Radiator Relief-Diesel ™

Coolant System Performance Improver

Radiator Relief-Diesel™ is an additive specially formulated to rapidly reduce water temperature in cooling systems of cars, trucks, manufacturing and farm equipment, etc. Used in radiators, the product helps to prevent overheating and keeps engines running cooler, thereby extending the life of the system. Radiator Relief™ is safe to store, handle and use. The product is non-toxic, non-corrosive, water soluble and biodegradable. Available in a 16 oz. bottle (#040204).

CAPABILITIES

Cooling Power:	Used at a 10% dilution, Radiator Relief– Diesel™ shall reduce the temperature of water by up to 30°F and oil temperature by 40°F.
Applications:	Radiator Relief™ is added to radiators, for example a 16 quart system would require either a 90% water/anti-freeze combination to 10% Radiator Relief-Diesel™ or 85% water to 15% Radiator Relief-Diesel™
Cleanup:	None needed. Product biodegrades rapidly. Oil molecules do not form a tight emulsion with the solution.
Disperant Capability:	Low. Treated oils are not dispersed in water.

CHARACTERISTICS

pH:	pH of concentrate is <10.0
Flash Point:	Negligible
Boiling Point:	212° F
Odor:	Mild scent. Does not contain d-limonenes. Clear/purple in color.
Water Solubility:	Complete.
Shelf Life:	Indefinite when stored in closed containers between 32° F and 120° F
Dilution Strength:	Use at 10% or 15% depending on whether or not anti-freeze is used with water.
Residue:	Agent layer dissipates rapidly. Product leaves virtually no residue.

ENVIRONMENTAL and SAFETY CONSIDERATIONS

Biodegradability:	100% in 21 days under ideal conditions.
Hazardous Components:	No components are listed in the NIOSH Recommendations for Occupational Health Standards, 1988, or are defined as hazardous by SARA, CERLA, or RCRA. No OSHA PEL's are established for other ingredients.
Handling:	Product is neutral when diluted. It may remove oil from skin and may irritate eyes if sprayed directly into them.
Disposal:	Agent may be disposed through municipal systems.

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MATERIAL SAFETY DATA SHEET
RADIATOR RELIEF-DIESEL™

SECTION I – IDENTIFICATION

Distributor: Design Engineering, Inc.
Address: 604 Moore Rd
Phone: (440) 930-7940 **Fax:** (440) 930-7967
Date Prepared: February 2006 **Formulation #:** RRd-204
Trade Name: Radiator Relief™
Product: Cooling Agent

SECTION II – INGREDIENTS AND HAZARD CLASSIFICATION

Components are a classified trade secret. No components are believed to be hazardous, or listed in the NIOSH Recommendations for Occupational Safety and Health Standards, 1988, or listed as hazardous by SARA, CERLA, or RCRA. No OSHA PEL's are established for any of the other ingredients.

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 212° F.
Solubility in water: 100%
pH: <10
Vapor Pressure (mm Hg): Same as water
Specific Gravity: 1.02 @ 60° F.
Appearance and odor: Clear/purple liquid, mild smell.

SECTION IV – FIRE AND EXPLOSION DATA

Flash Point: Not applicable **Flammable Limits:** Non-flammable
LEL: Not applicable **UEL:** Not applicable
Extinguishing Media: Not applicable
Special Fire Fighting Procedures: None **Unusual Fire and Explosion Hazards:** None

SECTION V – REACTIVITY DATA

Stability: Stable. **Incompatibility:** None.
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.
Hazardous Polymerization: Will not occur.

SECTION VI – HEALTH HAZARD DATA

Exposure Limits
OSHA PEL: Not established. **ACGIII TLV:** Not established.
Routes of Entry
Inhalation: Yes **Skin:** Yes **Ingestion:** Yes

Signs and Symptoms of Exposure
Skin: Negligible hazard. Not a primary skin irritant. Dermal irritation testing for 72 hours on albino rabbits showed no erythema and no edema.
Eyes: Not considered to be a primary ocular irritant.
Inhalation: Negligible
Ingestion: Not considered to be orally toxic.

First Aid
Eyes: Immediately flush eyes with water. **Skin:** Rinse with water.
Inhalation: Negligible. Remove to fresh air. **Ingestion:** Drink water.

Carcinogenicity
NTP? No **IARC?** No **OSHA Regulated?** No

MATERIAL SAFETY DATA SHEET
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SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE

Spill or Leak Procedures
Rinse affected area with water
Waste Disposal Method
Dispose as non-hazardous waste in accordance with local regulations.
Storage and Handling Precautions
Store in temperatures from 32°F to 120°F in closed containers to prevent evaporation and deterioration. Freezing will not damage material as long as container remains intact.
Other Precautions
Although components have low hazard levels, the product will remove oils from the skin like common soap.
Avoid prolonged skin contact.

SECTION VIII – CONTROL MEASURES

Respiratory Protection
Not required.
Ventilation
Under ordinary conditions of use for its intended purpose, no special ventilation is required.
Protective Gloves
Wear if there is prolonged skin contact.
Eye Protection
Wear if needed to prevent reasonable probability of eye contact

SECTION IX – HAZARD CLASSIFICATION

IMO Hazard Class and Number: Non-hazardous. **UN Number:** Not applicable.
US DOT Hazard Class: Not regulated by DOT **US DOT Identification Number:** Not applicable.

SECTION X – REGULATORY INFORMATION

HMIS Rating: Health: 0 Flammability: 0 Reactivity:: 0

SECTION XI – ENVIRONMENTAL DATA

Biodegradability: Product is 100% biodegradable in an active environment within 21 days.
Toxicity: In accordance with U.S. EPA Office of Pollution Prevention and Toxics criteria for ranking the acute toxicity of chemicals in the aquatic environment, JG-302CA is considered to be of low concern.

- 96 hour acute toxicity versus freshwater alga (Selenastrum capricornutum) IAW 40 CFR 797.1050 showed JG-302CA was algicidal at concentrations above 750 ppm.
- 96 hour acute toxicity versus juvenile rainbow trout (Oncorhynchus mykiss) IAW 40 CFR 797.1400 showed An LC_{50} of 105 ppm.

The information presented in this MSDS is believed to be factual. However, nothing contained in this information is to be taken as a warranty of any kind. The user should review any recommendations, in the specific content use, to determine whether they are appropriate.

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