



MATERIAL SAFETY DATA SHEET

I-Chem Electronics Cleaner AF (#ICA363)

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: I-Chem Electronics Cleaner AF (#ICA363)
Product Number: A00363
Product Use: Specialty Cleaner.
Manufacturer/Supplier: Amrep, Inc.
990 Industrial Park Drive
Marietta, GA 30062
Phone Number: (770) 422-2071 (Mon - Fri / 8am - 5pm ET)
D.O.T. Emergency Phone: CHEM TEL (800) 255-3924
INTERNATIONAL: +01-813-248-0584
Date of Preparation: November 23, 2010 **Revision #:** 2.0

Section 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS: See Section 15

CAUTION

MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN IRRITATION. CONTENTS UNDER PRESSURE. CONTAINER MAY EXPLODE IF HEATED.

Potential Health Effects: See Section 11 for more information.

Likely Routes of Exposure: Skin contact, eye contact, inhalation, and ingestion.

- Eye:** May cause eye irritation. Causes frostbite burns to the eyes.
Skin: May cause skin irritation. Causes frostbite burns to the skin.
Ingestion: Not a normal route of exposure. Harmful: may cause lung damage if swallowed.
Inhalation: May cause respiratory tract irritation. May cause asphyxiation. This product may be aspirated into the lungs and cause chemical pneumonitis.

Chronic Effects: Prolonged or repeated contact may dry skin and cause irritation.

Signs and Symptoms: Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. Handling can cause dry skin. Vapours may cause drowsiness and dizziness.

Medical Conditions Aggravated By Exposure: Asthma. Allergies.

Target Organs: Skin, eyes, gastrointestinal tract, respiratory system.

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Environmental Effects: May cause long-term adverse effects in the aquatic environment. See Section 12 for more information.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS #	Wt. %
1,1,1,2-Tetrafluoroethane	811-97-2	30 - 60
1-Bromopropane	106-94-5	10 - 30
1,1-Dichloro-2,2,3,3,3-pentafluoropropane	422-56-0	10 - 30
Methyl alcohol	67-56-1	0.1 - 1



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Section 4: FIRST AID MEASURES

- Eye Contact:** In case of contact, immediately flush eyes with plenty of water. If easy to do, remove contact lenses, if worn.
- Skin Contact:** In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists.
- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
- Ingestion:** If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
- General Advice:** In case of accident or if you feel unwell, seek medical advice immediately (show the label or MSDS where possible).
- Note to Physicians:** Symptoms may not appear immediately.

Section 5: FIRE FIGHTING MEASURES

- Flammability:** Not flammable by OSHA criteria.
- Means of Extinction:**
- Suitable Extinguishing Media:** Powder, foam, carbon dioxide.
 - Unsuitable Extinguishing Media:** Water.
- Products of Combustion:** Oxides of carbon, hydrofluoric acid, hydrochloric acid, chlorine, bromine and possible carbonyl halides.
- Explosion Data:**
- Sensitivity to Mechanical Impact:** Not available.
 - Sensitivity to Static Discharge:** Not available.
- Protection of Firefighters:** Containers may explode when heated. Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

Section 6: ACCIDENTAL RELEASE MEASURES

- Personal Precautions:** Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Eliminate sources of ignition. Ruptured cylinders may rocket.
- Environmental Precautions:** Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). This material is a water pollutant. Keep out of drains, sewers, ditches, and waterways. Minimize use of water to prevent environmental contamination.
- Methods for Containment:** Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
- Methods for Clean-Up:** Vacuum or sweep material and place in a disposal container. Allow gas to dissipate harmlessly into the atmosphere.
- Other Information:** Not available.



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Section 7: HANDLING AND STORAGE

Handling:

Keep away from sources of ignition. No smoking. Avoid contact with skin and eyes. Do not swallow. Do not breathe gas/fumes/vapor/spray. Use only in well-ventilated areas. Handle and open container with care. When using, do not eat or drink. Wash hands before eating, drinking, or smoking.

Storage:

Keep out of the reach of children. Keep container in a well-ventilated place. Do not store at temperatures above 49°C / 120°F.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Ingredient	Exposure Limits	
	OSHA-PEL	ACGIH-TLV
1,1,1,2-Tetrafluoroethane	Not available.	Not available.
1-Bromopropane	Not available.	10 ppm
1,1-Dichloro-2,2,3,3,3-pentafluoropropane	Not available.	Not available.
Methyl alcohol	200 ppm	200 ppm

Engineering Controls: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

Personal Protective Equipment:

HMIS: See Section 15

Eye/Face Protection: Wear eye/face protection.

Hand Protection: Wear suitable gloves.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations: Handle according to established industrial hygiene and safety practices.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear.
Color:	Colorless.
Odour:	Solvent.
Odour Threshold:	Not available.
Physical State:	Gas/Pressurized Liquid.
pH:	Not applicable.
Viscosity:	Not available.
Freezing Point:	Not available.
Boiling Point:	Not available.
Flash Point:	Not available.
Evaporation Rate:	> 1 (Water = 1)
Lower Flammability Limit:	Not available.
Upper Flammability Limit:	Not available.



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Vapor Pressure:	Not available.
Vapor Density:	> 1 (Air = 1)
Specific Gravity:	1.390 (Concentrate only)
Solubility in Water:	Negligible.
Coefficient of Water/Oil Distribution:	Not available.
Auto-ignition Temperature:	Not available.
Percent Volatile, wt. %:	Not available.
VOC content, wt. %:	26.8% (US federal); 44.0% (CARB/OTC/LADCO)
VOC content, g/L:	Not available.

Section 10: STABILITY AND REACTIVITY

Stability: Stable under normal storage conditions. Contents under pressure. Container may explode if heated. Do not puncture. Do not burn. Keep in a cool place.

Conditions of Reactivity: Heat. Incompatible materials.

Incompatible Materials: Oxidizers. Bases. Aluminum. Magnesium. Alkaline earth metals.

Hazardous Decomposition Products: Oxides of carbon, hydrofluoric acid, hydrochloric acid, chlorine, bromine and possible carbonyl halides.

Possibility of Hazardous Reactions: No dangerous reaction known under conditions of normal use.

Section 11: TOXICOLOGY INFORMATION

EFFECTS OF ACUTE EXPOSURE

Component Analysis

Ingredient	LD ₅₀ (oral)	LC ₅₀
1,1,1,2-Tetrafluoroethane	Not available.	1500 g/m ³ 4hr, rat
1-Bromopropane	3600 mg/kg, rat	253 g/m ³ 30min, rat
1,1-Dichloro-2,2,3,3,3-pentafluoropropane	>5000 mg/kg, rat	37300 ppm 4hr, rat
Methyl alcohol	5628 mg/kg, rat	64000ppm 4hr, rat

Eye: May cause eye irritation. Causes frostbite burns to the eyes. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.

Skin: May cause skin irritation. Causes frostbite burns to the skin. Handling can cause dry skin.

Ingestion: Not a normal route of exposure. Harmful: may cause lung damage if swallowed.

Inhalation: May cause respiratory tract irritation. May cause asphyxiation. This product may be aspirated into the lungs and cause chemical pneumonitis. Vapours may cause drowsiness and dizziness.

EFFECTS OF CHRONIC EXPOSURE

Target Organs: Not available.

Chronic Effects: (Effects due to excessive exposure to the raw materials of this mixture)
Excessive inhalation may result in central nervous system effects.

Carcinogenicity: Not hazardous by OSHA criteria.



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Ingredient

Chemical Listed as Carcinogen or Potential Carcinogen *

1,1,1,2-Tetrafluoroethane	Not listed.
1-Bromopropane	CP65
1,1-Dichloro-2,2,3,3,3-pentafluoropropane	Not listed.
Methyl alcohol	Not listed.

* See Section 15 for more information.

Mutagenicity: Not hazardous by OSHA criteria.

Reproductive Effects: Hazardous by OSHA criteria.

Developmental Effects:

Teratogenicity: Hazardous by OSHA criteria.

Embryotoxicity: Hazardous by OSHA criteria.

Respiratory Sensitization: Not hazardous by OSHA criteria.

Skin Sensitization: Not hazardous by OSHA criteria.

Toxicologically Synergistic Materials: Not available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: May cause long-term adverse effects in the aquatic environment

Persistence / Degradability: Not available.

Bioaccumulation / Accumulation: Not available.

Mobility in Environment: Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions:

This material must be disposed of in accordance with all local, state, provincial, and federal regulations.

Section 14: TRANSPORTATION INFORMATION

DOT Classification

ORM-D

Section 15: REGULATORY INFORMATION

Federal Regulations

US: MSDS prepared pursuant to the Hazard Communication Standard (29 CFR 1910.1200).

SARA Title III

Ingredient	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313
1,1,1,2-Tetrafluoroethane	Not listed.	Not listed.	Not listed.	Not listed.
1-Bromopropane	Not listed.	Not listed.	Not listed.	Not listed.
1,1-Dichloro-2,2,3,3,3-pentafluoropropane	Not listed.	Not listed.	Not listed.	313
Methyl alcohol	Not listed.	Not listed.	5,000	313



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State Regulations

California Proposition 65:

This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Global Inventories

Ingredient

1,1,1,2-Tetrafluoroethane
 1-Bromopropane
 1,1-Dichloro-2,2,3,3,3-pentafluoropropane
 Methyl alcohol

**USA
TSCA**
 Yes.
 Yes.
 Yes.
 Yes.

HMIS - Hazardous Materials Identification System

Health - 2* **Flammability - 1** **Physical Hazard - 0** **PPE – B**

NFPA - National Fire Protection Association:

Health - 2 **Fire - 1** **Reactivity - 0**

Hazard Rating: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

OSHA (O) Occupational Safety and Health Administration.

ACGIH (G) American Conference of Governmental Industrial Hygienists.

- A1 - Confirmed human carcinogen.
- A2 - Suspected human carcinogen.
- A3 - Animal carcinogen.
- A4 - Not classifiable as a human carcinogen.
- A5 - Not suspected as a human carcinogen.

IARC (I) International Agency for Research on Cancer.

- 1 - The agent (mixture) is carcinogenic to humans.
- 2A - The agent (mixture) is probably carcinogenic to humans; there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.
- 2B - The agent (mixture) is possibly carcinogenic to humans; there is limited evidence of carcinogenicity in humans in the absence of sufficient evidence of carcinogenicity in experimental animals.
- 3 - The agent (mixture, exposure circumstance) is not classifiable as to its carcinogenicity to humans.
- 4 - The agent (mixture, exposure circumstance) is probably not carcinogenic to humans.

NTP (N) National Toxicology Program.

- 1 - Known to be carcinogens.
- 2 - Reasonably anticipated to be carcinogens.

Section 16: OTHER INFORMATION

Disclaimer:

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. 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. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

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