

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard



Formacel™ B 50 Foam Expansion Agent

Version	Revision Date:	SDS Number:	Date of last issue: 04/14/2023
11.6	12/11/2023	1331520-00050	Date of first issue: 02/27/2017

SECTION 1. IDENTIFICATION

Product name : Formacel™ B 50 Foam Expansion Agent

SDS-Identcode : 130000028307

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 : 1-844-773-CHEM (outside the U.S. 1-302-773-1000)

Emergency telephone : Medical emergency: 1-866-595-1473 (outside the U.S. 1-302-773-2000) ; Transport emergency: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

Recommended use of the chemical and restrictions on use

Recommended use : Foam expansion agent

Restrictions on use : For professional users only.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable gases : Category 1

Gases under pressure : Liquefied gas

Simple Asphyxiant

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary Statements : **Prevention:**
P210 Keep away from heat, sparks, open flame and hot surfac-

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es. No smoking.

Response:

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 Eliminate all ignition sources if safe to do so.

Storage:

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Other hazards

Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects.

Rapid evaporation of the product may cause frostbite.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
1,1-Difluoroethane	75-37-6	>= 50 - < 70
1,1,1,2-Tetrafluoroethane#	811-97-2	>= 30 - < 50
1,1,2,2-Tetrafluoroethane#	359-35-3	>= 10 - < 20

Voluntarily-disclosed substance

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	: In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.
If inhaled	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
In case of skin contact	: Thaw frosted parts with lukewarm water. Do not rub affected area. Get medical attention immediately.
In case of eye contact	: Get medical attention immediately.
If swallowed	: Ingestion is not considered a potential route of exposure.
Most important symptoms and effects, both acute and delayed	: May cause cardiac arrhythmia. Other symptoms potentially related to misuse or inhalation abuse are

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Cardiac sensitization
Anaesthetic effects
Light-headedness
Dizziness
confusion
Lack of coordination
Drowsiness
Unconsciousness
May displace oxygen and cause rapid suffocation.
Gas reduces oxygen available for breathing.
Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Protection of first-aiders : No special precautions are necessary for first aid responders.

Notes to physician : 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.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : None known.

Specific hazards during fire fighting : Vapors may form flammable mixture with air
Exposure to combustion products may be a hazard to health.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.

Hazardous combustion products : Hydrogen fluoride
carbonyl fluoride
Carbon oxides

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fight fire remotely due to the risk of explosion.
Use water spray to cool unopened containers.
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

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

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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Only trained personnel should re-enter the area.
Remove all sources of ignition.
Avoid skin contact with leaking liquid (danger of frostbite).
Ventilate the area.
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.
Retain and dispose of contaminated wash water.
- Methods and materials for containment and cleaning up : Ventilate the area.
Non-sparking tools should be used.
Suppress (knock down) gases/vapors/mists with a water spray jet.
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 : Use equipment rated for cylinder pressure. Use a backflow preventative device in piping. Close valve after each use and when empty.
- Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.
- Advice on safe handling : Avoid breathing gas.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Wear cold insulating gloves/ face shield/ eye protection.
Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point.
Prevent backflow into the gas tank.
Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.
Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems.
Close valve after each use and when empty. Do NOT change or force fit connections.

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Prevent the intrusion of water into the gas tank.
Never attempt to lift cylinder by its cap.
Do not drag, slide or roll cylinders.
Use a suitable hand truck for cylinder movement.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.
Separate full containers from empty containers.
Do not store near combustible materials.
Avoid area where salt or other corrosive materials are present.
Keep in properly labeled containers.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Keep away from direct sunlight.
Store in accordance with the particular national regulations.
Keep away from heat and sources of ignition.

Materials to avoid : Do not store with the following product types:
Self-reactive substances and mixtures
Organic peroxides
Oxidizing agents
Flammable liquids
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures which in contact with water emit flammable gases
Explosives
Very acutely toxic substances and mixtures
Acutely toxic substances and mixtures
Substances and mixtures with chronic toxicity

Recommended storage temperature : < 126 °F / < 52 °C

Storage period : > 10 y

Further information on storage stability : The product has an indefinite shelf life when stored properly.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
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1,1-Difluoroethane	75-37-6	TWA	1,000 ppm	US WEEL
1,1,1,2-Tetrafluoroethane	811-97-2	TWA	1,000 ppm	US WEEL
1,1,2,2-Tetrafluoroethane	359-35-3	TWA	1,000 ppm	US WEEL

Engineering measures : Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Take note that the product is flammable, which may impact the selection of hand protection. Take note that the product is extremely cold, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Chemical resistant goggles must be worn.
Face-shield

Skin and body protection : Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.

Protective measures : Wear cold insulating gloves/ face shield/ eye protection.

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.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance	: Liquefied gas
Color	: clear, colorless
Odor	: slight, ether-like
Odor Threshold	: No data available
pH	: No data available
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: -11.0 °F / -23.9 °C
Flash point	: Not applicable
Evaporation rate	: Not applicable
Flammability (solid, gas)	: Flammable
Upper explosion limit / Upper flammability limit	: Upper flammability limit 17.8 %(V) Method: ASTM E681
Lower explosion limit / Lower flammability limit	: Lower flammability limit 5.8 %(V) Method: ASTM E681
Vapor pressure	: 6,085 hPa (77 °F / 25 °C)
Relative vapor density	: No data available
Density	: 1.03 g/cm ³ (77 °F / 25 °C) (as liquid)
Solubility(ies) Water solubility	: 13.5 g/l (77 °F / 25 °C)
Partition coefficient: n-octanol/water	: Not applicable
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity Viscosity, kinematic	: Not applicable

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Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions.
Possibility of hazardous reactions	:	Vapors may form flammable mixture with air Can react with strong oxidizing agents. Extremely flammable gas.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact
Eye contact

Acute toxicity

Not classified based on available information.

Components:

1,1-Difluoroethane:

Acute oral toxicity	:	Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50 (Rat): > 437500 ppm Exposure time: 4 h Test atmosphere: gas No observed adverse effect concentration (Dog): 50000 ppm Test atmosphere: gas Method: Cardiac sensitization study Lowest observed adverse effect concentration (Dog): 150000 ppm Test atmosphere: gas

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Method: Cardiac sensitization study

Cardiac sensitisation threshold limit (Dog): 405,000 mg/m³
Test atmosphere: gas
Method: Cardiac sensitization study

Acute dermal toxicity : Assessment: The substance or mixture has no acute dermal toxicity

1,1,1,2-Tetrafluoroethane:

Acute oral toxicity : Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 567000 ppm
Exposure time: 4 h
Test atmosphere: gas
Method: OECD Test Guideline 403

No observed adverse effect concentration (Dog): 40000 ppm
Test atmosphere: gas
Remarks: Cardiac sensitization

Lowest observed adverse effect concentration (Dog): 80000 ppm
Test atmosphere: gas
Symptoms: May cause cardiac arrhythmia.

Cardiac sensitisation threshold limit (Dog): 334,000 mg/m³
Test atmosphere: gas
Symptoms: May cause cardiac arrhythmia.

Acute dermal toxicity : Assessment: The substance or mixture has no acute dermal toxicity

1,1,2,2-Tetrafluoroethane:

Acute inhalation toxicity : LC50 (Rat): > 244000 ppm
Exposure time: 4 h
Test atmosphere: gas

Lowest observed adverse effect concentration (Dog): 100000 ppm
Test atmosphere: gas
Symptoms: Cardiac sensitization

No observed adverse effect concentration (Dog): 75000 ppm
Test atmosphere: gas
Symptoms: Cardiac sensitization

Cardiac sensitisation threshold limit (Dog): 420,000 mg/m³
Test atmosphere: gas
Symptoms: Cardiac sensitization

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Skin corrosion/irritation

Not classified based on available information.

Components:

1,1-Difluoroethane:

Result : No skin irritation

1,1,1,2-Tetrafluoroethane:

Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

1,1-Difluoroethane:

Result : No eye irritation

1,1,1,2-Tetrafluoroethane:

Result : No eye irritation

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

1,1-Difluoroethane:

Routes of exposure : Skin contact
Result : negative

Routes of exposure : Inhalation
Species : Rat
Result : negative

1,1,1,2-Tetrafluoroethane:

Routes of exposure : Skin contact
Result : negative

Routes of exposure : Inhalation
Species : Rat
Result : negative

Routes of exposure : Inhalation
Species : Humans
Result : negative

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1,1,2,2-Tetrafluoroethane:

Routes of exposure : Skin contact
Species : Not tested on animals
Result : negative

Germ cell mutagenicity

Not classified based on available information.

Components:

1,1-Difluoroethane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

1,1,1,2-Tetrafluoroethane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative

Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo
Species: Rat
Application Route: inhalation (gas)
Method: OECD Test Guideline 486
Result: negative

Germ cell mutagenicity - : Weight of evidence does not support classification as a germ

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Assessment cell mutagen.

1,1,2,2-Tetrafluoroethane:

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Not classified based on available information.

Components:

1,1-Difluoroethane:

Species : Rat
Application Route : inhalation (gas)
Exposure time : 104 weeks
Method : OECD Test Guideline 453
Result : negative

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

1,1,1,2-Tetrafluoroethane:

Species : Rat
Application Route : inhalation (gas)
Exposure time : 2 Years
Method : OECD Test Guideline 453
Result : negative

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Components:

1,1-Difluoroethane:

Effects on fertility : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Application Route: inhalation (gas)
Method: OECD Test Guideline 478
Result: negative
Remarks: Based on data from similar materials

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Test Type: Combined Chronic Toxicity/Carcinogenicity Studies
Species: Rat
Application Route: inhalation (gas)
Method: OECD Test Guideline 453
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

Test Type: Prenatal development toxicity study (teratogenicity)
Species: Rabbit
Application Route: inhalation (gas)
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

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

1,1,1,2-Tetrafluoroethane:

Effects on fertility : Species: Mouse
Application Route: Inhalation
Result: negative

Effects on fetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rabbit
Application Route: inhalation (gas)
Method: OECD Test Guideline 414
Result: negative

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

STOT-single exposure

May displace oxygen and cause rapid suffocation.

Components:

1,1-Difluoroethane:

Routes of exposure : inhalation (gas)
Assessment : No significant health effects observed in animals at concentrations of 20000 ppmV/4h or less

Routes of exposure : Skin contact
Assessment : No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less

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Routes of exposure : Ingestion
Assessment : No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less

1,1,1,2-Tetrafluoroethane:

Routes of exposure : inhalation (gas)
Assessment : No significant health effects observed in animals at concentrations of 20000 ppmV/4h or less

STOT-repeated exposure

Not classified based on available information.

Components:

1,1-Difluoroethane:

Routes of exposure : inhalation (gas)
Assessment : No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less.

Routes of exposure : Skin contact
Assessment : No significant health effects observed in animals at concentrations of 200 mg/kg bw or less.

Routes of exposure : Ingestion
Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

1,1,1,2-Tetrafluoroethane:

Routes of exposure : inhalation (gas)
Assessment : No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less.

1,1,2,2-Tetrafluoroethane:

Assessment : No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less.

Repeated dose toxicity

Components:

1,1-Difluoroethane:

Species : Rat, male and female
NOAEL : 25000 ppm
LOAEL : >25000 ppm
Application Route : inhalation (gas)
Exposure time : 104 Weeks
Method : OECD Test Guideline 453

1,1,1,2-Tetrafluoroethane:

Species : Rat, male and female

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NOAEL	:	50000 ppm
LOAEL	:	>50000 ppm
Application Route	:	inhalation (gas)
Exposure time	:	2 y
Method	:	OECD Test Guideline 453

1,1,2,2-Tetrafluoroethane:

Species	:	Rat
NOAEL	:	50000 ppm
Application Route	:	inhalation (gas)
Exposure time	:	28 d
Method	:	OECD Test Guideline 412
Remarks	:	No significant adverse effects were reported

Aspiration toxicity

Not classified based on available information.

Components:

1,1-Difluoroethane:

No aspiration toxicity classification

1,1,1,2-Tetrafluoroethane:

No aspiration toxicity classification

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

1,1-Difluoroethane:

Toxicity to fish	:	LC50 (Fish): 295.783 mg/l Exposure time: 96 h Method: ECOSAR (Ecological Structure Activity Relationships)
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia): 146.695 mg/l Exposure time: 48 h Method: ECOSAR (Ecological Structure Activity Relationships)
Toxicity to algae/aquatic plants	:	EC50 (algae): 47.755 mg/l Method: ECOSAR (Ecological Structure Activity Relationships)

Ecotoxicology Assessment

Acute aquatic toxicity	:	This product has no known ecotoxicological effects.
Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

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1,1,1,2-Tetrafluoroethane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 450 mg/l
Exposure time: 96 h
Method: Regulation (EC) No. 440/2008, Annex, C.1

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 980 mg/l
Exposure time: 48 h
Method: Regulation (EC) No. 440/2008, Annex, C.2

Toxicity to algae/aquatic plants : ErC50 (green algae): > 100 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

1,1,2,2-Tetrafluoroethane:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 980 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (algae): 142 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): 13.2 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

Persistence and degradability

Components:

1,1-Difluoroethane:

Biodegradability : Result: Not readily biodegradable.

1,1,1,2-Tetrafluoroethane:

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

Bioaccumulative potential

Components:

1,1-Difluoroethane:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 1.13 (77 °F / 25 °C)

1,1,1,2-Tetrafluoroethane:

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Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 1.06

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.

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

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3161
Proper shipping name : LIQUEFIED GAS, FLAMMABLE, N.O.S.
(1,1-Difluoroethane, 1,1,1,2-Tetrafluoroethane)
Class : 2.1
Packing group : Not assigned by regulation
Labels : 2.1
Environmentally hazardous : no

IATA-DGR

UN/ID No. : UN 3161
Proper shipping name : Liquefied gas, flammable, n.o.s.
(1,1-Difluoroethane, 1,1,1,2-Tetrafluoroethane)
Class : 2.1
Packing group : Not assigned by regulation
Labels : Flammable Gas
Packing instruction (cargo aircraft) : 200
Packing instruction (passenger aircraft) : Not permitted for transport

IMDG-Code

UN number : UN 3161
Proper shipping name : LIQUEFIED GAS, FLAMMABLE, N.O.S.
(1,1-Difluoroethane, 1,1,1,2-Tetrafluoroethane)
Class : 2.1
Packing group : Not assigned by regulation
Labels : 2.1

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EmS Code : F-D, S-U
Marine pollutant : no

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

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number : UN 3161
Proper shipping name : Liquefied gas, flammable, n.o.s.
(1,1-Difluoroethane, 1,1,1,2-Tetrafluoroethane)
Class : 2.1
Packing group : Not assigned by regulation
Labels : FLAMMABLE GAS
ERG Code : 115
Marine pollutant : no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

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 (gases, aerosols, liquids, or solids)
Gases under pressure
Simple Asphyxiant

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Pennsylvania Right To Know

1,1-Difluoroethane	75-37-6
1,1,1,2-Tetrafluoroethane	811-97-2
1,1,2,2-Tetrafluoroethane	359-35-3

International Regulations

Montreal Protocol : 1,1-Difluoroethane
1,1,1,2-Tetrafluoroethane
1,1,2,2-Tetrafluoroethane

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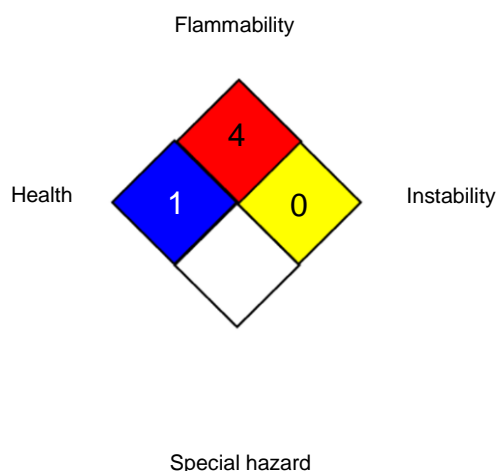
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SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	/	0
FLAMMABILITY		4
PHYSICAL HAZARD		3

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "/" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

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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

US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
US WEEL / TWA	:	8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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 concentration; 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 Pre-

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vention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECL - 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

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/>

Revision Date : 12/11/2023

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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