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ROBERT A. BILOTT 859.547.4306 bilott@taftlaw.com

January 3, 2018

BY EMAIL AND REGULAR U.S. MAIL

Alethea M. Huyser Assistant Solicitor General 445 Minnesota Street Suite 1100 St. Paul, Minnesota 55101-2128

Re: Perfluorochemicals in Minnesota

Dear Ms. Huyser:

We understand that you are one of the attorneys representing the State of Minnesota in connection with its ongoing investigation into the potential public health threat posed by perfluorochemicals (including PFOA and PFOS), including what has been known about the toxicity of and potential health effects associated with exposure to and disposal of perfluorochemicals in the environment. In connection with this current potential public health threat, the State of Minnesota requested our assistance in locating certain documents that might shed light on the history and timing of such information in Minnesota, given our involvement in litigation against E. I. du Pont de Nemours and Company ("DuPont") through which we gained access to certain potentially-relevant, historic records that might not otherwise be available to the State.

Thus, pursuant to the State's request for assistance in investigating and responding to this on-going, potential public health threat, we have attached several documents produced in litigation from the non-confidential business records of DuPont (as indicated by the "EID" document numbering prefix),¹ which might be responsive. We understand that the documents originated with The 3M Company and were sent to

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      Taft Stettinius & Hollister LLP
      Chicago / Cincinnati / Cleveland / Columbus / Dayton / Indianapolis / Northern Kentucky / Phoenix

      21807977.1
      Exhibit

      1471
      STATE_07543958

      State of Minnesota v. 3M Co.,
      State of Minnesota v. 3M Co.,
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1471.0001

Court File No. 27-CV-10-28862

¹ One of the documents also has a document control number of "P1.8195," which reflects the fact that it is a non-confidential, plaintiff's trial exhibit that was used at a recent public trial against DuPont.

Alethea M. Huyser January 3, 2018 Page 2

DuPont during the course of DuPont's long-term business relationship with 3M with respect to certain perfluorochemical issues and products.

Sincerely yours, obert A. Bilott

Encls.

STATE_07543959

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	3M General Offices 3M Center SL Paul, MN 55144-1000 1710 642 733 1110 661
	MATERIAL SAFETY DATA SHEET
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	Copyright, 1997, Minnesota Mining and Manufacturing Company. All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: 1) the information is copied in full with no changes unless prior agreement is obtained from 3M, and 2) meither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.
	DIVISION: SPECIALTY CHEMICALS DIVISION TRADE NAME: FC-118 FLUORAD Brand Fluorochemical Surfactant
	ID NUMBER/U.P.C.: 98-0211-4832-9 00-51135-02697-7 98-0211-4885-7 00-51135-02745-5 98-0211-8012-4 00-51135-10863-5 98-0211-8083-5 00-51135-10918-2 98-0211-8858-0 00-51135-10971-7
	ISSUED: FEBRUARY 7, 1997 SUPERSEDES: AUGUST 23, 1996 DOCUMENT: 10-4221-7
-	1, INGREDIENT C.A.S. NO. PERCENT
•	WATER 7732-18-5 80 AMMONIUM PERFLUOROOCTANOATE 3825-26-1 18 21 AMMONIUM PERFLUOROHEPTANOATE 6130-43-4 0.1 - 1.0 AMMONIUM PERFLUOROHEPTANOATE 21615-47-4 0 - 0.1 AMMONIUM PERFLUOROHEPTANOATE 68259-11-0 0.1 - 1.0
	2. PHYSICAL DATA BOILING POINT: 100 C
	(Typical) VAPOR PRESSURE:
	Calc 0 20C VAPOR DENSITY:
	EVAPORATION RATE:
	PERCENT VOLATILE. 80 %
	pH: ca. 5 VISCOSITY: N/D MELTING POINT. N/A APPEARANCE AND ODOR: Light colored liquid; slight odor.
	3. FIRE AND EXPLOSION HAZARD DATA
	FLASH POINT:
	Abbreviations: N/D - Not Determined N/A - Not Applicable
	EID599980

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	3M General Offices 3M Center St. Paul, MN 55144-1000 1711 612 733 1110
•	MATERIAL SAFETY DATA SHEET
3	VI
	MSDS: FC-118 FLUORAD Erand Fluorochemical Surfactant FEBRUARY 7, 1997 PAGE: 2 of 6
	3, FIRE AND EXPLOSION HAZARD DATA (continued)
	positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. UNUSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition section for products of combustion.
	4. REACTIVITY DATA
	STABILITY: Stable Incompatibility - Materials to avoid:
	Not Applicable HAZARDOUS POLYHERIZATION: Will Not Occur HAZARDOUS DECONFOSITION PRODUCTS: Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen Fluoride, Ammonia.
	5. ENVIRONMENTAL INFORMATION
	SPILL RESPONSE: Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. In the U.S.A., call (612) 733-1110 or (612) 733-6100 for 24-hour spill assistance. Contain spill. Cover with absorbent material. Collect spilled material.
	For spills to ground: Collect contaminated soil. Pump contaminated water from puddles or stagnant storm sewers. Place collected waste in approved containers, and seal. For spills to ground or surface water: Notify appropriate authorities. Contact 3M to evaluate further needs.
	RECOMMENDED DISPOSAL: Incinerate in an industrial or commercial facility in the presence of a combustible material. Combustion products will include HF.
	Pass contaminated water through anion exchange resin. If necessary, contact 3M for assistance.
	ENVIRONMENTAL DATA: Data for product solids: Chemical Oxygen Demand (COD): Nil (.000700g/g). Biochemical Oxygen Demand (BOD20): Nil; 96-Hr. LC50, Bluegill Sunfish (Lepomis macrochirus): 569 mg/L; 96-Hr. LC50, Fathead Minnow(Pimephales promelas): 766 mg/L; 48-Hr EC50, Daphnia magna: 632 mg/L; 14-Day EC50 (call dry weight), Green Algae (Selenastrum capricornutum) 73 mg/L. Soli Adsorption Coefficient (Koc): 17, indicates very high mobility. (Study used a sandy loam soil).
•	REGULATORY INFORMATION: Volatile Organic Compounds: N/A. VOC Less H20 & Exempt Solvents: N/A.
	Abbreviations: N/D - Not Determined N/A - Not Applicable.
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•	MATERIAL SAFETY DATA SHEET		
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	ISDS: FC-118 FLVORAD Brand EBRUARY 7, 1997	Fluorochemical Surfactant	PAGE: 3 of 6
	5. ENVIRONMENTAL INFORMAT	ION (continued)	<u> </u>
	Since regulations van before disposal. U. EPA Hazardous).	ry, consult applicable regulations S. EPA Hazardous Waste Number ≈ No	or authorities one (Not U.S.
	registration require	is product are in compliance with t ments of TSCA, EINECS, CDSL and AIC	
	EPCRA HAZARD CLASS: FIRE HAZARD: No PRE:	SSURE: No REACTIVITY: No ACUTE: Y	es CHRONIC: Yes
5	6. SUGGESTED FIRST AID	· · · · · · · · · · · · · · · · · · ·	
	EYE CONTACT: Immediately flush ey minutes. Get immedia	es with large amounts of water for te medical attention.	at least 15
•	SKIN CONTACT: Immediately wash skin contaminated clothin Wash contaminated clo shoes.	n with soap and large amounts of wa g. If signs/symptoms occur, call a othing before reuse and dispose of	eter. Remove physician. contaminated
	INHALATION: If signs/symptoms oc signs/symptoms contin	cur, remove person to fresh air. It nue, call a physician.	
	IF SWALLOWED: Do not induce vomition	ng. Drink two glasses of water. Cal	ll a physician.
-	7. PRECAUTIONARY INFORMAT	ION	
	EYE PROTECTION: Avoid eye contact. N	Wear vented goggles.	
,	SKIN PROTECTION: Avoid skin contact. material. A pair of recommended: butyl i personal protection : covering, coveralls. be made of either of polyethylene/polyving	Wear appropriate gloves when hand gloves made from the following mai rubber. Use one or more of the fol items as necessary to prevent skin Protective garments (other than g the following materials; ylidene chloride (Saranex)	ling this terial(s) are Llowing contact: head ploves) should
	Coverall made of Tyve	ek(r). Wear rubber boots when clea	aning up spills.
	ventilation to mainta	: local exhaust ventilation. Provia ain emissions below recommended exp on is not adequate, use appropriate	osure limits.
-	RESPIRATORY PROTECTION Avoid breathing of v	: apors, mists or spray. Avoid breat	thing of
A	bbreviations: N/D - Not D	etermined N/A - Not Applicable	
			EID599982

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<pre>FERUARY 7, 1997 [Gentlined] FERUARY 7, 1997 [Gentlined] A Definition of containants and in airborne material. Salest one of the following NIOSH spoproved respirator, full-face subplied air respirator. FINITION of set for the solubling air respirator. FINITION of the face subplied air respirator.</pre>	•		
<pre>FERUARY 7, 1997 FAGE: 4 of 6 1. FREEAUTIONARY INFORMATION sirborne material. Salect one of the following NIOSH sporeed respirators beard on alcohorne concentration of conteminants and in respirator, full-face supplied air respirator. FILE ALCOMENDED STORAGE: Denot store containers on their sides. Store at room temperatures, Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Near container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Keep container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Near container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Near container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Note: N</pre>	3M		
<pre>sindorne material. Salect one of the following NIOSH approved respirators based on airborne concentration of contaminants and in respirators based on airborne concentration of contaminants and in respirators based on airborne concentration of contaminants and in respirators based on airborne concentration of contaminants and in respirators full frace supplied air respirator. FREMENTION OF ACCIDENTAL INGESTION: Determinant of the sole of the following NIOSH approved respirators full frace supplied air respirator. FREMENTION OF ACCIDENTAL INGESTION: Determinant of the sole of the</pre>	ľ		6
respirators based on dirborne concentration of contaminants and incomponent with USM regulations; full-face supplied air respirator. HEVENNION OF ACCIDENTAL INFERSION: Do not eat, drink or smoke when using this product. Wash exposed grees throughly with scep and water. Wash hends after handling and before cuting. HECOMMENDER STORAGE: Do not store containers on their sides. Store at room temperature. Kee container closed when not in use. HER AND EXPLOSION AFOIDANCE: Kee container tightly close productions, section 7.) HIS MAZARD RATINGS: HEALTH: 2 FLAMMABILITY. 1 REACTIVITY. 0 PERSONAL PROTECTION X (See precautions, section 7.) HIS MAZARD RATINGS: HEALTH: 2 FLAMMABILITY. 1 REACTIVITY. 0 PERSONAL PROTECTION AND AND AND AND AND AND AND AND AND AN	5	7. PRECAUTIONARY INFORMATION (continued)	
Do not sat, drink or smoke when using this product. Wash exposed areas throughly with scap and water. Wash hands exposed before sating. RECOMMENDED STORAGE: Do not store containers on their sides. Store at room temperature. Keep container lightly closed. No smoking while handling this material. OTHER PRECAUTIONARY INFORMATION: HHIS HAZED RAINORY. HEATHLY I FLANTHY! I REACTIVITY: 0 PERSUNAL PROTECTION: X (See precautions, section 7.) PERSUNAL PROTECTION: X (See precautions, section 7.) PERSUNAL PROTECTION: X (See precautions, section 7.) NOTE NONE NONE NONE NORE DIAL PROTECTION: X (See precautions, section 7.) REMONING PERFLUORDOCTANDATE		respirators based on airborne concentration of contaminante and in	
Do not store containers on their sides. Store at room temperature. Keep container tightly closed. No smoking while handling this material. OTHER PRECAUTIONARY INFORMATION: HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X (See precautions, section 7.) PERSONAL PROTECTION: X (See precautions, section 7.) NUCREDIENTS NUCREDIENT		Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and	
Keep container tightly closed. No smoking while handling this Material. CHEER PRECAUTIONARY INFORMATION: HMIS MAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 FERSIONAL PROTECTION: X (See precautions, section 7.) PERSIONAL PROTECTION: X (See precautions, section 7.) CHEER PRECAUTION OF A CONTRACT SECTION OF A CONTRA		Do not store containers on their sides. Store at room temperature.	
HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X (See precautions, section 7.) EXPOSURE LIMITS WATER UNDERDIGHTS AMMONIUM PERFLUCEORDENTANDATE ON MALE SAULATION AMMONIUM PERFLUCEORDENTANDATE SUBJECTION: Listed substance ACCETH: American Conference of Governmental Industrial Hygienists ALEALTH HAZARD DATA <		Keep container tightly closed. No smoking while handling this	
WATER UNDERDIENTS VALUE UNIT TYPE AUTH SKINK AMMONIUM PÉRFLÜGRÖCTAMGATE 0.01 mg/m3 THA ACGIH Y AMMONIUM PÉRFLÜGRÖCTANGATE 0.1 mg/m3 THA AGGIH Y AMMONIUM PERFLÜGRÖCTANGATE 0.1 mg/m3 THA AGGIH Y AMMONIUM PERFLÜGRÖCTANGATE 0.1 mg/m3 THA AGGIH Y AMMONIUM PERFLÜGRÖCTANGATE 0.1 mg/m3 THA 3M Y AMMONIUM perflügröctande 0.1 mg/m3 THA 3M Y AMMONIUM perflügröctande 0.0 0.0 0.0 0.0 0.0 SOURCE OF EXPOSURE LIMIT DATA: - ATHA : Americ		OTHER PRECAUTIONARY INFORMATION: HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X (See precautions, section 7.)	
WATER AMMONIUM PERFLUOROBOCTAMOATE			
SOURCE OF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - AIHA: American Industrial Hygine Assoc. Workplace Environmental Exposure Leve: - 3M: 3M Medical Department Guideline - NOME: None Established - NOME: None Established - S. HEALTH HAZARD DATA EYE CONTACT: No toxicity data for the solution. Ammonium perfluoroalky1 carboxylate can be irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: Nay be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		WATER NONE NONE NONE NONE NONE AMMONIUM PERFLUOROOCTANOATE 0.01 mg/m3 TWA ACGIH Y AMMONIUM PERFLUOROHEPTANOATE 0.1 mg/m3 TWA 3M Y AMMONIUM PERFLUOROHEXANOATE 0.1 mg/m3 TWA 3M Y	
SOURCE OF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - AIHA: American Industrial Hygine Assoc. Workplace Environmental Exposure Leve: - 3M: 3M Medical Department Guideline - NOME: None Established 8. HEALTH HAZARD DATA EYE CONTACT: No toxicity data for the solution. Ammonium perfluoroalky1 carboxylate can be irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: May be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		* SKIN NOTATION: Listed substances indicated with "Y" under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly by direct contact with the substance. Vehicles can alter skin absorption.	,
EVE CONTACT: No toxicity data for the solution. Ammonium perfluoroalky1 carboxylate can be irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: May be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		- ACGIH: American Conference of Governmental Industrial Hydionists	Leve:
No toxicity data for the solution. Ammonium perfluoroalky1 carboxylate can be irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: May be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		8. HEALTH HAZARD DATA	
May be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate can be irritating to the eye and may cause eye injury	
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	AI	bbreviations: N/D - Not Determined N/A - Not Applicable	·
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	NSDS: FC-118 FLVORAD Brand Fluorochemical FEBRUARY 7, 1997	Surfactant	PAGE: 5 of 6
	8. HEALTH HAZARD DATA (cont	inued)	
	extended time.		
	No toxicity data for the solution. carboxylata is slightly toxic when non-irritating to the skin.	Ammonium perfluoroalkyl absorbed through the skin;	it is
	INHALATION: May be absorbed by inhalation and p time.	ersist in the body for an e	xtended
	No toxicity data for the solution. carboxylate may cause respiratory s can be considered moderately toxic a median lethal concentration for a is 980 milligrams per cubic meter. produced liver changes and elevated rats.	Ammonium perfluoroalkyl ystem irritation from inhal by inhalation on a single e 4-hour exposure in the alb Repeated inhalation exposur blood organofluoride level	ation; xposure; ino rat ° s in
	IF SWALLOWED: Ingestion is not a likely route of	exposure to this product.	
	No toxicity data for the solution A carboxylate is considered moderatel exposure; acute oral LD50 (rat) is	mmonium perfluoroalkyl y toxic from a single oral 540 mg. per kg. of body wei	ght.
e.	CANCER: WARNING: Contains a chemical which (1903 and 1993 studies conducted jo	can cause cancer. (3825-26- intly by 3M and DuPont).	-1)
	MUTAGENICITY: Ammonium perfluoroalkyl carboxylate mutagenicity assays. Did not cause cell transformation assay.	was not mutagenic in invit cell transformation in a ma	ro mmalian
	REPRODUCTIVE/DEVELOPHENTAL TOXINS: Ammonium perfluoroalkyl carboxylata oral administration and was not ter inhalation exposures.	was not teratogenic in rab atogenic to rats by gavage	bits by and
	SEGMION SUANCE DAMES		
	SECTION CHANGE DATES HEALTH HAZD. DATA SECTION CHANGED SIN	CE AUGUST 23, 1996 ISSUE	
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	Abbreviations: N/D - Not Determined N/A	- Not Applicable	
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	MSDS: FC-118 FLUORAD Brand FEBRUARY 7, 1997	Fluorochemical Surfactant	PAGE: 6 of 6
	SECTION CHANGE DATES		
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		Determined N/A - Not Applicable	
	User is responsible for de particular purpose and sui the variety of factors tha some of which are uniquely essential that the user ev for a particular purpose a	terial Safety Data Sheet (MSDS) i. ued. 3M MAKES NO WARRANTIES, EXP TO, ANY IMPLIED WARRANTY OF MERCI URPOSE OR COURSE OF PERFORMANCE O termining whether the 3M product : table for user's method of use or t can affect the use and applicat: within the user's knowledge and aluate the 3M product to determin nd suitable for user's method of	x USAGE UF IKADE. is fit for a polication. Given ion of a 3M product, control, it is a Whether it is fit use or application.
	3M provides information in to the remote possibility omissions or alterations i its completeness or accura may not be as current as t	olectronic form as a service to : that electronic transfer may have n this information, 3M makes no r cy. In addition, information obt he information in the MSDS availa	its customers. Due resulted in errors, apresentations as to ained from a database ble directly from 3M.
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MATERIAL SAFETY 3M	
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St. Paul, Minnesota	
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Copyright, 1997, Minnesola Mining and Manufacturing Company. All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: 1) the information is copied in full with no changes unless prior agreement is obtained from 3M, and 2) neither the copy nor the original is resold or otherwise distributed with the Intention of earning a profit thereon.	·
DIDISION: SPECIALTY CHEMICALS DIDISION TRADE NAME:	
FC-118 FLUDRAD Brand Fluorochemical Surfactant	
1D NUMBER/U.P.C.:	
98-0211-4832-9 00-51135-02697-7 98-0211-4885-7 00-51135-02745-5	
98-0211-8012-4 00-51135-10863-5 98-0211-8083-5 00-51135-10918-2	
98-0211-8858-0 00-51135-10971-7	
13SUED: February 19, 1997	
SUPERSEDES: February 07, 1997 DOCUMENT: 10-4221-7	
2012/11/11/2 2 (1-2 C) - 2	
1. INGREDIENT C.R.S. NO. PERCENT	
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MSDS: FC-118 FLUDRAD Brand Fluorochemical Surfactant	
February 19, 1997 PRGE 2	
2. PHYSICAL DATA (continued)	
APPERRANCE AND 000A: Light colored liquid; slight odor.	
3. FIRE RND EXPLOSION HAZARD DATA	
FLRSH POINT: > 100 C Setaflash	
FLRMMABLE LIMITS - LEL:	
FLRMMABLE LIMITS - UEL:	
EXTINGUISHING MEDIA: Water, Carbon dioxide, Dry chemical, Foam	
Wear full protective clothing, including heimet, self-contained,	
positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.	
positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and	
positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. UNUSUAL FIRE AND EXPLOSION HAZARDS:	
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positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. UNUSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition section for products of combustion. 4. REACTIVITY DATA STABILITY: Stable INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID: Not Applicable HAZARDOUS PELYMERIZATION: Hazardous polymerization will not occur. HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen	· .
positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. UNUSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition section for products of combustion. 4. REACTIVITY DATA STRBILITY: Stable INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID: Not Applicable HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur. HAZARDOUS DECOMPOSITION PROBUCTS: Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen Fluoride, Ammonia.	
positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. UNUSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition section for products of combustion. 4. REACTIVITY DATA STRBILITY: Stable INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID: Not Applicable HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur. HAZARDOUS DECOMPOSITION PROBUCTS: Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen Fluoride, Ammonia.	
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positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. UNUSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition section for products of combustion. 4. REACTIVITY DATA STABILITY: Stable INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID: Not Applicable HAZARDOUS DECOMPOSITION: Hazardous polymerization will not occur. HAZARDOUS DECOMPOSITION PROBUCTS: Carboni Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen Fluoride, Ammonia. SPILL RESPONSE: Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and	
positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. UNUSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition section for products of combustion. 4. REACTIVITY DRTH STREULITY: Stable INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID: Not Applicable HAZARDOUS DECOMPOSITION: Hazardous polymerization will not occur. HAZARDOUS DECOMPOSITION: Hazardous polymerization will not occur. HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen Fluoride, Ammonia. SPILL RESPONSE: Refer to other sections of this MSDS for information regarding	EID008493

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MSDS: FC-118 FLUDRAD Bran February 19, 1997	PAGE 3	x	
5. ENUIRONMENTAL INFORM	(ATION (continued)		
water from puddles or sta approved containers, and s	ct contaminated soil. Pump contaminated gnant storm sewers, Place collected waste in seal. For spills to ground or surface authorities. Contact 3M to evaluate		
	or commercial facility in the presence of ombustion products will include HF.		
Pass contaminated water contact 3M for assistance.	through anion exchange resin. If necessary,		
(.000700g/g). Biochemical Bluegill Sunfish (Lepomis m Minnow(Pimephales prome mg/L; 14-Day EC50 (cell dr capricornutum) 73 mg/L. S	emical Oxygen Demand (COO); Nil Oxygen Demand (BOD2O); Nil; 96-Hr. LC5D, acrochirus); 569 mg/L; 96-Hr. LC5D, Fathead las); 766 mg/L; 48-Hr EC5O, Daphnia magna; 632 y weight), Green Rigae (Selenastrum foll Adsorption Coefficient (Koc); 17, y. (Study used a sandy loam soil),		
REGULATORY INFORMATION: Volatile Organic Compound VOC Less H20 & Exempt Sol			
	sult applicable regulations or authorities azardous Waste Number = None (Not U.S. 1		
	oduct are in compliance with the chemical of TSCR, EINECS, COSL and RICS.		
EPCRA HAZARD CLASS: FIRE HAZARD: No PRESSURE: I	NG REACTIVITY: NO ACUTE: Yes CHRONIC: Yes		
6. SUGGESTED FIRST RID			
EYE CONTRET: Immediately flush eyes wi minutes, Get immediate me	In large amounts of water for at least 15 edical attention,	м.	
contaminated clothing. If s	th soap and large amounts of water. Remove igns/symptoms occur, call a physician. Ig before reuse and dispose of contaminated	FIDERRAL	
Abbreviations: N/D - Not Det	ermined N/A - Not Applicable CA - Approximately	EID008494	

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MSDS: FC-118 FLVORAD Brand Fluorochemical Surfactant February 19, 1997 PAGE 4			
6. SUGGESTED FIRST AID (continued)			
INHALATION: If signs/symptoms occur, remove person to fresh air. If			
signs/symptoms continue, call a physician. IF SWALLOWED: Do not induce vomiting. Drink two glasses of water. Call a physic	lan.		
7. PRECAUTIONRRY INFORMATION			
+ EYE PROTECTION: Avoid eye contact. Wear vented goggies.			
SKIN PROTECTION: Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) a recommended: butyl rubber. Use one or more of the following personal protection items as necessary to prevent skin contact: covering, coveralls. Protective garments (other than gloves) sho be made of either of the following materials: polyethylene/polyvinylidene chtoride (Saranex)	head		
Coverall made of Tyvek(r). Wear rubber boots when cleaning up s	ipills.		
RECOMMENDED VENTILATION: Use with appropriate local exhaust ventilation, Provide sufficier ventilation to maintain emissions below recommended exposure If exhaust ventilation is not adequate, use appropriate respirate protection.	limits.	×	
RESPIRATORY PROTECTION: Auoid breathing of vapors, mists or spray. Avoid breathing of airborne material. Select one of the following NIDSH approved respirators based on airborne concentration of contaminants and accordance with OSHA regulations: full-face high-efficiency filte respirator, full-face supplied air respirator.			
PREVENTION OF ACCIDENTAL INGESTION: Do not eat, drink or smoke when using this product, Wash expose areas thoroughly with soap and water. Wash hands after handlin before eating.	d ag and		
RECOMMENDED STORAGE: Do not store containers on their sides. Store at room temperatur Keep container closed when not in use.	æ.		
ý			GWO
Abbreviations: N/D – Not Determined N/A – Not Applicable CA – Ap	proximately	EID008495	GW001403
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February 19, 1997 PRGE 5	
7. PRECRUTIONARY INFORMATION (continued)	
FIRE AND EXPLOSION AUDIDANCE: Keep container tightly closed. Nonflammable.	
DTHER PRECRUTIONARY INFORMATION: No smoking: Smoking while using this product can result in contamination of the tubacco and/or smoke and lead to the formation of the hazardous decomposition products mentioned in section 4 of this MSDS.	
HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X (See precautions, section 7.)	
EXPOSURE LIMITS	
INGREDIENT UALUE UNIT TYPE AUTH SKIN*	
WATER NONE NONE NONE NONE NONE AMMONIUM PERFLUOROOCTINDATE	
RMMONIUM PERFLUOROPENTANORTE, 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to	×
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Ushicles can alter skin absorption. SOURCE OF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established	7
RMMONIUM PERFLUOROPENTANORTE, 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE DF EXPOSUBE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 1 8. HEALTH KAZARD DATA	ж
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE DF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 1 8. HEALTH KAZARD DATA	,
AMMONIUM PEAFLUOROPENTANORTE	×
AMMONIUM PERFLUOROPENTANORTE	Υ.
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE OF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hyglenists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 3 A. HEALTH KAZARD DATA EVE CONTACT: No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate can be Irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate for stips for t	EID008494
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE OF EXPOSURE LIMIT DATR: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 1 EVE CONTRET: No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate can be Irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTRET: May be absorbed through the skin and persist in the body for an extended time. No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate is slightly toxic when absorbed through the skin; it is	EID008496
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE DF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 1	EID008496

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MSOS: FC-118 FLVORRD Brand Fluorochemical Surfactant February 19, 1997 PRGE 6	×
8. HEALTH HAZARD DATA (continued)	

INHALATION: May be absorbed by Inhalation and persist in the body for an extended time.	
No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate may cause respiratory system irritation from inhalation; can be considered moderately toxic by inhalation on a single exposure; a median lethal concentration for a 4-hour exposure in the albino rat is 980 milligrams per cubic meter. Repeated inhalation exposure produced liver changes and elevated blood organofluoride levels in	
rais.	
IF SUBLLOWED:	
Ingestion is not a likely route of exposure to this product.	
No toxicity data for the solution Ammonium perfluoroalkyl carboxylate is considered moderately toxic from a single oral exposure; acute oral 1050 (rat) is 540 mg, per kg, of body weight.	
CANCER: WARNING: Contains a chemical which can cause cancer, (3825-26-1) [1983 and 1993 studies conducted jointly by 3M and OuPont).	
MUTAGENICITY: Ammonium perfluoroalkyl carboxylate was not mutagenic in inultro mutagenicity assays, Did not cause cell transformation in a mammalian cell transformation assay.	
REPRODUCTIVE/DEVELOPMENTAL TOXINS: Ammonium perfluoroalkyl carboxylate was not teratogenic in rabbits by oral administration and was not teratogenic to rats by gavage and Inhalation exposures.	
SECTION CHANGE DATES	~ ×
PRECRUTIONARY INFO. SECTION CHANGED SINCE February 07, 1997 ISSUE	
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P1.8195.7 4 8 MSDS: FC-118 FLUORRO Brand Fluorochemical Surfactant February 19, 1997 PAGE 7 The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or annipation. particular purpose and suitable for user's method of use or application. 3M provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, 3M makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from 3M. di i GW001406 EID008498 . ł.

1717 Dixie Highway, Suite 910 / Covington, Kentucky 41011-4704 Tel: 859.331.2838 / Fax: 513.381.6613 www.taftlaw.com

ROBERT A. BILOTT 859.547.4306 bilott@taftlaw.com

January 3, 2018

BY EMAIL AND REGULAR U.S. MAIL

Alethea M. Huyser Assistant Solicitor General 445 Minnesota Street Suite 1100 St. Paul, Minnesota 55101-2128

Re: Perfluorochemicals in Minnesota

Dear Ms. Huyser:

We understand that you are one of the attorneys representing the State of Minnesota in connection with its ongoing investigation into the potential public health threat posed by perfluorochemicals (including PFOA and PFOS), including what has been known about the toxicity of and potential health effects associated with exposure to and disposal of perfluorochemicals in the environment. In connection with this current potential public health threat, the State of Minnesota requested our assistance in locating certain documents that might shed light on the history and timing of such information in Minnesota, given our involvement in litigation against E. I. du Pont de Nemours and Company ("DuPont") through which we gained access to certain potentially-relevant, historic records that might not otherwise be available to the State.

Thus, pursuant to the State's request for assistance in investigating and responding to this on-going, potential public health threat, we have attached several documents produced in litigation from the non-confidential business records of DuPont (as indicated by the "EID" document numbering prefix),¹ which might be responsive. We understand that the documents originated with The 3M Company and were sent to

Taft Stettinius & Hollister LLP Chicago / Cincinnati / Cleveland / Columbus / Dayton / Indianapolis / Northern Kentucky / Phoenix

¹ One of the documents also has a document control number of "P1.8195," which reflects the fact that it is a non-confidential, plaintiff's trial exhibit that was used at a recent public trial against DuPont.

Alethea M. Huyser January 3, 2018 Page 2

DuPont during the course of DuPont's long-term business relationship with 3M with respect to certain perfluorochemical issues and products.

Sincerely yours, obert A. Bilott

Encls.

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	3M General Offices 3M Center SL Paul, MN 55144-1000 1710 642 733 1110 661
	MATERIAL SAFETY DATA SHEET
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	Copyright, 1997, Minnesota Mining and Manufacturing Company. All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: 1) the information is copied in full with no changes unless prior agreement is obtained from 3M, and 2) meither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.
	DIVISION: SPECIALTY CHEMICALS DIVISION TRADE NAME: FC-118 FLUORAD Brand Fluorochemical Surfactant
	ID NUMBER/U.P.C.: 98-0211-4832-9 00-51135-02697-7 98-0211-4885-7 00-51135-02745-5 98-0211-8012-4 00-51135-10863-5 98-0211-8083-5 00-51135-10918-2 98-0211-8858-0 00-51135-10971-7
	ISSUED: FEBRUARY 7, 1997 SUPERSEDES: AUGUST 23, 1996 DOCUMENT: 10-4221-7
-	1, INGREDIENT C.A.S. NO. PERCENT
•	WATER 7732-18-5 80 AMMONIUM PERFLUOROOCTANOATE 3825-26-1 18 21 AMMONIUM PERFLUOROHEPTANOATE 6130-43-4 0.1 - 1.0 AMMONIUM PERFLUOROHEPTANOATE 21615-47-4 0 - 0.1 AMMONIUM PERFLUOROHEPTANOATE 68259-11-0 0.1 - 1.0
	2. PHYSICAL DATA BOILING POINT: 100 C
	(Typical) VAPOR PRESSURE:
	Calc 0 20C VAPOR DENSITY: 0.62 Air = 1 Calc 0 20C
	EVAPORATION RATE:
	PERCENT VOLATILE. 80 %
	pH: ca. 5 VISCOSITY: N/D MELTING POINT. N/A APPEARANCE AND ODOR: Light colored liquid; slight odor.
	3. FIRE AND EXPLOSION HAZARD DATA
	FLASH POINT:
	Abbreviations: N/D - Not Determined N/A - Not Applicable
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	3M General Offices 3M Center St. Paul, MN 55144-1000 1711 612 733 1110 1711
	MATERIAL SAFETY DATA SHEET
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	MSDS: FC-118 FLUORAD Brand Fluorochemical Surfactant FEBRUARY 7, 1997 PAGE: 2 of 6
	3, FIRE AND EXPLOSION HAZARD DATA (continued)
	positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. UNUSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition section for products of combustion.
	4. REACTIVITY DATA
	STABILITY: Stable Incompatibility - Materials to avoid:
	Not Applicable HAZARDOUS POLYMERIZATION: Will Not Occur HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen Fluoride, Ammonia.
	5. ENVIRONMENTAL INFORMATION
•	SPILL RESPONSE: Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. In the U.S.A., call (612) 733-1110 or (612) 733-6100 for 24-hour spill assistance. Contain spill. Cover with absorbent material. Collect spilled material.
	For spills to ground: Collect contaminated soil. Pump contaminated water from puddles or stagnant storm sewers. Place collected waste in approved containers, and seal. For spills to ground or surface water: Notify appropriate authorities. Contact 3M to evaluate further needs.
	RECOMMENDED DISPOSAL: Incinerate in an industrial or commercial facility in the presence of a combustible material. Combustion products will include HF.
	Pass contaminated water through anion exchange resin. If necessary, contact 3M for assistance.
÷	ENVIRONMENTAL DATA: Data for product solids: Chemical Oxygen Demand (COD): Nil (.000700g/g). Biochemical Oxygen Demand (BOD20): Nil; 96-Hr. LC50, Bluegill Sunfish (Lepomis macrochirus): 569 mg/L; 96-Hr. LC50, Fathead Minnow(Pimephales promelas): 766 mg/L; 48-Hr EC50, Daphnia magna: 632 mg/L; 14-Day EC50 (cell dry weight), Green Algae (Selenastrum capricornutum) 73 mg/L. Soli Adsorption Coefficient (Koc): 17, indicates very high mobility. (Study used a sandy loam soil).
•	REGULATORY INFORMATION: Volatile Organic Compounds: N/A. VOC Less H20 & Exempt Solvents: N/A.
	Abbreviations: N/D - Not Determined N/A - Not Applicable.
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•	MATERIAL SAFETY DATA SHEET		
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	ISDS: FC-118 FLVORAD Brand EBRUARY 7, 1997	Fluorochemical Surfactant	PAGE: 3 of 6
	5. ENVIRONMENTAL INFORMAT	ION (continued)	<u> </u>
	Since regulations van before disposal. U. EPA Hazardous).	ry, consult applicable regulations S. EPA Hazardous Waste Number ≈ No	or authorities one (Not U.S.
	registration require	is product are in compliance with t ments of TSCA, EINECS, CDSL and AIC	
	EPCRA HAZARD CLASS: FIRE HAZARD: No PRE:	SSURE: No REACTIVITY: No ACUTE: Y	es CHRONIC: Yes
5	6. SUGGESTED FIRST AID	· · · · · · · · · · · · · · · · · · ·	
	EYE CONTACT: Immediately flush ey minutes. Get immedia	es with large amounts of water for te medical attention.	at least 15
•	SKIN CONTACT: Immediately wash skin contaminated clothin Wash contaminated clo shoes.	n with soap and large amounts of wa g. If signs/symptoms occur, call a othing before reuse and dispose of	eter. Remove physician. contaminated
	INHALATION: If signs/symptoms oc signs/symptoms contin	cur, remove person to fresh air. It nue, call a physician.	
	IF SWALLOWED: Do not induce vomition	ng. Drink two glasses of water. Cal	ll a physician.
-	7. PRECAUTIONARY INFORMAT	ION	
	EYE PROTECTION: Avoid eye contact. N	Wear vented goggles.	
,	SKIN PROTECTION: Avoid skin contact. material. A pair of recommended: butyl i personal protection : covering, coveralls. be made of either of polyethylene/polyving	Wear appropriate gloves when hand gloves made from the following mai rubber. Use one or more of the fol items as necessary to prevent skin Protective garments (other than g the following materials; ylidene chloride (Saranex)	ling this terial(s) are Llowing contact: head ploves) should
	Coverall made of Tyve	ek(r). Wear rubber boots when clea	aning up spills.
	ventilation to mainta	: local exhaust ventilation. Provia ain emissions below recommended exp on is not adequate, use appropriate	osure limits.
-	RESPIRATORY PROTECTION Avoid breathing of v	: apors, mists or spray. Avoid breat	thing of
A	bbreviations: N/D - Not D	etermined N/A - Not Applicable	
			EID599982

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<pre>FERUARY 7, 1997 [Gentlined] FERUARY 7, 1997 [Gentlined] A Definition of containants and in airborne material. Salest one of the following NIOSH spoproved respirator, full-face subplied air respirator. FINITION of set for the solubling air respirator. FINITION of the face subplied air respirator.</pre>	•		
<pre>FERUARY 7, 1997 FAGE: 4 of 6 1. FREEAUTIONARY INFORMATION sirborne material. Salect one of the following NIOSH sporeed respirators beard on alcohorne concentration of conteminants and in respirator, full-face supplied air respirator. FILE ALCOMENDED STORAGE: Denot store containers on their sides. Store at room temperatures, Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container closed when not in use. FILE AND EXPLOSION AVDIDANCE: Keep container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Near container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Keep container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Near container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Near container tightly closed. No smoking while handling this material. FILE AND EXPLOSION AVDIDANCE: Note: N</pre>	3M		
<pre>sindorne material. Salect one of the following NIOSH approved respirators based on airborne concentration of contaminants and in respirators based on airborne concentration of contaminants and in respirators based on airborne concentration of contaminants and in respirators based on airborne concentration of contaminants and in respirators full frace supplied air respirator. FREMENTION OF ACCIDENTAL INGESTION: Determinant of the sole of the following NIOSH approved respirators full frace supplied air respirator. FREMENTION OF ACCIDENTAL INGESTION: Determinant of the sole of the</pre>	ľ		6
respirators based on dirborne concentration of contaminants and incomponent with USM regulations; full-face supplied air respirator. HEVENNION OF ACCIDENTAL INFERSION: Do not eat, drink or smoke when using this product. Wash exposed grees throughly with scep and water. Wash hends after handling and before cuting. HECOMMENDER STORAGE: Do not store containers on their sides. Store at room temperature. Kee container closed when not in use. HER AND EXPLOSION AFOIDANCE: Kee container tightly close productions, section 7.) HIS MAZARD RATINGS: HEALTH: 2 FLAMMABILITY. 1 REACTIVITY. 0 PERSONAL PROTECTION X (See precautions, section 7.) HIS MAZARD RATINGS: HEALTH: 2 FLAMMABILITY. 1 REACTIVITY. 0 PERSONAL PROTECTION AND AND AND AND AND AND AND AND AND AN	5	7. PRECAUTIONARY INFORMATION (continued)	
Do not sat, drink or smoke when using this product. Wash exposed areas throughly with scap and water. Wash hands exposed before sating. RECOMMENDED STORAGE: Do not store containers on their sides. Store at room temperature. Keep container lightly closed. No smoking while handling this material. OTHER PRECAUTIONARY INFORMATION: HHIS HAZED RAINORY. HEATHLY I FLANTHY! I REACTIVITY: 0 PERSUNAL PROTECTION: X (See precautions, section 7.) PERSUNAL PROTECTION: X (See precautions, section 7.) PERSUNAL PROTECTION: X (See precautions, section 7.) NOTE NONE NONE NONE NORE DIAL PROTECTION: X (See precautions, section 7.) REMONING PERFLUORDOCTANDATE		respirators based on airborne concentration of contaminante and in	
Do not store containers on their sides. Store at room temperature. Keep container tightly closed. No smoking while handling this material. OTHER PRECAUTIONARY INFORMATION: HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X (See precautions, section 7.) PERSONAL PROTECTION: X (See precautions, section 7.) NUCREDIENTS NUCREDIENT		Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and	
Keep container tightly closed. No smoking while handling this Material. CHEER PRECAUTIONARY INFORMATION: HMIS MAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 FERSIONAL PROTECTION: X (See precautions, section 7.) PERSIONAL PROTECTION: X (See precautions, section 7.) CHEER PRECAUTION OF A CONTRACT SECTION OF A CONTRA		Do not store containers on their sides. Store at room temperature.	
HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X (See precautions, section 7.) EXPOSURE LIMITS WATER UNDERDIGHTS AMMONIUM PERFLUCEORDENTANDATE ON MALE SAULATION AMMONIUM PERFLUCEORDENTANDATE SUBJECTION: Listed substance ACCETH: American Conference of Governmental Industrial Hygienists ALEALTH HAZARD DATA <		Keep container tightly closed. No smoking while handling this	
WATER UNDERDIENTS VALUE UNIT TYPE AUTH SKINK AMMONIUM PÉRFLÜGRÖCTAMGATE 0.01 mg/m3 THA ACGIH Y AMMONIUM PÉRFLÜGRÖCTANGATE 0.1 mg/m3 THA AGGIH Y AMMONIUM PERFLÜGRÖCTANGATE 0.1 mg/m3 THA AGGIH Y AMMONIUM PERFLÜGRÖCTANGATE 0.1 mg/m3 THA AGGIH Y AMMONIUM PERFLÜGRÖCTANGATE 0.1 mg/m3 THA 3M Y AMMONIUM perflügröctande 0.1 mg/m3 THA 3M Y AMMONIUM perflügröctande 0.0 0.0 0.0 0.0 0.0 SOURCE OF EXPOSURE LIMIT DATA: - ATHA : Americ		OTHER PRECAUTIONARY INFORMATION: HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X (See precautions, section 7.)	
WATER AMMONIUM PERFLUOROBOCTAMOATE			
SOURCE OF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - AIHA: American Industrial Hygine Assoc. Workplace Environmental Exposure Leve: - 3M: 3M Medical Department Guideline - NOME: None Established - NOME: None Established - S. HEALTH HAZARD DATA EYE CONTACT: No toxicity data for the solution. Ammonium perfluoroalky1 carboxylate can be irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: Nay be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		WATER NONE NONE NONE NONE NONE AMMONIUM PERFLUOROOCTANOATE 0.01 mg/m3 TWA ACGIH Y AMMONIUM PERFLUOROHEPTANOATE 0.1 mg/m3 TWA 3M Y AMMONIUM PERFLUOROHEXANOATE 0.1 mg/m3 TWA 3M Y	
SOURCE OF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - AIHA: American Industrial Hygine Assoc. Workplace Environmental Exposure Leve: - 3M: 3M Medical Department Guideline - NOME: None Established 8. HEALTH HAZARD DATA EYE CONTACT: No toxicity data for the solution. Ammonium perfluoroalky1 carboxylate can be irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: May be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		* SKIN NOTATION: Listed substances indicated with "Y" under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly by direct contact with the substance. Vehicles can alter skin absorption.	,
EVE CONTACT: No toxicity data for the solution. Ammonium perfluoroalky1 carboxylate can be irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: May be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		- ACGIH: American Conference of Governmental Industrial Hydionists	Leve:
No toxicity data for the solution. Ammonium perfluoroalky1 carboxylate can be irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: May be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		8. HEALTH HAZARD DATA	
May be absorbed through the skin and persist in the body for an Abbreviations: N/D - Not Determined N/A - Not Applicable		No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate can be irritating to the eye and may cause eye injury	
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	AI	bbreviations: N/D - Not Determined N/A - Not Applicable	·
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	NSDS: FC-118 FLVORAD Brand Fluorochemical FEBRUARY 7, 1997	Surfactant	PAGE: 5 of 6
	8. HEALTH HAZARD DATA (cont	inued)	
	extended time.		
	No toxicity data for the solution. carboxylata is slightly toxic when non-irritating to the skin.	Ammonium perfluoroalkyl absorbed through the skin;	it is
	INHALATION: May be absorbed by inhalation and p time.	ersist in the body for an e	xtended
	No toxicity data for the solution. carboxylate may cause respiratory s can be considered moderately toxic a median lethal concentration for a is 980 milligrams per cubic meter. produced liver changes and elevated rats.	Ammonium perfluoroalkyl ystem irritation from inhal by inhalation on a single e 4-hour exposure in the alb Repeated inhalation exposur blood organofluoride level	ation; xposure; ino rat ° s in
	IF SWALLOWED: Ingestion is not a likely route of	exposure to this product.	
	No toxicity data for the solution A carboxylate is considered moderatel exposure; acute oral LD50 (rat) is	mmonium perfluoroalkyl y toxic from a single oral 540 mg. per kg. of body wei	ght.
e.	CANCER: WARNING: Contains a chemical which (1903 and 1993 studies conducted jo	can cause cancer. (3825-26- intly by 3M and DuPont).	-1)
	MUTAGENICITY: Ammonium perfluoroalkyl carboxylate mutagenicity assays. Did not cause cell transformation assay.	was not mutagenic in invit cell transformation in a ma	ro mmalian
	REPRODUCTIVE/DEVELOPHENTAL TOXINS: Ammonium perfluoroalkyl carboxylata oral administration and was not ter inhalation exposures.	was not teratogenic in rab atogenic to rats by gavage	bits by and
	SEGMION SUANCE DAMES		
	SECTION CHANGE DATES HEALTH HAZD. DATA SECTION CHANGED SIN	CE AUGUST 23, 1996 ISSUE	
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	Abbreviations: N/D - Not Determined N/A	- Not Applicable	
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	Abbreviations: N/D - Not)	Determined N/A - Not Applicable	
	User is responsible for de particular purpose and sui the variety of factors tha some of which are uniquely essential that the user ev for a particular purpose an	terial Safety Data Sheet (MSDS) i ued. 3M MAKES NO WARRANTIES, EXP TO, ANY IMPLIED WARRANTY OF MERC URPOSE OR COURSE OF PERFORMANCE O termining whether the 3M product : table for user's method of use or t can affect the use and applicat: within the user's knowledge and aluate the 3M product to determin nd suitable for user's method of	x USAGE UF IKADE. is fit for a application. Given ion of a 3M product, control, it is e whether it is fit use or application.
•	3M provides information in to the remote possibility omissions or alterations in its completeness or accura may not be as current as th	electronic form as a service to : that electronic transfer may have n this information, 3M makes no r cy. In addition, information obt ne information in the MSDS availa	its customers. Due resulted in errors, epresentations as to ained from a database ble directly from 3M.
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MATERIAL SAFETY 3M	
DATA SHEET 3M Center	
St. Paul, Minnesota	
55144-1000	
(612) 733-1110	
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2) neither the copy nor the original is resold or otherwise	
distributed with the Intention of earning a profit thereon.	
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DIVISION: SPECIALTY CHEMICALS DIVISION	
TRADE NAME:	
FC-118 FLUDRAD Brand Fluorochemical Surfactant	
10 NUMBER/U.P.C.:	
98-0211-4832-9 DD-51135-02697-7 98-0211-4885-7 00-51135-02745-5	
98-0211-8012-4 00-51135-10863-5 98-0211-8083-5 00-51135-10918-2	
98-0211-8858-0 00-51135-10971-7	
ISSUED: February 19, 1997	
SUPERSEDES: February 07, 1997	
BOCUMENT: 10-4221-7	
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1. INGREDIENT C.R.S. NO. PERCENT	
WATER7732-18-5 80 RMMONIUM PERFLUORDOCTANORTE	x ×
WATER7732-18-5 80 RMMONIUM PERFLUOROOCTANORTE	x ×
WATER7732-18-5 80 RMMONIUM PERFLUORODOCTRNORTE	ч × *
IURTER 7732-18-5 80 RMMONIUM PERFLUORODETRNOATE	
WATER7732-18-5 80 RMMONIUM PERFLUOROOCTANORTE3825-26-1 18 - 21 AMMONIUM PERFLUOROHEPTRNORTE6130-43-4 0.1 - 1.0 RMMONIUM PERFLUOROHEPTRNORTE21615-47-4 0 - 0.1 RMMONIUM PERFLUOROPENTRNORTE68259-11-0 0.1 - 1.0	
IURTER7732-18-5 80 RMMONIUM PERFLUORODCTRNOATE	
WATER7732-18-5 80 RMMONIUM PERFLUOROBOTANOATE	
WATER7732-18-5 80 RMMONIUM PERFLUORDOCTRNORTE3825-26-1 18 - 21 AMMONIUM PERFLUOROHEPTANORTE3825-26-1 18 - 21 AMMONIUM PERFLUOROHEPTANORTE32151-43-4 0.1 - 1.0 RMMONIUM PERFLUOROHENTANORTE 21615-47-4 0 - 0.1 RMMONIUM PERFLUOROPENTANORTE 68259-11-0 0.1 - 1.0 2. PHYSICAL DATA	
WATER	
IURTER7732-18-5 80 RMMONIUM PERFLUOROBOTRNORTE	
WATER7732-18-5 80 RMMONIUM PERFLUOROBOTANORTE3825-26-1 18 - 21 AMMONIUM PERFLUOROBOTANORTE6130-43-4 0.1 - 1.0 RMMONIUM PERFLUOROBERTANORTE21615-47-4 0 - 0.1 RMMONIUM PERFLUOROPENTANORTE68259-11-0 0.1 - 1.0 2. PHYSICAL DATA 100 C (Typical) VAPOR PRESSURE:18 mmHg Caic @ 20C URPDR DENSITY:	
WATER	
IURTER7732-18-5 80 RMMONIUM PERFLUOROBOTRNORTE	
WATER	
WATER	
WATER7732-18-5 80 RMMONIUM PERFLUOROBOTANOATE3825-26-1 18 - 21 AMMONIUM PERFLUOROBOTANOATE6130-43-4 0.1 - 1.0 RMMONIUM PERFLUOROBERTANOATE21615-47-4 0 - 0.1 RMMONIUM PERFLUOROPENTANOATE68259-11-0 0.1 - 1.0 2. PHYSICAL DATA 100 C (Typicat) VAPOR PRESSURE:18 mmHg Caic @ 20C URPOR DENSITY:0.62 Alr=1 Caic @ 20C EUAPORATION BATE:	
WATER	
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WATER	EID008492
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MSDS: FC-118 FLUURAD Brand Fluorochemical Surfactant	
February 19, 1997 PRGE 2	
2. PHYSICAL DATA (continued)	
APPEARANCE AND 000R: Light colored liquid; slight odor.	
בוקאר במוחופת הלמיווי פולוגי המסוי	
3. FIRE AND EXPLOSION HAZARD DATA	
FLRSH POINT:	
FLAMMABLE LIMITS - UEL: N/R	
AUTOIGNITION TEMPERATURE: N/A	
EXTINGUISHING MEDIA:	
Water, Carbon dioxide, Ory chemical, Foam	
PROMI CURE FLOUTING DEPOT	
SPECIAL FIRE FIGHTING PROCEDURES: Wear full protective clothing, including heimet, self-contained,	
positive pressure or pressure demand breathing apparatus, bunker coat	
and pants, bands around arms, waist and legs, face mask, and	
protective covering for exposed areas of the head.	
UNUSUAL FIRE AND EXPLOSION HAZARDS:	
See Hazardous Decomposition section for products of combustion.	
4. REACTIVITY ORTA	
1	
STABILITY: Stable	
INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:	
Not Applicable	
HAZARDDUS POLYMERIZATION: Hazardous polymerization will not occur.	×
HAZARDOUS DECOMPOSITION PRODUCTS:	,
Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen Fluoride, Ammonia.	
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5. ENVIRONMENTAL INFORMATION	
or endingen senses and the fill fold	
SPILL RESPONSE:	
Refer to other sections of this MSDS for information regarding	
physical and health hazards, respiratory protection, ventilation, and	
personal protective equipment. In the U.S.A., call (612) 733-1110 or	:
(612) 733-6100 for 24-hour spill assistance. Contain spill. Cover	5
with absorbent material. Collect spilled material.	ETDOORAON
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MSDS: FC-118 FLUDRAD Bran February 19, 1997	PAGE 3	x	
5. ENUIRONMENTAL INFORM	(ATION (continued)		
water from puddles or sta approved containers, and s	ct contaminated soil. Pump contaminated gnant storm sewers, Place collected waste in seal. For spills to ground or surface authorities. Contact 3M to evaluate		
	or commercial facility in the presence of ombustion products will include HF.		
Pass contaminated water contact 3M for assistance.	through anion exchange resin. If necessary,		
(.000700g/g). Biochemical Bluegill Sunfish (Lepomis m Minnow(Pimephales prome mg/L; 14-Day EC50 (cell dr capricornutum) 73 mg/L. S	emical Oxygen Demand (COO); Nil Oxygen Demand (BOD2O); Nil; 96-Hr. LC5D, acrochirus); 569 mg/L; 96-Hr. LC5D, Fathead las); 766 mg/L; 48-Hr EC5O, Daphnia magna; 632 y weight), Green Rigae (Selenastrum foll Adsorption Coefficient (Koc); 17, y. (Study used a sandy loam soil),		
REGULATORY INFORMATION: Volatile Organic Compound VOC Less H20 & Exempt Sol			
	sult applicable regulations or authorities azardous Waste Number = None (Not U.S. 1		
	oduct are in compliance with the chemical of TSCR, EINECS, COSL and RICS.		
EPCRA HAZARD CLASS: FIRE HAZARD: No PRESSURE: I	NG REACTIVITY: NO ACUTE: Yes CHRONIC: Yes		
6. SUGGESTED FIRST RID			
EYE CONTRET: Immediately flush eyes wi minutes, Get immediate me	In large amounts of water for at least 15 edical attention,	м.	
contaminated clothing. If s	th soap and large amounts of water. Remove igns/symptoms occur, call a physician. Ig before reuse and dispose of contaminated	FIDERRAL	
Abbreviations: N/D - Not Det	ermined N/A - Not Applicable CA - Approximately	EID008494	

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MSDS: FC-118 FLVORAD Brand Fluorochemical Surfactant February 19, 1997 PAGE 4			
6. SUGGESTED FIRST AID (continued)			
INHALATION: If signs/symptoms occur, remove person to fresh air. If			
signs/symptoms continue, call a physician. IF SWALLOWED: Do not induce vomiting. Drink two glasses of water. Call a physic	lan.		
7. PRECAUTIONRRY INFORMATION			
+ EYE PROTECTION: Avoid eye contact. Wear vented goggies.			
SKIN PROTECTION: Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) a recommended: butyl rubber. Use one or more of the following personal protection items as necessary to prevent skin contact: covering, coveralls. Protective garments (other than gloves) sho be made of either of the following materials: polyethylene/polyvinylidene chtoride (Saranex)	head		
Coverall made of Tyvek(r). Wear rubber boots when cleaning up s	ipills.		
RECOMMENDED VENTILATION: Use with appropriate local exhaust ventilation, Provide sufficier ventilation to maintain emissions below recommended exposure If exhaust ventilation is not adequate, use appropriate respirate protection.	limits.	×	
RESPIRATORY PROTECTION: Auoid breathing of vapors, mists or spray. Avoid breathing of airborne material. Select one of the following NIDSH approved respirators based on airborne concentration of contaminants and accordance with OSHA regulations: full-face high-efficiency filte respirator, full-face supplied air respirator.			
PREVENTION OF ACCIDENTAL INGESTION: Do not eat, drink or smoke when using this product, Wash expose areas thoroughly with soap and water. Wash hands after handlin before eating.	d ag and		
RECOMMENDED STORAGE: Do not store containers on their sides. Store at room temperatur Keep container closed when not in use.	æ.		
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Abbreviations: N/D – Not Determined N/A – Not Applicable CA – Ap	proximately	EID008495	GW001403
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MSDS: FC-118 FLUORAD Brand Fluorochemical Surfactant	
February 19, 1997 PRGE 5	
7. PRECRUTIONARY INFORMATION (continued)	
FIRE AND EXPLOSION AUDIDANCE: Keep container tightly closed. Nonflammable.	
DTHER PRECRUTIONARY INFORMATION: No smoking: Smoking while using this product can result in contamination of the tubacco and/or smoke and lead to the formation of the hazardous decomposition products mentioned in section 4 of this MSDS.	
HMIS HAZARD RATINGS: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X (See precautions, section 7.)	
EXPOSURE LIMITS	
INGREDIENT UALUE UNIT TYPE AUTH SKIN*	
WATER NONE NONE NONE NONE NONE AMMONIUM PERFLUOROOCTINDATE	
RMMONIUM PERFLUOROPENTANORTE, 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to	×
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Ushicles can alter skin absorption. SOURCE OF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established	7
RMMONIUM PERFLUOROPENTANORTE, 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE DF EXPOSUBE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 1 8. HEALTH KAZARD DATA	ж
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE DF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 1 8. HEALTH KAZARD DATA	,
AMMONIUM PEAFLUOROPENTANORTE	×
AMMONIUM PERFLUOROPENTANORTE	Υ.
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE OF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hyglenists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 3 A. HEALTH KAZARD DATA EVE CONTACT: No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate can be Irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTACT: No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate for stips for t	EID008494
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uchicles can alter skin absorption. SDURCE OF EXPOSURE LIMIT DATR: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 1 EVE CONTRET: No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate can be Irritating to the eye and may cause eye injury from airborne exposure. SKIN CONTRET: May be absorbed through the skin and persist in the body for an extended time. No toxicity data for the solution. Ammonium perfluoroalkyl carboxylate is slightly toxic when absorbed through the skin; it is	EID008496
AMMONIUM PERFLUOROPENTANORTE 0.1 MG/M3 TWA 3M Y * SKIN NOTATION: Listed substances Indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Uehicles can alter skin absorption. SDURCE DF EXPOSURE LIMIT DATA: - ACGIH: American Conference of Governmental Industrial Hygienists - 3M: 3M Recommended Exposure Guidelines - NONE: None Established 1	EID008496

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MSDS: FC-118 FLUORRD Brand Fluorochemical Surfactant February 19, 1997 PRGE 6	i.
8. HEALTH HAZARD DATA (continued)	
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INHALATION: May be absorbed by Inhalation and persist in the body for an extended time.	
No toxicity data for the solution, Ammonium perfluoroalkyl carboxylate may cause respiratory system irritation from inhalation; can be considered moderately toxic by inhalation on a single exposure; a median lethal concentration for a 4-hour exposure in the albino rat is 980 milligrams per cubic meter. Repeated inhalation exposure produced liver changes and elevated blood organofluoride levels in	
rais.	
1F SWALLOWED: Ingestion is not a likely route of exposure to this product.	
No toxicity data for the solution Ammonium perfluoroalkyl carboxylate is considered moderately toxic from a single oral exposure; acute oral LDSO (rat) is 540 mg, per kg, of body weight.	
CANCER: WARNING: Contains a chemical which can cause cancer. (3825-26-1) [1983 and 1993 studies conducted jointly by 3M and OuPont).	
MUTAGENICITY: Ammonium perfluoroalkyl carboxylate was not mutagenic in inultro mutagenicity assays, Did not cause cell transformation in a mammalian cell transformation assay.	
REPRODUCTIVE/DEVELOPMENTAL TOXINS: Ammonium perfluoroalkyl carboxylate was not teratogenic in rabbits by oral administration and was not teratogenic to rats by gavage and Inhalation exposures.	
SECTION CHANGE DATES	×
PRECRUTIONARY INFO. SECTION CHANGED SINCE February 07, 1997 ISSUE	
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P1.8195.7 4 8 MSDS: FC-118 FLUORRO Brand Fluorochemical Surfactant February 19, 1997 PAGE 7 The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or annipation. particular purpose and suitable for user's method of use or application. 3M provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, 3M makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from 3M. di i GW001406 EID008498 . ł.