

SAFETY DATA SHEET



DryFilm RA

Version 2.6 Revision Date: 05.11.2024 SDS Number: 3949946-00011 Date of last issue: 12.01.2024
Date of first issue: 18.01.2019

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DryFilm RA
SDS-Identcode : 130000008600

Manufacturer or supplier's details

Company name of supplier : The Chemours Company FC, LLC
Address : 1007 Market Street
Wilmington, DE 19801 United States of America (USA)
Telephone : 55 5125 4907 in D.F. and metropolitan area - 800 737 5623
inside the Republic.
Emergency telephone : (ANIQ - SETIQ) 55 5559 1588 in CDMX and metropolitan
area; 800 002 1400 inside the Republic.
E-mail address : sds-support@chemours.com

Recommended use of the chemical and restrictions on use

Recommended use : Dry lubricant

Restrictions on use : For industrial use only.
Do not use or resell Chemours™ materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless agreed to by Seller in a written agreement covering such use. For further information, please contact your Chemours representative.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required.

Other hazards

The thermal decomposition vapors of fluorinated plastics may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8	>= 70 -< 90

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SECTION 4. FIRST AID MEASURES

- | | | |
|---|---|---|
| If inhaled | : | If inhaled, remove to fresh air.
Get medical attention if symptoms occur. |
| In case of skin contact | : | Wash with water and soap as a precaution.
Get medical attention if symptoms occur. |
| In case of eye contact | : | Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists. |
| If swallowed | : | If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.
Rinse mouth thoroughly with water. |
| Most important symptoms and effects, both acute and delayed | : | None known. |
| Protection of first-aiders | : | No special precautions are necessary for first aid responders. |
| Notes to physician | : | Treat symptomatically and supportively. |
-

SECTION 5. FIRE-FIGHTING MEASURES

- | | | |
|---------------------------------------|---|---|
| Suitable extinguishing media | : | Water spray
Alcohol-resistant foam
Carbon dioxide (CO ₂)
Dry chemical |
| Unsuitable extinguishing media | : | None known. |
| Specific hazards during fire fighting | : | Exposure to combustion products may be a hazard to health. |
| Hazardous combustion products | : | Hydrogen fluoride
carbonyl fluoride
Carbon oxides
potentially toxic fluorinated compounds
aerosolized particulates |
| Specific extinguishing methods | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area. |

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Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g., by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Take care to prevent spills, waste and minimize release to the environment.

Do not breathe decomposition products.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.

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Wash contaminated clothing before re-use.

Conditions for safe storage : Keep in properly labeled containers.
Store in accordance with the particular national regulations.

Materials to avoid : No special restrictions on storage with other products.

Recommended storage temperature : < 52 °C

Further information on storage stability : Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8	TWA	225 ppm 2,320 mg/m ³	WEEL
		STEL	700 ppm 7,217 mg/m ³	WEEL

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Hydrogen fluoride	7664-39-3	VLE-PPT	0.5 ppm (Fluorine)	NOM-010-STPS-2014
		VLE-P	2 ppm (Fluorine)	NOM-010-STPS-2014
		TWA	0.5 ppm (Fluorine)	ACGIH
		C	2 ppm (Fluorine)	ACGIH
Carbonyl difluoride	353-50-4	VLE-PPT	2 ppm	NOM-010-STPS-2014
		VLE-CT	5 ppm	NOM-010-STPS-2014
		TWA	2 ppm	ACGIH
		STEL	5 ppm	ACGIH
Carbon dioxide	124-38-9	VLE-PPT	5,000 ppm	NOM-010-STPS-2014
		VLE-CT	30,000 ppm	NOM-010-STPS-2014
		TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
Carbon monoxide	630-08-0	VLE-PPT	25 ppm	NOM-010-STPS-2014
		TWA	25 ppm	ACGIH

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Engineering measures : Processing may form hazardous compounds (see section 10).
Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Self-contained breathing apparatus

Hand protection

Remarks : Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Safety glasses

Skin and body protection : Skin should be washed after contact.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : viscous liquid

Color : translucent, white

Odor : No data available

Odor Threshold : No data available

pH : 4 - 6

Melting point/freezing point : No data available

Initial boiling point and boiling range : 55 °C

Flash point : Method: Tag closed cup
does not flash

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : No data available

Upper explosion limit / Upper

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flammability limit

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : 301 hPa

Relative vapor density : No data available

Relative density : 1.63

Solubility(ies)

Water solubility : insoluble

Partition coefficient: n-octanol/water : Not applicable

Autoignition temperature : No data available

Decomposition temperature : 300 °C

Viscosity

Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Particle characteristics

Particle size : Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Hazardous decomposition products will be formed at elevated temperatures.

Conditions to avoid : None known.

Incompatible materials : None.

Hazardous decomposition products

Thermal decomposition : Hydrogen fluoride
Carbonyl difluoride
Carbon dioxide
Carbon monoxide

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SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

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

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 114.428 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: OECD Test Guideline 403

No observed adverse effect concentration (Dog): 5000 ppm
Test atmosphere: gas
Method: Cardiac sensitization study

Lowest observed adverse effect concentration (Dog): > 5000 ppm
Test atmosphere: gas
Method: Cardiac sensitization study

Cardiac sensitisation threshold limit (Dog): > 51,544 mg/m³
Test atmosphere: gas
Method: Cardiac sensitization study

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Not classified based on available information.

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

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

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Components:

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

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

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

Test Type	:	Buehler Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

Germ cell mutagenicity

Not classified based on available information.

Components:

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

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
		Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Rat Application Route: inhalation (vapor) Method: OECD Test Guideline 474 Result: negative
Germ cell mutagenicity - Assessment	:	Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

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Components:

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

- | | | |
|------------------------------------|---|---|
| Effects on fertility | : | Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapor)
Method: OECD Test Guideline 415
Result: negative |
| Effects on fetal development | : | Test Type: Prenatal development toxicity study (teratogenicity)
Species: Rat
Application Route: inhalation (vapor)
Method: OECD Test Guideline 414
Result: negative |
| Reproductive toxicity - Assessment | : | Weight of evidence does not support classification for reproductive toxicity |

STOT-single exposure

Not classified based on available information.

Components:

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

- | | | |
|--------------------|---|--|
| Routes of exposure | : | Ingestion |
| Assessment | : | No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less |
| Routes of exposure | : | Skin contact |
| Assessment | : | No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less |
| Routes of exposure | : | inhalation (vapor) |
| Assessment | : | No significant health effects observed in animals at concentrations of 20 mg/l/4h or less |

STOT-repeated exposure

Not classified based on available information.

Components:

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

- | | | |
|--------------------|---|---|
| Routes of exposure | : | inhalation (vapor) |
| Assessment | : | No significant health effects observed in animals at concentrations of 1 mg/l/6h/d or less. |

Repeated dose toxicity

Components:

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

- | | | |
|---------|---|----------------------|
| Species | : | Rat, male and female |
| NOAEL | : | 15.463 mg/l |
| LOAEL | : | 20.618 mg/l |

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Application Route : inhalation (vapor)
Exposure time : 90 Days
Method : OECD Test Guideline 413

Aspiration toxicity

Not classified based on available information.

Components:

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

No aspiration toxicity classification

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

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

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 13 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 10.6 mg/l
aquatic invertebrates
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50 (Selenastrum capricornutum (green algae)): > 120 mg/l
plants
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Scenedesmus capricornutum (fresh water algae)): 120 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other : NOEC (Daphnia magna (Water flea)): 1.72 mg/l
aquatic invertebrates (Chronic toxicity)
Exposure time: 21 d
Method: OECD Test Guideline 211

Persistence and degradability

Components:

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

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

Bioaccumulative potential

Components:

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

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Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 2.4 (24 °C)

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Do not dispose of waste into sewer.

Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

NOM-002-SCT

Not regulated as a dangerous good

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

NOM-165-SEMARNAT-2013, Norm establishing a list of substances subject to report for the Registry of Emissions and Pollutant Transfer

Components	CAS-No.	MPU (kg/year)	Transfer/Release (kg/year)
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1,1,1,2,2,3,4,5,5,5-
Decafluoropentane

138495-42-8

2500 kg/year

100 kg/year

MPU: Applicable reporting threshold when the substance, pure or in mixture in a composition of more than 1% by weight, is used for industrial activities at facilities that are subject to report or are produced by them

Federal Law for the control of chemical precursors, : Not applicable
essential chemical products and machinery for producing capsules, tablets and pills.

International Regulations

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

SECTION 16. OTHER INFORMATION

Revision Date : 05.11.2024

Date format : dd.mm.yyyy

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Before use read Chemours safety information.
For further information contact the local Chemours office or nominated distributors.

Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
NOM-010-STPS-2014	: Mexico. Norm NOM-010-STPS-2014 on Chemicals Polluting the Work Environment - Identification, Assessment and Control - Appendix 1 Occupational Exposure Limits
WEEL	: Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit
ACGIH / C	: Ceiling limit
NOM-010-STPS-2014 / VLE-	: Time weighted average limit value
PPT	
NOM-010-STPS-2014 / VLE-	: Short term exposure limit value
CT	
NOM-010-STPS-2014 / VLE-	: Ceiling value
P	
WEEL / STEL	: Short term exposure limit
WEEL / TWA	: 8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory con-

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centration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

The information is considered as correct, but not exhaustive, and will be used only as a guide, which is based in the current knowledge of the substance or mixture, and is applicable to proper safety precautions for the product.

MX / Z8