MATERIAL SAFETY DATA SHEET

Radiator Specialty Company

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POISON INFORMATION & EMERGENCY: 303-623-5716

MATERIAL SAFETY DATA SHEET

May be used to comply with OSHA's Hazard Communication Standard 29 CFR 1910.1200. Standard must be consulted for specific requirements.

US DEPARTMENT OF LABOR

Occupational Safety and Health Administration. (Non-Mandatory Form) Form Approved OMB No. 1218-0072

SECTION I GENERAL INFORMATION

PRODUCT NAME	REFRIGERANT R134a COLD SHOT®
PART NUMBER	M8 -12, -31

NOTE: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate that.

SECTION II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

COMPONENT	WT%	C.A.S. NO.	TLV (ACGIH-------OSHA-------)
1,1,1,2 Tetrafluoro-ethane (F_3CCH_2F)	100	811-97-2	None established by OSHA or ACGTH American Industrial Hygienists Assoc. established WEEL = 1000ppm Permissible Air Concentration No OSHA/PEL or AOGIH/RLV established

Comments:

DOT Classification per 49 CFR 172.101. Refrigerant gas N. O. S. ((Tetrafluoroethylene), Nonflammable gas, UN 1078 SARA Hazard Class (311 & 312): Immediate and Pressure. Not considered EPA hazardous substance. Not subject to Clean Water Act sec. 311. A green house gas, that may contribute to global warming. This compounds NOT listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Components not identified are non-hazardous according to 29 CFR 1910.1200

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Specific Gravity (H_2O=1)	1.222 @ 70^0F.	**pH**	N/A
Solubility in Water	Very slight 0.77% at 1 ATM	**Solubility in Solvent**	Soluble in glycols, polyglycols & esters
Flash Point (Method) - F^0	N/A (No flash point)	**% Volatiles By Wt.**	100
Melting Point - F^0	N/A	**Boiling Point - F^0**	-15.1^0 (-26.2^0C.)
Vapor Pressure (mmHg)	71.1psig @21.1^0C.	**Vapor Density (Air=1)**	3.5
Evaporation Rate (Butyl Acetate=1)	>1	**Auto Ignition:**	>750^0F.
Appearance and Odor	Clear, colorless - no odor	**Freezing Point**:	-149.8^0F. (-101^0C.)

SECTION IV FIRE AND EXPLOSION HAZARD DATA

EXTINGUISHING MEDIA:

Water Fog	X	**Foam**	X	**CO_2**	X	**Dry Chemical**	X

SPECIAL FIRE FIGHTING PROCEDURES. Wear self-contained, positive pressure breathing apparatus and protective clothes. Fire fighters should wear self-contained NIOSH approved breathing apparatus for protection against possible toxic decomposition products. Proper eye, skin protection should also be provided. Use water spray to keep fire exposed containers cool and to suppress vapors.

UNUSUAL FIRE AND EXPLOSION HAZARDS R134a combustible in air (excess) when exposed to an exploding copper wire. May react violently with explosive or exothermic reactions under specific conditions (e.g. very high temperatures and/or appropriate pressures) with certain reactive metals.

SECTION V REACTIVITY DATA

Stable	X	**Unstable**		**Corrosive**	NO	**Hazardous Polymerization? Yes**	**No** X

Incompatibilities Al, Mg, Zn. Chemically active metals: sodium, potassium, calcium. High temperatures and/or pressures, abraded aluminum surfaces.

Hazardous Decomposition or Byproducts halogens, halogen acids and possible carbonyl halides such as phosgene. These are toxic and corrosive.

SECTION VI HEALTH HAZARD INFORMATION

Recommended TLV of Product None established

EYE CONTACT Liquid contact can cause irritation due to frostbite. Mist may irritate.

SKIN CONTACT Irritation would result from defatting action on tissue

INHALATION Very high doses (over 80,000ppm) can induce cardiac arrhythmia especially with injected epinephrine. May cause death without warning in high concentrations.

INGESTION Not applicable (since material is gas) at normal temp. and pressures.

OTHER Caution: CONTENTS UNDER PRESSURE! Deliberate inhalation of contents of container can be extremely dangerous.

SECTION VII EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT Immediately flush eyes with large amounts of water for at least 15 minutes[In case of frostbite, water should be lukewarm (not hot)] lifting eyelids occasionally to facilitate irrigation. Get medical attention if symptoms persist.

SKIN CONTACT Promptly flush skin with water until all chemical is removed. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. In the absence of water cover with clean, soft wool or similar cover. Call a physician.

INHALATION Immediately remove to fresh air. If breathing has stopped give artificial respiration. Use oxygen as required, provided a qualified operator is available. Call a physician immediately. DO NOT GIVE EPINEPHRINE (adrenaline)

INGESTION Ingestion unlikely due to physical properties, and is not expected to be hazardous. DO NOT INDUCE VOMITING unless instructed to do so by a physician.

SECTION VIII SPECIAL PROTECTION INFORMATION

Professional use only---not a consumer item **BULK HANDLING (Prolonged Exposure)**

RESPIRATORY PROTECTION For accidental or non-ventilated situations from estimated TLV to 5000 ppm use a self-contained NIOSH approved breathing apparatus or supplied-air respirator. For escape: use the former NIOSH-approved gas mask with organic canister.

VENTILATION Provide local exhaust at filling zones and areas where leakage is possible. Mechanical (general) ventilation may be adequate for other operating and storage areas.

EYE PROTECTION Use chemical safety goggles. DO NOT wear contact lenses.

PROTECTIVE CLOTHING Wear protective, impervious gloves with PVA outer layer (2nd choice: NEOPRENE) in situations where leakage or handling of liquid is a possibility. Impervious shoes and clothing should also be worn where leakage possible. Gloves, clothing and shoes should be thermally insulated to prevent freezing.

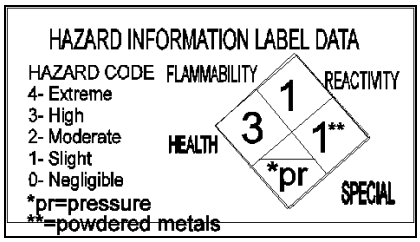
SECTION IX PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL OR LEAK PROCEDURE Evacuate unprotected personnel. Protected personnel should remove any flames and shut off leak, if without risk, and provide ventilation. Unprotected personnel should not return until air has been tested and determined safe, including low lying areas. Consult with appropriate regulatory agencies before discharging or disposing of waste material.

WASTE DISPOSAL METHOD ***Dispose of in accordance with all applicable government laws and regulations.***
Disposer must comply with all disposal and discharge laws.

STORAGE AND HANDLING PRECAUTIONS Store in a cool, well-ventilated area of low risk. Protect cylinder and its fittings from physical damage. Storage in sub-surface locations should be avoided. Close valve tightly after use and when empty.

OTHER PRECAUTIONS WEARING CONTACT LENSES IS INADVISABLE. DO NOT INCINERATE OR PUNCTURE CONTAINERS. KEEP AWAY FROM CHILDREN.



Supersedes MAY 1993 **OSHA Revised** AUG 1996

Title K. PHILLIPS-CHEMIST

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