



1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: ReleaSys™ DF
DryFilm Release Agent

Product Use: Release Agent

MANUFACTURER/DISTRIBUTOR:

Miller-Stephenson Chemical
55 Backus Ave.
Danbury, Conn. 06810 USA
(203) 743-4447

Emergency Phone Number:
(800) 424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

Flammable liquids: Category 3
Serious Eye Damage/Eye Irritation: Category 2A
Specific Target Organ Toxicity (single exposure): Category 3

Label elements:

Signal word

Warning

Pictograms



Hazardous warnings

Flammable liquid and vapor.
Causes serious eye irritation.
May cause drowsiness or dizziness.

Precautionary Statements

Keep away from heat/sparks/open flames/hot surfaces and other ignition sources – No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing fumes/gas/vapor/spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.

Wear protective gloves/eye protection/face protection.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a POISON CENTER or doctor/ physician if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/ attention.

In case of fire: Use water fog, dry chemical, alcohol-resistant foam, Carbon dioxide for extinction.

Store in a well-ventilated place. Keep cool. Keep container tightly closed.

Dispose of contents/container to an approved waste disposal plant.

Other Hazards

The thermal decomposition vapors of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco. Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor may cause flash fire or explosion. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing.

3. INGREDIENTS

<u>Material (s)</u>	<u>CAS No.</u>	<u>Approximate %</u>
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8	30 – 40
Isopropyl Alcohol	67-63-0	60 – 70

4. FIRST AID MEASURES

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Eye: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin: Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Get medical attention if irritation develops and persists.

Oral: DO NOT INDUCE VOMITING. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. Get medical attention.

Notes to Physician: Do not give adrenaline or similar drugs. Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

Most important symptoms/effects, acute and delayed: The thermal decomposition vapors of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco. Eye contact may provoke the following symptoms: Irritation - Causes serious eye irritation. May cause drowsiness or dizziness.

5. FIRE FIGHTING MEASURES

Flash Point: 114°F /45.5°C

Method: Tag Closed Cup

Autoignition Temperature: 750°F /399°C

Flammable Limits in Air, % by Vol.:

LEL: 2%

UEL: 12%

Suitable Extinguishing Media: Water spray, Alcohol-resistant foam, Dry chemical, Carbon dioxide (CO2)

Unsuitable extinguishing media: Do not use waterjet, as this will spread the fire.

Special hazards: Evacuate personnel to safe areas. Flammable liquid. Vapor forms explosive mixture with air. Vapors are heavier than air and may spread along the floor. Vapors or gases may travel considerable distances to ignition sources and flash back. Hazardous gases/vapors produced in fire are Hydrogen fluoride, carbon oxides, carbonyl fluoride.

Special Fire Fighting Instruction: In the event of fire, wear self-contained breathing apparatus or other personal protective equipment.

Specific extinguishing methods: Evacuate area. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Keep unopened containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Flammable liquid. Use personal protective equipment. Avoid breathing vapors, mist or gas. Evacuate personnel to safe area. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors accumulate in low areas. In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental precautions: If containers rupture, prevent material from entering sewers, waterways, or low areas. Should not be released into the environment.

Methods and material for containment and cleaning up: Immediately notify authorities of any reportable spill as may be required pursuant to regulations. Eliminate all ignition sources. Take precautionary measures against static discharge. Use only non-sparking tools. The product is miscible in water. Absorb with earth, sand, or other non-combustible material and transfer to container for disposal according to local regulations. Clean surface completely to remove residual contamination.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin, or clothing. Do not inhale vapor or mist. Wash thoroughly after handling. Keep away from heat, sparks, and open flame. Take measures to prevent the buildup of electrostatic charge. Use non-sparking tools to open and close containers. Do not consume food, drink or smoke in areas that may be contaminated with this material.

Storage Conditions: Keep container tightly closed and store in a clean, cool and dry area that is well-ventilated. Do not store sources of heat, in direct sunlight or where temperatures exceed 120°F/49°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TWA (ACGIH)</u>	<u>TWA (OSHA)</u>
Isopropyl Alcohol	200 ppm, TWA	400 ppm, TWA
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	None Established	None Established

Use only with adequate ventilation. Vapors are heavier than air posing a hazard of asphyxia if they are trapped in enclosed or low places. Explosion-proof general and local exhaust ventilation should be used in these areas.

Eye Protection: Wear safety glasses or coverall chemical splash goggles.

Respiratory Protection: Where there is potential for airborne exposures to be above the applicable limits, wear NIOSH approved respiratory protection.

Skin Protection: Skin contact must be avoided by wearing appropriate impervious protective clothing.

Do not smoke in area. Wash after handling. Do not eat or drink when using the material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 80°C/176°F

Percent Volatile by Volume: N/A

Density: 0.81 g/cc at 77°F/25°C

Vapor Pressure: 35 mmHg at 68°F/20°C

Vapor Density (Air=1): 2.1

Solubility in H₂O : N/A

pH Information: 6 –7

Evaporation Rate (CC14=1): N.A.

Form: Liquid

Appearance: Opaque

Color: White

Odor: Characteristic alcohol

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical Stability: Stable at normal conditions.

Possibility of hazardous reactions: Vapors may form flammable mixture in air.

Conditions to Avoid: Heat, sparks, and flames. Exposure to elevated temperatures.

Incompatible Materials: Acids, Oxidizing agents.

Hazardous decomposition products: No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Isopropyl Alcohol

Acute Oral: LD50, Rat, > 5,000 mg/kg

Acute Dermal: LD50, Rabbit, > 5,000 mg/kg

Acute Inhalation (vapor): 6 hour LC50, Rat > 25 mg/l

Skin Corrosion/Irritation: No skin irritation in rabbits.

Serious Eye Damage/Irritation: Irritation to eyes in Rabbits, reversing within 21 days.

Skin Sensitization: Buehler Test (skin contact) is negative in Guinea pig. Method OECD Test Guideline 406

Respiratory Sensitization: Not classified based on available information.

Germ Cell Mutagenicity: In vitro and In vivo - Not Mutagenic

Carcinogenicity: Negative in rats exposed 104 weeks by inhalation (vapor). Method: OECD Test Guideline 451

Reproductive Toxicity: Negative in rats by ingestion based on Two-generation reproduction toxicity study and Embryo-fetal development.

STOT- single exposure: May cause drowsiness or dizziness.

STOT- repeated exposure: NOAEL, Rat exposed 104 weeks by inhalation (vapor): 12.5 mg/l

Aspiration toxicity: Not classified based on available information.

1,1,1,2,2,3,4,5,5,5-Decafluoropentane

Information on likely routes of exposure: Inhalation, Skin contact, Ingestion, Eye contact

Acute Oral: LD50: > 5000 mg/kg in rats. Method: OECD Test Guideline 401

Acute Inhalation (vapor): 4 hour LC50: 114.428 mg/l in rats. Method: OECD Test Guideline 403

Acute Dermal: LD50: > 5000 mg/kg in rabbits. Method: OECD Test Guideline 402

Skin Corrosion/Irritation: No skin irritation in rabbits. Method: OECD Test Guideline 404

Serious Eye Irritation/ Eye Irritation: No eye irritation in rabbits. Method: OECD Test Guideline 405

Skin Sensitization: No skin sensitization in Guinea pigs. Buehler Test. Method: OECD Test Guideline 406

Respiratory Sensitization: Not classified based on available information.

Germ Cell Mutagenicity: Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity: Not classified based on available information.

Reproductive toxicity: Weight of evidence does not support classification for reproductive toxicity.

STOT-single exposure: Inhalation (vapor): No significant health effects observed in animals at concentrations of 20mg/l/4h or less.

STOT-repeated exposure: Inhalation (vapor): No significant health effects observed in animals at concentrations of 1mg/l/6h/d or less.

Aspiration toxicity: No aspiration toxicity classification.

12. ECOLOGICAL INFORMATION

Isopropyl Alcohol

Acute toxicity to fish: 96 hour LC50 in Pimephales promelas (fathead minnow): 10,000 mg/l

Acute toxicity to daphnia and other aquatic invertebrates: 24 hour EC50 in Daphnia magna (water flea): >10,000 mg/l

Acute toxicity to microorganisms: 16 hour EC50 in Pseudomonas putida: >1,050 mg/l

Persistence and degradability: Rapidly degradable. BOD: 1.19 (BOD5)COD: 2.23BOD/COD: 53%

Bioaccumulative potential: Partition coefficient: n-octanol/water: log Pow: 0.05

Mobility in soil: No data available.

1,1,1,2,2,3,4,5,5,5-Decafluoropentane:

96 hour LC50 in Danio rerio (zebra fish): 13 mg/l. Method: OECD Test Guideline 203

48 hour EC50 in Daphnia magna (Water flea): 10.6 mg/l. Method: OECD Test Guideline 202

72 hour EC50 in Selenastrum capricornutum (Green algae): >120 mg/l. Method: OECD Test Guideline 201

21 days NOEC in Daphnia magna (Water flea): 1.72 mg/l. Method: OECD Test Guideline 211

Biodegradability: Not readily biodegradable. Method: OECD Test Guideline 301D

Bioaccumulative potential: Bioaccumulation is unlikely. Partition coefficient: n-octanol/water: log Pow: 2.4 (75°F/24°C)

Mobility in soil: No data available

13. DISPOSAL CONSIDERATIONS

Comply with federal, state and local regulations. Remove to a permitted waste disposal facility.

14. TRANSPORT INFORMATION

U.S. DOT

Proper Shipping Name: Flammable liquid, n.o.s. (Isopropanol)

Hazard Class: 3

Identification No. UN1993

Packing Group: II

IATA

Proper Shipping Name: Flammable liquid, n.o.s. (Isopropanol)

Hazard Class: 3

Identification No. UN1993

Packing Group: II

IMDG

Proper Shipping Name: Flammable liquid, n.o.s. (Isopropanol)

Hazard Class: 3

Identification No. UN1993

Packing Group: II

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA: All ingredients are listed in TSCA inventory.

,1,1,2,2,3,4,5,5,5-Decafluoropentane (CAS# 138495-42-8) - The United States Environmental Protection Agency has established a Significant New Use Rule (SNUR; 40 CFR 721.5645) for this product. Also, this product requires an export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D.

SARA 304 Extremely Hazardous Substances Reportable Quantity: This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity: This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards: Flammable liquid and vapor.

Causes serious eye irritation.

May cause drowsiness or dizziness.

SARA 313 Regulated Chemicals: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR 372). They may not be intentionally present in the product; however, it is possible that it may be present as an impurity and the exact concentration may vary between batches:

Perfluorobutanoic acid, CAS No.: 375-22-4, < 0.8 ppb

Perfluorohexanoic acid, CAS No.: 307-24-4, < 1.2 ppb

Perfluorononanoic acid, CAS No.: 375-95-1, < 1.5 ppb

Perfluorododecanoic acid, CAS No.: 307-55-1, < 1.7 ppb

Perfluorodecanoic acid, CAS No.: 335-76-2, < 1.8ppb

Perfluorooctanoic acid, CAS No.: 335-67-1, < 3 ppb

U.S. State Regulations:

California Prop. 65

WARNING: This product can expose you to chemicals including 2,2'-Iminodiethanol, which is/are known to the State of California to cause cancer, and Carbon monoxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. Note to User: This product is not made with PFOA nor is PFOA intentionally present in the product; however, it is possible that PFOA may be present as an impurity at background (environmental) levels.

16. OTHER INFORMATION

NPCA-HMIS Ratings:

Health	- 1
Flammability	- 2
Reactivity	- 0

Personal Protective rating to be supplied by user depending on the conditions.

FOR INDUSTRIAL USE ONLY

REVISION DATE: APRIL 22, 2024

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user.