



CHEMICAL PRODUCT SAFETY DATA SHEET

Prepared in accordance with GB/T 16483 and GB/T 17519.

1. Chemical product and company identification

Product name	PF Precision Cleaner
Product code	PR03190
Company name	CRC Industries, Inc.
Address	885 Louis Dr. Warminster, PA 18974 US
Telephone	
General Information	1-215-674-4300
Technical Assistance	1-800-521-3168
Customer Service	1-800-272-4620
24-Hour Emergency (CHEMTREC)	+86 532 83889090 (China) 1-703-527-3887 (International)
Website	www.crcindustries.com

Recommended use and Limitations on use

Recommended use	Precision electronics cleaner
Issue date	12-19-2014

2. Hazards identification

Emergency overview	CONTENTS UNDER PRESSURE. Aerosol. Pressurized container may explode when exposed to heat or flame. Causes serious eye irritation. Dangerous for the environment if discharged into watercourses.
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GHS-classification

Physical hazards	Aerosols	Category 3
Health hazards	Serious eye damage/eye irritation	Category 2A
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3
Other hazards which do not result in classification	Not classified.	

Label elements

Pictograms



GHS-labeling

Signal word	Warning
Hazard statement	Pressurized container: May burst if heated. Causes serious eye irritation. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not pierce or burn, even after use. Wash thoroughly after handling. Wear eye/face protection. Avoid release to the environment.
Response	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 attention.
Storage	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Physical and chemical hazards	Pressurized container: May burst if heated.
Health hazards	Causes serious eye irritation.

Environmental hazards Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

Supplemental information

When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen fluoride, hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Substance/mixture	Mixture	CAS Number	Concentration (%)
Decafluoropentane		138495-42-8	50 - 60
1,1,1,2-Tetrafluoroethane		811-97-2	40 - 50
Trans-1,2-dichloroethylene		156-60-5	3 - 5
Isopropyl alcohol		67-63-0	1 - 3

4. First aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	In the unlikely event of swallowing contact a physician or poison control center. Rinse mouth.
Most important symptoms and health effects	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Expected acute symptoms and delayed symptoms	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Personal protection for first-aid responders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
Notes to physician	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

5. Fire-fighting measures

Extinguishing media	Water fog. Dry chemical powder. Carbon dioxide (CO ₂).
Extinguishing media to avoid	None known.
Specific hazards	When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen fluoride, hydrogen chloride and possibly phosgene.
Special fire fighting procedures	Containers should be cooled with water to prevent vapor pressure build up.
Protection of fire-fighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

Environmental precautions Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

Clean-up methods and materials and containment measures

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Isolate area until gas has dispersed. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS. Prevent entry into waterways, sewer, basements or confined areas.

Prevention of secondary hazards

Not available.

7. Handling and storage**Handling**

Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Ground and bond containers when transferring material. Do not re-use empty containers. Avoid contact with eyes. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

Storage

Level 1 Aerosol.

Contents under pressure. Do not expose to heat or store at temperatures above 120°F/49°C as can may burst. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection**Exposure limits****China****Components**

Components	Type	Value
Isopropyl alcohol (CAS 67-63-0)	STEL	700 mg/m3
	TWA	350 mg/m3
Trans-1,2-dichloroethylene (CAS 156-60-5)	TWA	800 mg/m3

Biological limit values**ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
Isopropyl alcohol (CAS 67-63-0)	40 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Control parameters

Follow standard monitoring procedures.

Engineering measures

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Personal protective equipment**Respiratory protection**

In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection

Wear appropriate chemical resistant gloves. Nitrile. Neoprene. Viton®. Polyvinyl alcohol (PVA).

Eye protection

Wear safety glasses with side shields (or goggles).

Skin and body protection

Wear suitable protective clothing.

Hygiene measures

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties**Appearance**

Physical state Liquid.

Form	Aerosol.
Color	Clear. Colorless.
Odor	Slight ethereal.
pH	Not available.
Melting point/freezing point	-127.3 °F (-88.5 °C) estimated
Boiling point, initial boiling point, and boiling range	119.7 °F (48.7 °C) estimated
Flash point	None (Tag Closed Cup)
Flammability limit - lower (%)	2 % estimated
Flammability limit - upper (%)	18 % estimated
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	2864.9 hPa estimated
Vapor density	> 2 (air = 1)
Relative density	1.4 estimated
Density	Not available.
Solubility(ies)	
Solubility (water)	Slight.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	750.2 °F (399 °C) estimated
Decomposition temperature	Not available.
Evaporation rate	Very fast.
Other data	
Percent volatile	100 %

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen fluoride, hydrogen chloride and possibly phosgene.
Incompatible materials	Alkali metals. Alkaline earth metals. Powdered metal. Strong acids. Strong bases.
Hazardous decomposition products	Hydrogen fluoride. Hydrogen chloride. Carbon oxides. Phosgene.

11. Toxicological information

Product	Species	Test Results
PF Precision Cleaner		
Acute		
<i>Dermal</i>		
LD50	Rabbit	8469.6641 mg/kg estimated
<i>Inhalation</i>		
LC50	Rat	180.9694 mg/l, 4 hours estimated
<i>Oral</i>		
LD50	Rat	6714.9463 mg/kg estimated

* Estimates for product may be based on additional component data not shown.

Routes of exposure	Inhalation. Eye contact.
Symptoms	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not available.
Toxic to reproduction	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity following single exposure	Not classified.
Specific target organ toxicity following repeated exposure	Not classified.
Aspiration hazard	Based on available data, the classification criteria are not met.
Chronic effects	Not available.

12. Ecological information

Ecotoxicological data

Components	Species	Test Results
Decafluoropentane (CAS 138495-42-8)		
Aquatic		
<i>Acute</i>		
Crustacea	EC50	Water flea (Daphnia magna) 11.7 mg/l, 48 hours
Fish	LC50	Zebra danio (Danio rerio) 13 mg/l, 96 hours
Isopropyl alcohol (CAS 67-63-0)		
Aquatic		
<i>Acute</i>		
Crustacea	EC50	Water flea (Daphnia magna) 7550 - 13299 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 3200 mg/l, 96 hours
Trans-1,2-dichloroethylene (CAS 156-60-5)		
Aquatic		
<i>Acute</i>		
Crustacea	EC50	Water flea (Daphnia magna) 220 - 290 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus) 135 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Ecotoxicity	Harmful to aquatic life with long lasting effects.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulation	No data available.

Bioaccumulative potential

Octanol/water partition coefficient log Kow

1,1,1,2-Tetrafluoroethane	1.274
Decafluoropentane	2.7, Pow at 20 °C
Isopropyl alcohol	0.05
Trans-1,2-dichloroethylene	2.09

Mobility in soil	This product is miscible in water.
Other hazardous effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
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Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Do not re-use empty containers.

Recommended methods for final destination

Local disposal regulations Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Empty container can be recycled. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

14. Transport information

CNDG

UN number UN1950
UN proper shipping name AEROSOLS
Transport hazard class(es)
Class 2.2
Subsidiary risk -
Packing group -

Read safety instructions, SDS and emergency procedures before handling.

IATA

UN number UN1950
UN proper shipping name Aerosols, non-flammable, Limited Quantity
Transport hazard class(es)
Class 2.2
Subsidiary risk -
Packing group Not applicable.
Environmental hazards No.
ERG Code 2L

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft Allowed.
Cargo aircraft only Allowed.

IMDG

UN number UN1950
UN proper shipping name AEROSOLS, LIMITED QUANTITY
Transport hazard class(es)
Class 2.2
Subsidiary risk -
Packing group Not applicable.
Environmental hazards

Marine pollutant No.

EmS Not available.

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

CNDG; IATA; IMDG



15. Regulatory information

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Applicable regulations

This safety data sheet conforms to the following laws, regulations and standards:

Regulations on the Control over Safety of Dangerous Chemicals

Regulations on Labor Protection in Workplaces Where Toxic Products Are Used

Measures for the Safe Use of Chemicals in Workplaces

Safety Data Sheet for Chemical Products - Content and Order of Sections (GB/T 16483-2008)

General Rules for Preparation of Precautionary Labels for Chemicals (GB15258-2009)

Packing Symbol of Dangerous Goods(GB190-2009)

Packing - Pictorial Marking for Handling of Goods (GB/T191-2009)

General Rule For Classification and Hazard Communication of Chemicals (GB 13690-2009) and Dangerous Chemical Products

Isopropyl alcohol (CAS 67-63-0)

Occupational exposure limits for hazardous agents in the workplace (GBZ 2.1-2007)

Isopropyl alcohol (CAS 67-63-0)

Trans-1,2-dichloroethylene (CAS 156-60-5)

Restricted Import/Export Toxic Chemical List (MEP and GCA Announcement No. 2008-66, Dec. 1, 2008, amended through MEP and Customs Notice No. 2011-91, December 28, 2011)

Not regulated.

Classification and code of dangerous goods (GB6944-2005)

Regulated.

List of Dangerous Goods (GB 12268-2005)

Regulated.

The Principle of Classification of Transport Packaging Groups of Dangerous Goods (GB/T15098-2008)

Regulated.

General Specifications for Transport Packages of Dangerous Goods (GB 12463-2009)

Regulated.

Regulations on Road Transport of Dangerous Goods

Regulated.

Regulations on Rail Road Transport of Dangerous Goods

Regulated.

UN Recommendations on the Transport of Dangerous Goods (UN RTDG)

Regulated.

16. Other information

References

EPA: AQUIRE database

NLM: Hazardous Substances Data Base

US. IARC Monographs on Occupational Exposures to Chemical Agents

Further information

CRC # 429J

Disclaimer

CRC cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.