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## MATERIAL SAFETY DATA SHEETS

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

GENERIC NAME: Radiator Super Flush

ISSUE DATE: 5/1/99

THIS GENERIC MSDS REPRESENTS THE FOLLOWING PETROLEUM PACKERS PRODUCTS:

#### TRADE NAMES:

#RF-16 MASTER RADIATOR SUPER FLUSH,

CAS NUMBER:

Mixture

SYNONYMS / GENERAL NAMES:

Radiator Flush

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	%	HAZARD DATA
Isopropyl Alcohol	67-63-0	<10	Oral (rat) LD50: 5840 mg/kg Skin (rabbit) LD50: 13 gm/kg Inhalation (rat): 16000 ppm/8H
Alcohols, C <sub>10-16</sub> , Ethoxylated	68002-97-1	< 13	Skin (rabbit) LD50: > 2 g/kg Eyes (rabbit) Irritation Index: 50.8
Tetrapotassium salt aqueous solution	7320-34-5	< 2	Skin (rabbit) LD50: 0.5/8.0 Oral (rat) LD50: 2980 mg/kg Eyes (rabbit): 11.1/110.0, slightly irritating

### 3. HAZARDOUS IDENTIFICATION

#### PRECAUTIONARY MEASURES:

Keep away from heat, sparks, and flame. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Avoid contact with eyes, shin, and clothing.

### 4. FIRST AID MEASURES

EYES:	Wash eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
DERMAL:	Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops or persists.
INGESTION:	Give water to drink. Induce vomiting if medical help is not immediately available. Never give anything by mouth to an unconscious person. Get medical attention immediately.
INHALATION:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

### 5. FIRE FIGHTING MEASURES

FLASH POINT, °C( °F):

12°C( 53°F). (closed cup)

EXTINGUISHING MEDIA:

Water spray, dry chemical, alcohol foam, or carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES:

In the event of a fire, wear protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

EXPLOSION DATA:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. "Empty" containers may retain residue and can be dangerous.

NFPA RATING:

HEALTH: 1 FLAMMABILITY: 3 REACTIVITY: 0

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13. D CONSIDERATIONS

WASTE DISPOSAL: It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Check before disposing to be sure you are in compliance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

HAZARD CLASS: 9
IDENTIFICATION NUMBER: UN 3082
PACKING GROUP: III

DOT DESCRIPTION: This product is regulated as a hazardous material according to the Department of Transportation in bulk quantities (greater than 119 gallons per package) only. It is not regulated for transportation in non-bulk quantities.

15. REGULATORY INFORMATION

SARA SECTION 313 - TOXIC CHEMICALS:

This product does contain toxic chemicals under SARA Section 313 and 40 CFR Part 372.

Table with 3 columns: COMPONENTS, CAS NO., and %. Rows include Isopropyl Alcohol (67-63-0, < 10%) and Alcohols, C10-16, Ethoxylated (68002-97-1, < 13%).

SARA SECTION 311 - HAZARD CATEGORIES:

This product may meet one or more of the criteria for the hazard categories defined in 40 CFR Part 370 as established by Sections 311 and 312 of SARA as indicated below:

Table with 4 columns: Yes/No and four hazard categories: IMMEDIATE (ACUTE) HEALTH HAZARD, SUDDEN RELEASE OF PRESSURE HAZARD, DELAYED (CHRONIC) HEALTH HAZARD, REACTIVE HAZARD, FIRE HAZARD.

SARA SECTION 302 - EXTREMELY HAZARDOUS WASTE:

This product is not known to contain any components in concentrations greater than one percent that are listed as Extremely Hazardous Substances in 40 CFR Part 355 pursuant to the requirements of Section 302(a) of SARA.

CLEAN WATER ACT (CWA):

Under the CWA, discharges of crude oil and petroleum products to surface water without proper Federal and State permits must be reported immediately to the National Response Center at (800) 424-8802.

CERCLA HAZARDOUS SUBSTANCES:

As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance.

U.S. TSCA INVENTORY

All components of this material are on the U.S. TSCA Inventory or are not required to be listed on the U.S. TSCA Inventory

16. OTHER INFORMATION

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. PETROLEUM PACKERS INC. BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS.

Table with 6 columns: NFPA HAZARD RATING, HMIS HEALTH RATING, and five hazard levels (least-0, slight-1, moderate-2, high-3, extreme-4).

**6. ACCIDENTAL RELEASE MEASURES**

**SPILL PROCEDURES:** Remove all ignition sources. Stop leak if you can do it without risk. Ventilate area of leak and avoid breathing vapor or mist. Contain away from surface waters and sewers. Contain as a liquid for possible recovery or sorb with compatible sorbent material and shovel into collapsible container for disposal.

**7. HANDLING AND STORAGE**

**HANDLING PROCEDURES:** Keep away from intense heat, sparks, or flame. Empty containers may contain product residue which could include flammable or explosive vapors.

**STORAGE PROCEDURES:** Do not apply heat or flame to container. Keep separate from strong oxidizing agents.

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**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

<b>ENGINEERING CONTROLS:</b>	Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limits.
<b>SKIN PROTECTION:</b>	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.
<b>EYE PROTECTION:</b>	Use chemical safety goggles and/ or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facility
<b>RESPIRATORY PROTECTION:</b>	Normally none required. If high vapor or mist concentrations expected - use respirator approved for organic vapors and mists.
<b>CLOTHING RECOMMENDATION:</b>	Wear appropriate chemical-resistant apron or other protective clothing.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>APPEARANCE:</b>	Yellow
<b>ODOR:</b>	Rubbing Alcohol
<b>pH:</b>	NA
<b>VAPOR PRESSURE, mm Hg:</b>	33 mm Hg at 68°F
<b>VAPOR DENSITY:</b>	2.1 (air = 1)
<b>BOILING POINT, 760 mm Hg, °C:</b>	180°F (82°C)
<b>SOLUBILITY IN WATER:</b>	Insoluble
<b>SPECIFIC GRAVITY:</b>	0.79 (water = 1)
<b>EVAPORATION RATE:</b>	2.83 (ethyl ether = 1)

**10. STABILITY AND REACTIVITY**

<b>STABILITY:</b>	Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	Toxic gases and vapors such as carbon monoxide may be release in a fire involving isopropyl alcohol.
<b>POLYMERIZATION:</b>	Will not occur

**11. TOXICOLOGICAL INFORMATION**

<b>EYE IRRITATION:</b>	Vapors may irritate the eyes. Splashes may cause sever irritation, possible corneal burns and eye damage.
<b>DERMAL IRRITATION:</b>	Has a defatting action of the skin that can cause irritation. May cause irritation with a stinging effect and burning sensation.
<b>INGESTION:</b>	May cause drowsiness, unconsciousness, and death. Gastrointestinal pain, cramps, nausea, vomiting, and diarrhea may also result.
<b>CHRONIC EXPOSURE SYMPTOMS</b>	Prolonged contact with skin may cause mild irritation, drying, cracking, or contact dermatitis may develop.

**12. HEALTH INFORMATION**

No	HIGHLY TOXIC	Yes	SENSITIZER
No	TOXIC	No	REPRODUCTIVE EFFECTS
No	CORROSIVE	No	TARGET ORGAN