

FORANE® 123

1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
 900 First Avenue
 King of Prussia, Pennsylvania 19406

Fluorochemicals

Customer Service Telephone Number: (800) 245-5858
 (Monday through Friday, 8:00 AM to 5:00 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
 (24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (866) 767-5089
 (24 hrs., 7 days a week)

Product Information

Product name: FORANE® 123
Synonyms: Not available
Molecular formula: CHCl₂CF₃
Chemical family: Hydrochlorofluorocarbon
Molecular weight: 152.93 g/mol
Product use: Refrigerant

2. HAZARDS IDENTIFICATION

Emergency Overview

Color: Clear - colourless
Physical state: liquid
Odor: Ether-like (slightly)

***Classification of the substance or mixture:**
 Specific target organ toxicity - repeated exposure, Category 2, H373
 Hazardous to the ozone layer, Category 1, H420

*For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms:



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Signal word: **Warning**

Hazard statements:

H420 : Harms public health and the environment by destroying ozone in the upper atmosphere.
 H373 : May cause damage to organs through prolonged or repeated exposure.

Supplemental Hazard Statements:

May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. Specific target organ toxicity - repeated exposure: liver. May cause frostbite. May displace oxygen and cause rapid suffocation. May cause headache, nausea, dizziness, drowsiness, loss of consciousness. May cause cardiac sensitization/cardiac arrhythmia.

Precautionary statements:

Prevention:

P260 : Do not breathe gas/mist/vapours/spray.

Response:

P314 : Get medical advice/ attention if you feel unwell.

Disposal:

P501 : Dispose of contents/ container to an approved waste disposal plant.
 P502 : Refer to manufacturer/ supplier for information on recovery/ recycling.

Supplemental information:

Potential Health Effects:

Liquid : Rapid evaporation of the liquid may cause frostbite. Vapor: Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Central nervous system effects: headache, nausea, dizziness, drowsiness, loss of consciousness. Stress induced heart effects: Inhalation may cause an increase in the sensitivity of the heart to adrenaline, which could result in irregular or rapid heartbeats and reduced heart function.

Medical conditions aggravated by overexposure:

Heart disease or compromised heart function. Liver disorders

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	GHS Classification**
Ethane, 2,2-dichloro-1,1,1-trifluoro-	306-83-2	100 %	H420, H373

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**For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES**Inhalation:**

If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin:

If on skin, flush exposed skin with lukewarm water (not hot), or use other means to warm skin slowly. Get medical attention if frostbitten by liquid or if irritation occurs. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:

Immediately flush eye(s) with plenty of water.

Ingestion:

If swallowed, DO NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

Notes to physician:

Do not give drugs from adrenaline-ephedrine group.

5. FIREFIGHTING MEASURES**Extinguishing media (suitable):**

Water spray, Carbon dioxide (CO₂), Foam, Dry chemical

Protective equipment:

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Further firefighting advice:

Fire fighting equipment should be thoroughly decontaminated after use.

Water mist should be used to reduce vapor concentrations in air.

Cool closed containers exposed to fire with water spray.

Fire and explosion hazards:

May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. Some mixtures of HCFCs and/or HFCs, and air or oxygen may be combustible if pressurized and exposed to extreme heat or flame.

When burned, the following hazardous products of combustion can occur:

Carbon oxides
Hydrogen fluoride
hydrogen chloride
Carbonyl halides

FORANE® 123**6. ACCIDENTAL RELEASE MEASURES****In case of spill or leak:**

Prevent further leakage or spillage if you can do so without risk. Evacuate area of all unnecessary personnel. Eliminate all ignition sources. Use Halogen leak detector or other suitable means to locate leaks or check atmosphere. Keep upwind. Evacuate enclosed spaces and disperse gas with floor-level forced-air ventilation. Avoid breathing leaked material. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7. HANDLING AND STORAGE**Handling****General information on handling:**

Do not breathe vapor or mist.
Avoid contact with the skin, eyes and clothing.
Wear cold-insulating gloves/face shield/eye protection.
Keep container closed.
Use only with adequate ventilation.
Use a backflow preventative device in piping.
Wash thoroughly after handling.
Do not change or force fit connections.
Do not enter confined spaces unless adequately ventilated.
Emptied container retains product residue.
Improper disposal or reuse of this container may be dangerous and/or illegal.

Storage**General information on storage conditions:**

Keep away from direct sunlight. Store in cool, dry, well ventilated area away from sources of ignition such as flame, sparks and static electricity.

Storage incompatibility – General:

Finely divided metals (aluminium, magnesium, zinc...)

Alkaline earth metals

Strong oxidizing agents

Strong bases

Alkali metals

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Airborne Exposure Guidelines:****Ethane, 2,2-dichloro-1,1,1-trifluoro- (306-83-2)**

US. OARS. WEELs Workplace Environmental Exposure Level Guide

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Time weighted average 50 ppm (310 mg/m3)

Remarks: Listed

Arkema Occupational Exposure Limits

time weighted average 10 ppm

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

Engineering controls:

Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Monitor carbon monoxide and oxygen levels in tanks and enclosed spaces.

Respiratory protection:

Do not breathe vapor or mist. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components (full facepiece recommended). Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:

Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Rinse immediately if skin is contaminated. Wash contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

Eye protection:

Use good industrial practice to avoid eye contact.

9. PHYSICAL AND CHEMICAL PROPERTIES
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Color: Clear - colourless

Physical state: liquid

Odor: Ether-like (slightly)

Odor threshold: No data available

Flash point None. does not flash

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Auto-ignition temperature:	Not applicable
Lower flammable limit (LFL):	None.
Upper flammable limit (UFL):	None.
pH:	7
Density:	1.46 g/cm ³ (77 °F (25 °C))
Vapor pressure:	594.722 mmHg (70.0 °F (21.1 °C))
Relative vapor density:	5.3 (Air = 1.0)
Vapor density:	5.31 kg/m ³
Boiling point/boiling range:	82.0 °F (27.8 °C)
Freezing point:	-161 °F (-107 °C)
Evaporation rate:	No data available
Solubility in water:	Slightly soluble
% Volatiles:	100 %
Molecular weight:	152.93 g/mol
Oil/water partition coefficient:	No data available
Thermal decomposition	No data available
Flammability:	See GHS Classification in Section 2

10. STABILITY AND REACTIVITY

Stability:

This material is chemically stable under normal and anticipated storage, handling and processing conditions.

Materials to avoid:

Strong oxidizing agents
 Alkaline earth metals
 Finely divided metals (aluminium, magnesium, zinc...)
 Strong bases
 Alkali metals

Conditions / hazards to avoid:

Heat

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Hazardous decomposition products:

Thermal decomposition giving toxic and corrosive products :
 Hydrogen fluoride
 hydrogen chloride
 Carbonyl halides
 Carbon oxides

11. TOXICOLOGICAL INFORMATION

Data on this material and/or its components and/or a similar material are summarized below.

Data for FORANE® 123

Acute toxicity

Oral:

Practically nontoxic. (Rat) ALD 9,000 mg/kg.

Dermal:

No deaths occurred. (rat, rabbit) LD0 > 2,000 mg/kg.

Inhalation:

Practically nontoxic. (Rat) 4 h LC50 = 32000 ppm. signs: Anaesthetic effect, weakness, incoordination, unresponsive (Gas, At high concentrations)

Skin Irritation:

Causes mild skin irritation. (Rabbit) (4 h) (Rapid evaporation of the liquid may cause frostbite.)

Eye Irritation:

Causes eye irritation. (Rabbit) signs: Rapid evaporation of the liquid may cause frostbite (gas spray)

Sensitization:

Causes cardiac sensitization. Inhalation. (Dog) Stress-induced heart effects. signs: irregular heart beat, rapid heart beat, in some cases, sudden death

Skin Sensitization:

Not a sensitizer. Guinea pig maximization test. (guinea pig) No skin allergy was observed

Repeated dose toxicity

Chronic inhalation administration to Rat / affected organ(s): liver, pancreas, adrenal gland, eye, testes / signs: changes in organ structure or function, clinical chemistry changes

Subchronic inhalation administration to Dog / affected organ(s): liver / signs: changes in organ weights, changes in organ structure or function, clinical chemistry changes

Carcinogenicity

Chronic inhalation administration to Rat / affected organ(s): liver, pancreas, testes / signs: Increased incidence of tumors was reported.

Genotoxicity

FORANE® 123**Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells

Genetic changes were observed in laboratory tests using: human cells

Assessment in Vivo:

No genetic changes were observed in a laboratory test using: rats, mice

Reproductive effects

Reproduction test. inhalation (rat) / No toxicity to reproduction. / (levels produced toxic effects in the mothers and offspring)

12. ECOLOGICAL INFORMATION**Chemical Fate and Pathway**

Data on this material and/or a similar material are summarized below.

Data for FORANE® 123**Octanol Water Partition Coefficient:**

log Pow = 2.3 (calculated) (Low potential to bioaccumulate)

Global Warming Potential:

GWP 77 (Global warming potential with respect to CO₂ (time horizon 100 years))

Ozone Depletion Potential:

ODP 0.02 - 0.06

Ecotoxicology

Data on this material and/or a similar material are summarized below.

Data for FORANE® 123**Aquatic toxicity data:**

Harmful. *Oncorhynchus mykiss* (rainbow trout) 96 h LC₅₀ = 55.5 mg/l

Aquatic invertebrates:

Harmful. *Daphnia magna* (Water flea) 48 h EC₅₀ = 17.3 mg/l

Algae:

Harmful. *Pseudokirchneriella subcapitata* (green algae) 72 h ErC₅₀ = 96.6 mg/l

13. DISPOSAL CONSIDERATIONS**Waste disposal:**

Do not vent the container contents, or product residuals, to the atmosphere. Recover and reclaim unused contents or residuals as appropriate. Recovered/reclaimed product can be returned to an approved certified reclaimer or back to the seller depending on the material. Completely emptied disposable containers can be disposed of as recyclable steel. Returnable cylinders must be returned to seller. Dispose of in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for

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assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT): not regulated

International Maritime Dangerous Goods Code (IMDG): not regulated

15. REGULATORY INFORMATION

Chemical Inventory Status

EU. EINECS	EINECS	Conforms to
United States TSCA Inventory	TSCA	The components of this product are all on the TSCA Inventory.
Canadian Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL.
China. Inventory of Existing Chemical Substances in China (IECSC)	IECSC (CN)	Conforms to
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	Conforms to
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Conforms to
Korea. Korean Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	PICCS (PH)	Conforms to
Australia Inventory of Chemical Substances (AICS)	AICS	Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

The components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.

SARA Title III - Section 311/312 Hazard Categories:

Acute Health Hazard, Chronic Health Hazard

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SARA Title III – Section 313 Toxic Chemicals:

The following components are subject to reporting levels established by SARA Title III, Section 313:

<u>Chemical Name</u>	<u>CAS-No.</u>	<u>De minimis concentration</u>	<u>Reportable threshold:</u>
Ethane, 2,2-dichloro-1,1,1-trifluoro-	306-83-2	1.0 %	25000 lbs (Manufacturing and processing) 10000 lbs (Otherwise used (non-manufacturing/processing))

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.

United States – State Regulations

New Jersey Right to Know

<u>Chemical Name</u>	<u>CAS-No.</u>
Ethane, 2,2-dichloro-1,1,1-trifluoro-	306-83-2

Pennsylvania Right to Know

<u>Chemical Name</u>	<u>CAS-No.</u>
Ethane, 2,2-dichloro-1,1,1-trifluoro-	306-83-2

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

- H373 May cause damage to organs through prolonged or repeated exposure.
- H420 Harms public health and the environment by destroying ozone in the upper atmosphere.

Latest Revision(s):

Reference number: 000000033836
 Date of Revision: 05/09/2015
 Date Printed: 05/09/2015

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