phase I PFOA Transport Testing and Phase II
27 Fluoropolymer Incineration Testing.
28

29 A. Phase I PFOA Transport Testing: Phase I will consist of quantitative transport
30 efficiency testing for PFOA. Phase I testing for PFOA transport efficiency is specified in the
31 Phase I PFOA Transport Testing segment of Table 1 and described in Appendix C.1 as annotated
32 by Appendix D.1 and D.2. At the conclusion of Phase I testing, the Companies, will provide
33 EPA with a letter report summarizing the results. In the event that the transport efficiency of
34 PFOA or total fluorine (as determined by the formulas in Appendix C.1) is equal to or greater
35 than 70%, testing will proceed to Phase II Fluoropolymer Incineration Testing. In the event the
36 transport efficiency of PFOA and total fluorine (as determined by the formulas in Appendix C.1)
37 are both individually less than 70%, the Companies will initiate a technical consultation with
38 EPA (see Part VII. B. and Part VIII of this ECA).
39

40 B. Phase II Fluoropolymer Incineration Testing: This testing, specified in the Phase II
41 Fluoropolymer Incineration Testing segment of Table 1 and described in Appendix C.2 as

1 annotated by Appendices B.1, D.1, D.2, D.3, D.4, E.2 and E.3; and will include the following for
2 each fluoropolymer composite to be tested under this ECA: 1) elemental analysis, 2) combustion
3 stoichiometry, 3) thermogravimetric analysis, 4) laboratory-scale combustion testing, and, 5) if
4 required under this ECA,³ release assessment reporting.
5
6

7 **VIII. PHASE I TECHNICAL CONSULTATION**

8

9 A. Following completion of Phase I and prior to the initiation of Phase II, the
10 Companies will submit a letter report to EPA with the results for the transport efficiency across
11 the laboratory-scale thermal reactor system, as determined from Phase I testing.
12

13 B. If the transport efficiency for either PFOA or Total Fluorine (as determined by the
14 formulas in Appendix C.1) is greater than or equal to 70%, the Companies will proceed to Phase
15 II testing.
16

17 C. If the transport efficiency for PFOA and Total Fluorine (as determined by the
18 formulas in Appendix C.1) are both individually less than 70%, a Technical Consultation will be
19 held between the Companies and EPA. The objective of the Technical Consultation will be to
20 reach agreement on how to proceed. The technical consultation will review the outcomes of the
21 Phase I PFOA Transport Testing, discuss the feasibility of proceeding with Phase II Testing as
22 described in this ECA, and discuss whether additional modifications are needed to the test
23 standards and/or protocols described in Appendices B, C and D for Phase I PFOA Transport
24 Testing and/or Phase II Fluoropolymer Incineration Testing. Specifically, the technical
25 consultation will address: (1) whether the data from the Phase I PFOA Transport Testing
26 segment provide a sufficient basis for conducting the laboratory-scale incineration testing
27 specified in the Phase II Fluoropolymer Incineration Testing segment; (2) the nature and scope of
28 any additional Phase I work that may be required prior to the commencement of Phase II testing
29 and reporting (e.g., modifications to the Advanced Thermal Reactor System) as described in Part
30 VII. B. of this ECA), and/or (3) the nature and scope of modifications to the protocols and test
31 standards for Phase I and/or Phase II testing, or the identification of additional testing, that may
32 be needed to complete the testing under this ECA.
33

³ 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.

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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

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1 Companies will not be deemed by EPA to be in violation of this ECA and will not be subject to
2 penalties or other enforcement actions, as described in Part XII. of this ECA. However, in such
3 cases, EPA will use its professional judgement to determine the scientific adequacy of the test
4 results and any repeat testing that is determined by EPA to be necessary will be required either
5 under a separate ECA or pursuant to a rule promulgated under section 4(a) of TSCA, 15 U.S.C.
6 2603(a).

7
8 B. The Companies and EPA will consult in a good faith effort to consider the need
9 for Test Standard modifications if either EPA or the Companies desire such modifications.
10 Modifications to this ECA will be governed by 40 CFR 790.68 (see Part XI. of this ECA).

11
12 C. All testing required by this ECA must be conducted in accordance with the EPA
13 Good Laboratory Practice Standards (GLPS) found at 40 CFR part 792. The standard operating
14 procedures (SOPs) required by 40 CFR 792.81 shall consist of Appendices C.1., C.2.3, C.2.4.,
15 and D.1 for Phase I PFOA transport efficiency testing, Phase II thermogravimetric analysis, and
16 Phase II combustion testing.

17
18 The compositing facility(ies) tasked to assemble the test substance composite(s) will not
19 be subject to GLPS as specified at 40 CFR 792. Assembly of the composite test substances must
20 be performed in accordance with Appendix A.4. A QAPP(s) detailing composite assembly(ies)
21 must be submitted in accordance with EPA QA/R5 guidance (as specified in Appendix F) to
22 address needed elements to ensure data quality, integrity, and usability (see Part X of this ECA).

23
24
25 **X. STUDY PLAN(S) AND QUALITY ASSURANCE PROJECT PLAN(S) (QAPP)**

26
27 The Companies will submit a study plan to EPA for each test conducted pursuant to this
28 ECA prior to the initiation of testing in accordance with 40 CFR 790.62. (For this ECA, EPA
29 will not require the plan(s) under this Part of the ECA to be submitted “no later than 45 days
30 prior to the initiation of testing,” as specified at 40 CFR 790.62(a)). The content of the study
31 plan(s) submitted to EPA will comply with 40 CFR 790.62(b). This ECA and/or its appendices
32 satisfy the applicable requirements of 40 CFR 790.62(b)(2), (8), (9), and (10). A study plan may
33 cross reference the applicable provisions of the ECA and/or its appendices to satisfy these
34 requirements. Modifications to the study plan(s) under this part of the ECA will be governed by
35 the procedures of 40 CFR 790.62(c) except that the 15 day time periods in 40 CFR 790.62(c) (2)
36 and (3) will be 45 day time periods. All study plan(s) will become part of the official record
37 (Docket Control Number [OPPT-2003-0071]).
38

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1 The Companies must submit Quality Assurance Project Plan(s) (QAPP) prepared in
2 accordance with EPA guidance ⁴ as annotated in Appendix F.

3
4
5 **XI. MODIFICATIONS TO THIS ENFORCEABLE CONSENT AGREEMENT**

6
7 Modifications to this ECA, if any, will be made according to the procedures contained in
8 40 CFR 790.68.

9
10
11 **XII. FAILURE TO COMPLY WITH THE ENFORCEABLE CONSENT AGREEMENT**

12
13 The Companies acknowledge that a violation of the requirements of this ECA will
14 constitute a "prohibited act" under section 15(1) of TSCA, 15 U.S.C. 2614(1), and will trigger all
15 provisions applicable to a section 15 violation. Further information regarding the implications of
16 failure to comply with the consent agreement is provided in 40 CFR 790.65.

17
18
19 **XIII. EPA MONITORING OF ENFORCEABLE CONSENT AGREEMENT TESTING**

20
21 EPA may conduct monitoring activities of the testing conducted under this ECA such as
22 laboratory inspections and study audits, as permitted under section 11 of TSCA, 15 U.S.C. 2610.

23
24
25 **XIV. SUBMISSIONS TO EPA AND CONFIDENTIALITY OF INFORMATION**

26
27 A. All reporting required by this ECA must be submitted by the Companies to EPA
28 by the dates specified in Table 1 unless otherwise authorized by EPA pursuant to 40 CFR 790.68.
29 A paper copy of a document shall be deemed submitted when it is either postmarked or placed in
30 the hands of a commercial courier service for overnight delivery to EPA at the appropriate
31 address specified in Part XIV. B. of this ECA. Hand-delivered documents are deemed submitted
32 upon receipt at the appropriate address specified in Part XIV. B. of this ECA. Electronically
33 transmitted documents are deemed delivered upon transmission and must follow the procedures
34 for electronic submissions specified in Part XIV.B. of this ECA. Under any of the above

⁴ 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>.

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1 circumstances, it is the responsibility of the Companies to maintain appropriate documentation
2 for proof of transmittal for all reporting required by this ECA.

3
4 In accordance with 40 CFR 790.62 (d), the Companies will submit interim progress
5 reports to EPA informing the Agency of the progress of the testing. The schedule for interim
6 progress reports is specified in Table 1 of this ECA. The information required in interim
7 progress reports is specified in Appendix E.1.

8
9 B. All documents submitted to EPA under this ECA must be identified by the Docket
10 ID Number (OPPT-2003-0071) and the name: ECA on Laboratory-Scale Incineration Testing of
11 Fluoropolymers.

12
13 Submissions made by mail should be sent to: Document Control Office (7407M), Office
14 of Pollution Prevention and Toxics (OPPT), Environmental Protection Agency, 1200
15 Pennsylvania Avenue, NW, Washington, DC 20460-0001.

16
17 Submissions made by hand delivery or courier should be delivered to: OPPT Document
18 Control Office (DCO) in the EPA East Building, Room 6428, 1201 Constitution Avenue, NW,
19 Washington, DC and marked Attention: Docket ID Number OPPT- 2003 -0071. The DCO is
20 open from 8 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The telephone
21 number for the DCO is (202) 564-8930.

22
23 Submissions made electronically should be sent to: OPPT Document Control Office at
24 <http://www.oppt.ncic@epa.gov>, Attention: Docket OPPT-2003-0071. Electronic submissions do not
25 supersede the requirements of Part XIV. C. of this ECA. Electronic submissions for all reporting
26 required by this ECA must be submitted as attachments to the e-mail and must be in text-
27 searchable, PDF format. The e-mail transmitting any report required by this ECA and all
28 electronic attachments will be included as part of the submission. E-mail addresses are
29 automatically captured by the EPA e-mail system and become part of the submission that is
30 placed in the official public docket, and will be made available in the EPA electronic public
31 docket. Upon receipt of the electronic submission, a "receipt date" is entered into the metadata to
32 signify the date the document(s) submitted by the Company(ies) was received by EPA. EPA is
33 not responsible for failure to meet a date of submission requirement if the EPA fire wall rejects
34 an electronic submission containing a virus or other adverse electronic coding. It is the
35 obligation of the submitter to confirm that: 1) electronic submissions are received by EPA on the
36 date of transmission, 2) the electronic submission and all attachments are legible, and 3) the
37 electronic submission and all attachments meet the electronic format requirements of the EPA
38 Document Control Office. Do not submit any report containing confidential business
39 information (CBI) to EPA by e-mail. For submissions containing CBI see Part XIV.D of this
40 ECA.

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1 C. The Companies must submit six (6) paper copies of each version (Public and CBI)
2 for all reports described in Table 1 and Part VII A. and B. of this ECA. In addition, an electronic
3 file, on a disk or CD ROM, of all documents submitted under this ECA (marked as CBI where
4 appropriate and in text-searchable, PDF format) will be provided to EPA. To avoid damage
5 caused by mail scanning technologies, the electronic file on disk or CD ROM must be hand
6 delivered or sent by courier to the address cited in Part XIV. A. See Part XIV. D. regarding
7 submissions containing CBI.
8

9 D. Any document submitted to EPA that contains data or information for which a
10 Signatory Company makes a claim of confidentiality (see Part XV of this ECA), must be
11 submitted as two separate versions. One version must be complete, with the information being
12 claimed as confidential marked in the manner described under 40 CFR 790.7. The other, public
13 version must be identical in all respects except that all of the information claimed as confidential
14 shall be redacted. EPA will place the public version in the Agency's docket. The complete
15 version will be treated in accordance with EPA confidentiality regulations in 40 CFR part 2 and
16 40 CFR 790.7.
17

18 Data or other information that are considered to be CBI must not be submitted
19 electronically to EPA by e-mail. Any part or all of data or other information claimed as CBI
20 must be so marked. If the CBI submission is on diskette or CD ROM, mark the outside of the
21 diskette or CD ROM as CBI and then identify electronically within the diskette or CD ROM the
22 specific information that is CBI. Information marked as CBI will not be disclosed except in
23 accordance with procedures set forth in 40 CFR part 2 (see Part XV of this ECA).
24

25 Any claims of confidentiality for information submitted under this ECA will be made
26 under the terms of 40 CFR 790.7. If no claim of confidentiality is made by the submitter of the
27 information at the time of submission, the information will be deemed by EPA, in accordance
28 with 40 CFR 790.7, to be public, and may be made available to the public without further notice
29 to the submitter. Information claimed as confidential will be treated in accordance with the
30 procedures in 40 CFR part 2 and to section 14 of TSCA, 15 U.S.C. 2613.
31

32 **XV. PUBLICATION AND DISCLOSURE OF TEST RESULTS**

33
34
35 All results of testing conducted pursuant to this ECA will be announced to the public by
36 EPA in accordance with the procedures specified in section 4(d) of TSCA, 15 U.S.C. 2603(d).
37 Disclosure by EPA of data generated by such testing to the public or other government agencies
38 will be governed by section 14(b) of TSCA, 15 U.S.C. 2613(b), and 40 CFR part 2. The CBI
39 version of a document will only be provided to another U.S. government organization in
40 compliance with the procedures described in the OPPTS TSCA CBI Protection Manual.
41

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 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 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 Ave., NW., Washington, DC. For materials available in the electronic docket, once in the system, select "search," then key in the appropriate Docket ID number (OPPT-2003-0071).

1
2 **XX. EFFECTIVENESS**
3

4 This ECA may be signed in separate counterparts. This ECA will not be effective unless
5 signed by each of the Companies and by EPA. This ECA will take effect on the date of
6 publication of the Federal Register notice announcing the issuance of the Order that incorporates
7 this ECA.
8
9

10 **XXI. RIGHTS OF THE COMPANIES**
11

12 By signing this ECA, the Companies waive their right to challenge EPA's authority to
13 assess penalties for violations of the terms of this ECA. This waiver does not affect any other
14 rights that the Companies may have under TSCA, including the right to dispute the amount of
15 any penalty or to dispute factually whether a violation of the terms of this ECA has occurred, or
16 to seek judicial review of any rule that may be adopted by EPA that imposes requirements to test
17 any of the fluoropolymer chemicals listed in Appendix A.1 to this ECA.
18
19

20 **XXII. RESERVATION OF RIGHTS BY COMPANIES**
21

22 By signing this ECA, the Companies are not admitting that the requirements of TSCA
23 Section 4 have been satisfied for promulgating a test rule to generate the data required by this
24 ECA.
25

26 The Companies contend that the documents generated for the incineration testing
27 program under this ECA are protected from public disclosure under 5 U.S.C. section 552(b)(4)
28 and 15 U.S.C. section 2613(a) and do not constitute studies subject to disclosure under 15
29 U.S.C. section 2613(b). Accordingly, the public information disclosure provisions of this ECA
30 are, in the view of the Companies, a waiver of legal rights.
31
32
33

1 **XXIII. IDENTITY OF THE COMPANIES AND PRINCIPAL TEST SPONSOR**

2
3 The Principal Test Sponsor is:

4
5 Fluoropolymer Manufacturers Group
6 [Name of technical contact person]
7 [ADDRESS]
8 [Phone Number]
9

10
11 The Companies subject to this ECA are:

12
13
14 AGC Chemicals Americas, Inc.
15 [ADDRESS]
16

17
18 Daikin America, Inc.
19 [ADDRESS]
20

21
22 Dyneon, LLC
23 [ADDRESS]
24

25
26 E.I. du Pont de Nemours and Company
27 [ADDRESS]
28

Special Page Header: ECA Copy # 3 AGC Chemicals Americas, Inc.

XXIV. SIGNATURE

TEST SPONSOR

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

ECA Subject Chemicals for AGC Chemicals Americas, Inc.		
CAS No.	Chemical Name	Composite(s)
[Note to the Interested Parties: Further information on the chemicals that will comprise each composite is being gathered from the Companies.]		

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

Name: _____
 Title: _____
 Address: _____
 Phone Number: _____

Date: _____

 [NAME]
 [TITLE]
 AGC Chemicals Americas, Inc.
 [ADDRESS]

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. There may be both a Public and CBI version of this page in those instances where 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 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).

Special Page Header: ECA Copy # 4

Daikin America, Inc.

XXIV. SIGNATURE

TEST SPONSOR
Daikin America, Inc.^{1, 2}

ECA Subject Chemicals for Daikin America, Inc.		
CAS No.	Chemical Name	Composite(s)
[Note to the Interested Parties: Further information on the chemicals that will comprise each composite is being gathered from the Companies.]		

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

Name: _____
 Title: _____
 Address: _____
 Phone Number: _____

Date: _____

 [NAME]
 [TITLE]
 Daikin America, Inc.
 [ADDRESS]

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 may be both a Public and CBI version of this page in those instances where 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).

Special Page Header:

ECA Copy # 5

Dyneon, LLC

XXIV. SIGNATURE

TEST SPONSOR
Dyneon, LLC^{1, 2}

ECA Subject Chemicals for Dyneon, LLC		
CAS No.	Chemical Name	Composite(s)
[Note to the Interested Parties: Further information on the chemicals that will comprise each composite is being gathered from the Companies.]		

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

Name: _____
 Title: _____
 Address: _____
 Phone Number: _____

Date: _____

 [NAME]
 [TITLE]
 Dyneon, LLC
 [ADDRESS]

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 may be both a Public and CBI version of this page in those instances where 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).

Special Page Header: ECA Copy # 6 E.I. du Pont de Nemours and Company

XXIV. SIGNATURE

TEST SPONSOR

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

ECA Subject Chemicals for E. I. du Pont de Nemours and Company		
CAS No.	Chemical Name	Composite(s)
[Note to the Interested Parties: Further information on the chemicals that will comprise each composite is being gathered from the Companies.]		

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

Name: _____
 Title: _____
 Address: _____
 Phone Number: _____

Date: _____

[NAME]
 [TITLE]
 E.I. du Pont de Nemours and Company
 [ADDRESS]

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. There may be both a Public and CBI version of this page in those instances where 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 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).

1 Special Page Header:

2 ECA Copy # 1 EPA PUBLIC VERSION
3 CONTAINS NO CONFIDENTIAL BUSINESS INFORMATION
4

5 Special Page Header:

6 ECA Copy # 2 EPA CBI VERSION
7 CONTAINS CONFIDENTIAL BUSINESS INFORMATION
8
9

10 **XXIV. SIGNATURE**
11
12
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16
17

18 **UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
19
20
21
22
23
24
25
26
27

28
29 Date: _____

30 Stephen L. Johnson
31 Assistant Administrator
32 Office of Prevention, Pesticides, and Toxic Substances
33

34
35 Address:

U.S. Environmental Protection Agency
Office of Prevention, Pesticides, and Toxic Substances
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
36
37
38
39
40

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

Phase I PFOA Transport Testing	Test Standard	Deadline (Months) ¹
Phase I Study Plan(s)	40 CFR 790.62 (b) as annotated by Part X of the ECA	2 ³
Phase I QAPP(s)	Appendix F of the ECA	3 ³
Quantitative PFOA transport testing ²	Appendix C.1 of the ECA	8 ^{4 5}

¹ A month is thirty calendar 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 6 months beginning six months 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 months after the effective date of this ECA when submission is due.

⁴ Number of months 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 2 months of submission of the Phase I QAPP(s), then this deadline is extended by 6 months 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 Months ¹
Phase II Study Plan(s)	40 CFR 790.62 (b) as annotated by Part X of the ECA	6 ³
Phase II QAPP(s)	Appendix F of the ECA	12 ³
Receipt of components by compositing facility(ies)	Part XXIV and Appendix A.3 of the ECA	6 ⁷
Elemental Analysis ⁶	Appendix C.2.1 of the ECA	15 ⁸
Combustion Stoichiometry ⁶	Appendix C.2.2 of the ECA	15 ⁸
Thermogravimetric Analysis ⁶	ASTM E1868, as modified in Appendix B.1 of the ECA	15 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	15 ⁸
Release assessment report	Appendix E.2 of the ECA	15 ⁹

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

⁷ Number of months from the submission of a Phase I letter report signifying that Phase II testing can proceed or the approval of the Phase II QAPP(s), whichever is latter, 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 months 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) 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...)

1
2

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).

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, may contain 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 -(CF₂)_x- which is a potential source of PFOA. For all fluoropolymer products used in commerce, the -(CF₂)- 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.

¹ There is a Public and CBI version of Appendix A.1 because 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).

PUBLIC VERSION - CONTAINS NO CBI

FLUOROPOLYMERS SUBJECT TO THIS ECA		
No.	CAS No.	Chemical Name
1	9002-84-0	Ethene, tetrafluoro-, homopolymer
2	25067-11-2	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with tetrafluoroethene)
3	26655-00-5	Propane,1,1,1,2,2,3,3-heptafluoro-3-[(trifluoroethenyl)oxy]-, polymer with tetrafluoroethene
4	25190-89-0	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene
5	68258-85-5	1-Hexene, 3,3,4,4,5,5,6,6,6-nonafluoro-, polymer with ethene and tetrafluoroethene
6	35560-16-8	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with ethene and tetrafluoroethene
7	9011-17-0	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene
8	54675-89-7	1-Propene, polymer with 1,1-difluoroethene and tetrafluoroethene
9	27029-05-6	1-Propene, polymer with tetrafluoroethene
10	26425-79-6	Ethene, tetrafluoro-, polymer with trifluoro(trifluoroethoxy)ethene
11	9010-75-7	Ethene, chlorotrifluoro-, polymer with 1,1-difluoroethene
12	31784-04-0	Ethene, tetrafluoro-, polymer with trifluoro(pentafluoroethoxy)ethene
13	CBI <u>Accession No. ????</u>	<u>??generic name ??</u>

1 **APPENDIX A.2**
2 **RATIONALE FOR SELECTING COMPOSITES TO BE TESTED**

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

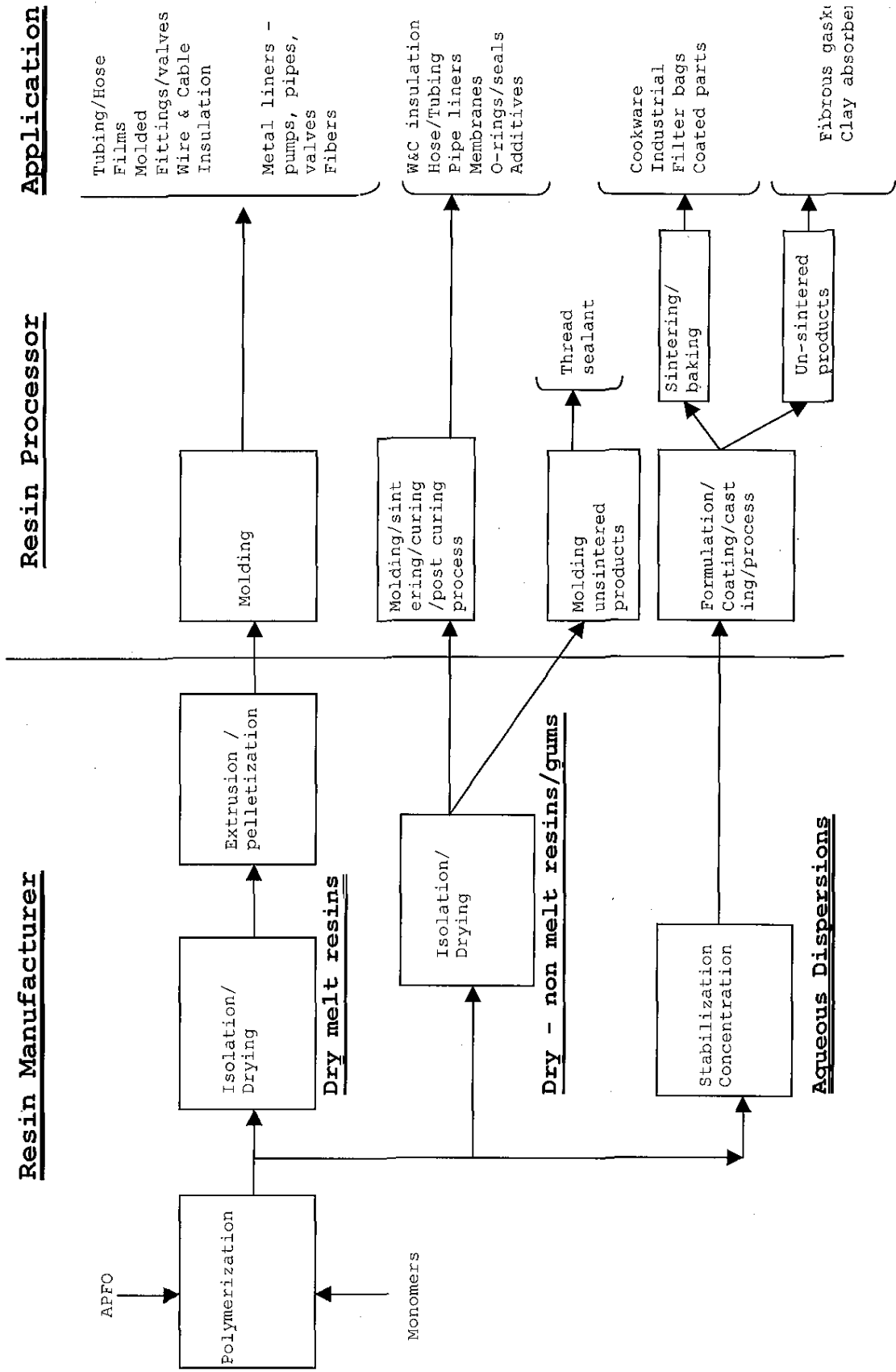
- 7
8 • Dry melt resins
9 • Dry non-melt resins and gums
10 • Aqueous dispersions

11
12 These three broad categories can in turn be divided into
13 four representative classes as follows:

- 14
15 • Dry melt resins
16 1. FEP, PFA, THV, ETFE, HTE
17
18 • Dry non-melt resins and gums
19 2. Dry non-melt resins
20 3. Fluoroelastomers (dry non-melt gums)
21
22 • Aqueous dispersions
23 4. PTFE, FEP, PFA, THV
24

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

Figure A.2-1. Fluoropolymer Industry Overview



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

3
4 The four composite test substances for this test program
5 are presented below in Table A.3-1 with the fluoropolymer
6 types, CAS numbers, and associated monomers for these
7 fluoropolymers. Each fluoropolymer used in each relevant
8 test substance composite will have been made using APFO.
9

10 **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	68258-85-5	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
		27029-05-6	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	

11
12 Confidential business information (CBI) regarding the
13 chemical identity of Low temperature elastomers has been
14 submitted to EPA under separate cover.

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

3
4 4.1 Approach

5
6 A composite mixture of representative fluoropolymers, as
7 solids, will be prepared for each of the four test
8 substance composites.

9
10 The polymer samples will be first quality product polymer,
11 substantially free of inorganic constituents. Each sample
12 will be from a representative grade for each applicable
13 fluoropolymer type from each applicable company.

14
15 A hypothetical example for Composite Z in Table A.4-1 below
16 shows how the composites will be assembled. In this
17 example with 4 types across 4 companies, there are 11 x's.
18 Hence, composite Z would be made up of 11 equal proportions
19 of the materials indicated with an x.

20
21 **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	

22
23 4.2 Preparation

24
25 Representative samples of each component from each
26 applicable company for each composite will be sent to the
27 compositing facility(ies) in packaging customarily used for
28 product sample packaging or in polyethylene, polypropylene,
29 or glass containers.

30
31 Each composite will be prepared under conditions designed
32 to prevent cross-contamination and designed to assure
33 solids temperatures less than or equal to 60 °C.

34
35 Following preparation of each composite, the composite will be
36 placed in a polyethylene, polypropylene, or glass container.

37
38 4.2.1 Composite 1

39
40 Dry non-melt resins are available in powder form. Equal

1 weights of the powder form of each of the two types of
2 components (following the approach in the example for
3 Composite Z in Section 4.1 above) will be mixed together in
4 dry form to yield Composite 1.

5 6 4.2.2 Composite 2

7
8 FEP, PFA, THV, ETFE, and HTE dry melt resins are available
9 in powder form. Equal weights of the powder form of each
10 component (following the approach in the example for
11 Composite Z in Section 4.1 above) will be mixed together in
12 dry form to yield Composite 2.

13 14 4.2.3 Composite 3

15
16 Fluoroelastomers are available in slab, lump, or sheet
17 form. Composite 3 will be prepared following one of the
18 following approaches:

19
20 a) Equal weights of each component (following the approach
21 in example for Composite Z in Section 4.1) will be mixed
22 on a rubber mill to produce a homogenous slab of preset
23 thickness to yield Composite 3.

24
25 Or

26
27 b) Each component of Composite 3 will be cryogenically
28 cooled (to make the elastomers brittle) and size-reduced
29 (e.g., ground) to produce powder. Equal weights of the
30 powder form of each component (following the approach in
31 the example for Composite Z in Section 4.1) will be mixed
32 together in dry form to yield Composite 3.

33 34 4.2.4 Composite 4

35
36 Aqueous dispersions of PTFE, FEP, PFA, and THV are
37 available as dispersions containing 20 to 60% fluoropolymer
38 solids by weight. Composite 4 will be prepared following
39 one of the following approaches:

40
41 a) Equal weights (on a dry solids basis) of each component
42 in aqueous dispersion form (following the approach in
43 example for Composite Z in Section 4.1) will be mixed
44 together in liquid form. Solids will be separated from
45 the resulting liquid composite to yield low water content
46 (i.e., drip free) fine solids.

1

2 Or

3

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

10

11 4.3 Verification

12

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

21

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

25

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

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