

Pentadecafluorooctanoic acid ammonium salt

sc-236310



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

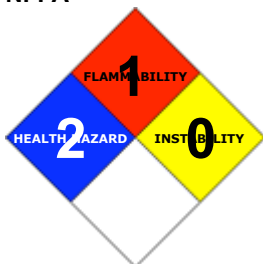
PRODUCT NAME

Pentadecafluorooctanoic acid ammonium salt

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

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EMERGENCY

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SYNONYMS

C8-H-F15-O2 • N-H3, "octanoic acid, pentadecafluoro-, ammonium salt", "ammonium pentadecafluorooctanoate", "ammonium perfluorocaprylate", "ammonium perfluorocaprylate", APFO, FC-143, "perfluoroammonium octanoate"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	2	
Body Contact:	2	
Reactivity:	1	
Chronic:	2	

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Harmful if swallowed.

Harmful to aquatic organisms.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

EYE

■ There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

SKIN

■ There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models).

Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

■ There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Long chain perfluorinated carboxylic acid (PFCAs) are present in the environment of most developed countries and have the potential to adversely affect animal and human health. In tests on laboratory animals, one PFCA (perfluorooctanoic acid, PFOA) has been shown to be tumourigenic and immunotoxic and to elicit moderate reproductive or developmental toxicity and moderate-to-high subchronic oral toxicity. It has been assumed that despite the absence of robust toxicity results for longer chain PFCAs, these substances are reasonably expected to be of greater concern than PFOA, as a result of their known slower clearance rates and higher bioaccumulation potential.

A dose-related decrease in weight gain occurred in rats receiving oral doses of ammonium perfluorooctanoate (30 ppm, 1.5 mg/kg) for 2 years. There were decreased red blood cell, haemoglobin and haematocrit values at various times during the study. Primary pathology involved the liver with increases in weights, increases in cell size with vacuolated cytoplasm and some evidence of hepatocellular degeneration with occasional signs of necrosis. The study concluded that ammonium perfluorooctanoate was not carcinogenic under the conditions of the experiment.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
ammonium perfluorooctanoate	3825-26-1	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Other measures are usually unnecessary.

NOTES TO PHYSICIAN

■ for poisons (where specific treatment regime is absent):

-----BASIC TREATMENT

· Establish a patent airway with suction where necessary.

· Watch for signs of respiratory insufficiency and assist ventilation as necessary.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	7.088 x 10 ⁻⁵
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	0.6-0.7 g/cc
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible solid which burns but propagates flame with difficulty.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.

Combustion products include: carbon monoxide (CO), carbon dioxide (CO₂), hydrogen fluoride, nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

May emit corrosive fumes.

FIRE INCOMPATIBILITY

- Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION

Glasses:

Chemical goggles.

Gloves:

Respirator:

Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS

- Moderate hazard.
- CAUTION: Advise personnel in area.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

- Do NOT cut, drill, grind or weld such containers.

· In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - Alberta Occupational Exposure Limits	ammonium perfluorooctanoate (Ammonium perfluorooctanoate)		0.01						
US ACGIH Threshold Limit Values (TLV)	ammonium perfluorooctanoate (Ammonium perfluorooctanoate)		0.01						TLV Basis: liver damage
US - California Permissible Exposure Limits for Chemical Contaminants	ammonium perfluorooctanoate (Ammonium perfluorooctanoate)		00.1						
Canada - British Columbia Occupational Exposure Limits	ammonium perfluorooctanoate (Ammonium perfluorooctanoate)		0.01						Skin
Canada - Nova Scotia Occupational Exposure Limits	ammonium perfluorooctanoate (Ammonium perfluorooctanoate)		0.01						TLV Basis: liver damage
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	ammonium perfluorooctanoate (Ammonium perfluorooctanoate)		0.01		0.03				Skin
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	ammonium perfluorooctanoate (Ammonium perfluorooctanoate)		0.1						
Canada - Prince Edward Island Occupational Exposure Limits	ammonium perfluorooctanoate (Ammonium perfluorooctanoate)		0.01						TLV Basis: liver damage
US - Hawaii Air Contaminant Limits	ammonium perfluorooctanoate (Fluorides (as F))		2.5						(CAS (Varies with compound))

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

- particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
- Consult your EHS staff for recommendations

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
 - frequency and duration of contact,
 - chemical resistance of glove material,

- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocautchouc
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	431.13
Melting Range (°F)	311~	Viscosity	Not Applicable
Boiling Range (°F)	257 (sublimes)	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not Available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	7.088 x 10 ⁻⁵
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	0.6-0.7 g/cc
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

APPEARANCE

White free-flowing powder composed of various C-8 isomers; mixes with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

ammonium perfluorooctanoate

TOXICITY AND IRRITATION

AMMONIUM PERFLUOROOCCTANOATE:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
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Oral (rat) LD50: 430 mg/kg

Skin (rabbit): 500 mg - Moderate

Dermal (rat) LD50: 7000 mg/kg

Eye (rabbit): 500 mg/24h - Moderate

Dermal (rabbit) LD50: 4300 mg/kg

Reproductive effector in rats. Ptosis, ataxia, corneal damage, acute pulmonary oedema, dyspnea, somnolence, diarrhoea recorded.

CARCINOGEN

Ammonium perfluorooctanoate	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A3
TWAPPM~	US - Maine Chemicals of High Concern List	Carcinogen	A3

SKIN

ammonium perfluorooctanoate	US ACGIH Threshold Limit Values (TLV) - Skin	Skin Designation	Yes
ammonium perfluorooctanoate	US AIHA Workplace Environmental Exposure Levels (WEELs) - Skin	Notes	TLV Basis: liver damage
ammonium perfluorooctanoate	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin
ammonium perfluorooctanoate	US - California Permissible Exposure Limits for Chemical Contaminants - Skin	Skin	S
ammonium perfluorooctanoate	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
ammonium perfluorooctanoate	HIGH	No Data Available	LOW	LOW

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

! Puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Cumulative effects may result following exposure*.
- May produce discomfort of the eyes and skin*.
- Limited evidence of a carcinogenic effect*.

* (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances

Substance CAS Suggested codes ammonium perfluorooctanoate 3825- 26- 1 Xn; R22 R52/53

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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