MATERIAL SAFETY DATA SHEET

Section 1: Product & Company Identification

Product Name: **Precision Plus® Contact Cleaner**

Product Number (s): **10310**

Product Use: Precision electronics cleaner

Manufacturer / Supplier Contact Information:

In United States:
CRC Industries, Inc.
885 Louis Drive
Warminster, PA 18974
www.crcindustries.com
1-215-674-4300(General)
(800) 521-3168 (Technical)
(800) 272-4620 (Customer Service)

In Canada:
CRC Canada Co.
2-1246 Lorimar Drive
Mississauga, Ontario L5S 1R2
www.crc-canada.ca
1-905-670-2291

In Mexico:
CRC Industries Mexico
Av. Benito Juárez 4055 G
Colonia Orquídea
San Luís Potosí, SLP CP 78394
www.crc-mexico.com
52-444-824-1666

24-Hr Emergency – CHEMTREC: (800) 424-9300 or (703) 527-3887

Section 2: Hazards Identification

Emergency Overview

WARNING: Vapor Harmful. Contents Under Pressure.
Appearance & Odor: Clear, colorless liquid, faint ethereal odor

Potential Health Effects:

ACUTE EFFECTS:

EYE: Contact of liquid with eyes may cause mild irritation and redness.

SKIN: Contact of liquid with skin may cause mild irritation and redness.

INHALATION: Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse can be fatal. Vapor reduces oxygen available for breathing and is heavier than air. Heating this product may cause thermal decomposition which will generate toxic fumes.

INGESTION: Ingestion of this product is not likely. If ingested, may cause gastrointestinal discomfort.

CHRONIC EFFECTS: No information available related to humans.

TARGET ORGANS: Liver, heart, respiratory system

Medical Conditions Aggravated by Exposure: Liver, cardiac and respiratory disorders

See Section 11 for toxicology and carcinogenicity information on product ingredients.

Section 3: Composition / Information on Ingredients

COMPONENT	CAS NUMBER	% by Wt.
Dichloropentafluoropropane (HCFC-225ca/cb)	422-56-0 / 507-55-1	35 - 45
Perfluoro compounds	86508-42-1	20 – 30
1,1,1,2-Tetrafluoroethane (HFC-134a)	811-97-2	30 - 40

Section 4: First Aid Measures

Eye Contact: Immediately flush with plenty of water for 15 minutes. Call a physician if irritation persists.

Skin Contact: Remove contaminated clothing and wash affected area with soap and water. Call a physician if irritation persists. Wash contaminated clothing prior to re-use.

Inhalation: Remove person to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Call a physician.

Ingestion: Do NOT induce vomiting because the hazard of aspirating the material into the lungs is considered greater than swallowing it. Consult a physician if negative health effects are experienced.

Note to Physicians: Treat symptomatically.

Section 5: Fire-Fighting Measures

Flammable Properties: This product is not flammable in accordance with aerosol flammability definitions. (16 CFR 1500.3(c)(6)).

Flash Point:	None (TCC)	Upper Explosive Limit:	None
Autoignition Temperature:	None	Lower Explosive Limit:	None

Fire and Explosion Data:

Suitable Extinguishing Media: As appropriate for other flammables in the area.

Products of Combustion: Product will not combust, but at high temperatures may decompose to form hydrogen fluoride, hydrogen chloride and perfluoroisobutylene.

Explosion Hazards: Aerosol containers, when exposed to heat from fire, may build pressure and explode.

Protection of Fire-Fighters: Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against suffocation and possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

Section 6: Accidental Release Measures

Personal Precautions: Use personal protection recommended in Section 8.

Environmental Precautions: Take precautions to prevent contamination of ground and surface waters. Do not flush into sewers or storm drains.

Methods for Containment & Clean-up: Dike area to contain spill. Ventilate the area with fresh air. If in confined space or limited air circulation area, clean-up workers should wear appropriate respiratory protection. Recover or absorb spilled material using an absorbent

designed for chemical spills. Place used absorbents into proper waste containers.

Section 7: Handling and Storage

Handling Procedures: Use with sufficient ventilation to prevent vapor accumulation. Avoid contact of liquid with eyes and prolonged skin exposure. Do not allow product to contact open flame or electrical heating elements because dangerous decomposition products may form. Use caution around energized equipment. The metal container will conduct electricity if it contacts a live source. This may result in injury to the user from electrical shock and/or flash fire. For product use instructions, please see the product label.

Storage Procedures: Store in a cool dry area out of direct sunlight. Aerosol cans must be maintained below 120°F / 49°C to prevent cans from rupturing.

Aerosol Storage Level: I

Section 8: Exposure Controls / Personal Protection

Exposure Guidelines:

	OSHA		ACGIH		OTHER		
COMPONENT	TWA	STEL	TWA	STEL	TWA	SOURCE	UNIT
Dichloropentafluoropropane (HCFC-225ca/cb)	NE	NE	NE	NE	100	mfr	ppm
Perfluoro compounds	NE	NE	NE	NE	NE		
1,1,1,2-Tetrafluoroethane (HFC-134a)	NE	NE	NE	NE	1000	AIHA	ppm
N.E. – Not Established (c) – ceiling (s) – skin (v) – vacated							

mfr – Manufacturer's recommendation

Controls and Protection:

Engineering Controls: Area should have ventilation to provide fresh air. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at the source, preventing dispersion into the general work area. Use mechanical means if necessary to maintain vapor levels below the exposure guidelines. If working in a confined space, follow applicable OSHA regulations.

Respiratory Protection: None required for normal work where adequate ventilation is provided. If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with organic vapor cartridge. Air monitoring is needed to determine actual employee exposure levels. Use a self-contained breathing apparatus in confined spaces and for emergencies.

Eye/face Protection: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

Skin Protection: Use protective gloves such as nitrile or Viton. Also, use full protective clothing if there is prolonged or repeated contact of liquid with skin.

Section 9: Physical and Chemical Properties

Physical State: liquid
Color: clear, colorless
Odor: faint ethereal
Odor Threshold: ND

Specific Gravity: 1.609
Initial Boiling Point: 117°F / 47°C
Freezing Point: ND
Vapor Pressure: ND
Vapor Density: > 5 (air = 1)
Evaporation Rate: fast
Solubility: negligible in water
Coefficient of water/oil distribution: ND
pH: NA

Volatile Organic Compounds:								
	Federal:	wt %:	0	g/L:	0	lbs./gal:	0
	CARB:	wt %:	39.1	g/L:	629	lbs./gal:	5.24

Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid: Avoid open flames and high temperatures (> 550°F / 288°C) as this could lead to thermal decomposition.

Incompatible Materials: Alkali or alkaline earth metals, powdered, such as Al, Zn, Be

Hazardous Decomposition Products: By thermal decomposition: hydrochloric and hydrofluoric acids, perfluoroisobutylene, and possibly carbonyl halides

Possibility of Hazardous Reactions: No

Section 11: Toxicological Information

Long-term toxicological studies have not been conducted for this product. The following information is available for components of this product.

Acute Toxicity:

Component	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 (rat)
Dichloropentafluoropropane (HCFC-225ca/cb)	> 5 g/kg	> 2 g/kg	36,800 ppm/4H
Perfluoro compounds	No data	No data	No data
1,1,1,2-Tetrafluoroethane (HFC-134a)	No data	No data	1500 g/m^3/4H

Chronic Toxicity:

Component	OSHA Carcinogen	IARC Carcinogen	NTP Carcinogen	Irritant	Sensitizer
Dichloropentafluoropropane (HCFC-225ca/cb)	No	No	No	No	No
Perfluoro compounds	No	No	No	No	Unknown
1,1,1,2-Tetrafluoroethane (HFC-134a)	No	No	No	No	Unknown

Reproductive Toxicity: No information available
Teratogenicity: No information available
Mutagenicity: HCFC-225ca & cb - These compounds do not produce genetic damage in bacterial cell cultures (Ames Assay) or CHL.
Synergistic Effects: No information available

Section 12: Ecological Information

Ecological studies have not been conducted for this product. The following information is available for components of this product.

Ecotoxicity: Perfluoro compounds – 96H LC50 Fathead minnow: > 750 mg/L
Persistence / Degradability: This material is not considered biodegradable.
Bioaccumulation / Accumulation: No information available.
Mobility in Environment: No information available.

Section 13: Disposal Considerations

Waste Classification: The dispensed liquid product is not a RCRA hazardous waste. (See 40 CFR Part 261.20 – 261.33)
Empty aerosol containers may be recycled.

All disposal activities must comply with federal, state, provincial and local regulations. Local regulations may be more stringent than state, provincial or national requirements.

Section 14: Transport Information

US DOT (ground): UN1950, Aerosols, non-flammable, 2.2, Limited Quantity

ICAO/IATA (air): UN1950, Aerosols, non-flammable, 2.2, Limited Quantity

IMO/IMDG (water): UN1950, Aerosols, non-flammable, 2.2, Limited Quantity

Special Provisions: None

Section 15: Regulatory Information

U.S. Federal Regulations:

Toxic Substances Control Act (TSCA):
All ingredients are either listed on the TSCA inventory or are exempt.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):
Reportable Quantities (RQ's) exist for the following ingredients: None

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Superfund Amendments Reauthorization Act (SARA) Title III:
Section 302 Extremely Hazardous Substances (EHS): None

Section 311/312 Hazard Categories:

Fire Hazard	No
Reactive Hazard	No
Release of Pressure	Yes
Acute Health Hazard	Yes
Chronic Health Hazard	No

Section 313 Toxic Chemicals: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:
HCFC-225ca/cb (< 40)

Clean Air Act:

Section 112 Hazardous Air Pollutants (HAPs): None

Occupational Safety and Health Administration:
This product is regulated by the Hazard Communications Standard.

U.S. State Regulations:

California Safe Drinking Water and Toxic Enforcement Act (Prop 65):
This product may contain the following chemicals known to the state of California to cause cancer, birth defects or other reproductive harm: None

Consumer Products VOC Regulations: In states with Consumer Product VOC regulations, this product is compliant as an Electronic Cleaner.

State Right to Know:
New Jersey: None
Pennsylvania: None
Massachusetts: None
Rhode Island : None

Canadian Regulations:

Controlled Products Regulations:
This product has been classified in accordance with the hazard criteria of the Controlled Product Regulation and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS Hazard Class: A

Canadian DSL Inventory: All ingredients are either listed on the DSL Inventory or are exempt.

European Union Regulations:

RoHS Compliance: This product is compliant with Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003. This product does not contain any of the restricted substances as listed in Article 4(1) of the RoHS Directive.

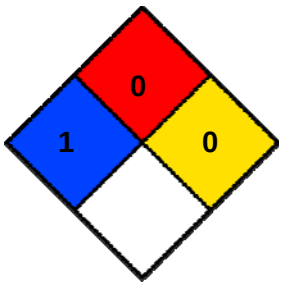
Additional Regulatory Information: Dichloropentafluoropropane (HCFC-225ca/cb) is a Class II Ozone Depleting Substance subject to use and sales restrictions. See 40 CFR Part 82.70 for a description of the acceptable uses for this product.

Section 16: Other Information

HMIS® (II)	
Health:	**1**
Flammability:	**0**
Reactivity:	**0**
PPE:	**B**

Ratings range from 0 (no hazard) to 4 (severe hazard)

NFPA



Prepared By: Michelle Rudnick
CRC #: 413A
Revision Date: 08/06/2012

Changes since last revision: Section 3: Information on Ingredients
Section 13: Disposal Considerations
Section 14: Transport Information

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries' knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this MSDS consult your supervisor, a health & safety professional, or CRC Industries.

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Service
CFR: Code of Federal Regulations
DOT: Department of Transportation
DSL: Domestic Substance List
g/L: grams per Liter
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods
IMO: International Maritime Organization
lbs./gal: pounds per gallon
LC: Lethal Concentration
LD: Lethal Dose
NA: Not Applicable
ND: Not Determined
NIOSH: National Institute of Occupational Safety & Health
NFPA: National Fire Protection Association
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PMCC: Pensky-Martens Closed Cup
PPE: Personal Protection Equipment
ppm: Parts per Million
RoHS: Restriction of Hazardous Substances
STEL: Short Term Exposure Limit
TCC: Tag Closed Cup
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information System