

MATERIAL SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product identifier : **MILEMAX DIESEL MILEAGE IMPROVER**

Product Use : Diesel fuel additive.

Chemical Family : Mixture.

Manufacturer part no. : M6732C

Supplier's name and address:
Radiator Specialty Co., of Canada
 1711 Aimco Blvd.
 Mississauga, ON, Canada
 L4W 1H7

Manufacturer's name and address:
 Refer to Supplier

Information Telephone # : (905) 625-9117 (Mon. - Fri., 8 AM - 4 PM)

24 Hr. Emergency Tel # : 613-996-6666 (CANUTEC)

SECTION 2 - HAZARDS IDENTIFICATION

Classification : WHMIS information: This product is a WHMIS Controlled Product. It meets one or more of the criteria for a controlled product provided in Part IV of the Canadian Controlled Products Regulations (CPR). WHMIS Classification:
 Class B3 (Combustible Liquids);
 Class D2A (Materials Causing Other Toxic Effects, Very Toxic Material);
 Class D2B (Materials Causing Other Toxic Effects, Toxic Material).
 Labelling: Phrases recommended to appear on a supplier label, can be found in Section 15.
 WHMIS symbols required on a supplier label:



Emergency Overview : Dark amber liquid. Petroleum odour.
 Warning!
 Combustible liquid and vapour. Harmful if inhaled. Harmful or fatal if swallowed. May cause nausea, vomiting, headache and other central nervous system effects. May cause respiratory irritation. Could result in pulmonary edema (fluid accumulation). May be an aspiration hazard. Can enter the lungs and cause damage. Causes skin irritation. Repeated absorption may cause disorder of central nervous system, liver, kidneys and blood. Possible birth defect hazard - contains material that may cause birth defects, based on animal data. Possible cancer hazard - contains material which may cause cancer. This product contains marine pollutants.

POTENTIAL HEALTH EFFECTS:

Signs and symptoms of short-term (acute) exposure

Inhalation : May cause irritation to the nose, throat and upper respiratory tract. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.

Skin : May cause moderate skin irritation. May cause redness and itching or burning sensation. Product may be absorbed.

Eyes : May cause mild eye irritation. Symptoms may include redness, itching and swelling.

Ingestion : May cause irritation of mouth, throat, and stomach. Ingestion may cause symptoms similar to inhalation. Material is an aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal. Ingestion of large quantities of nitrates may affect oxygen transport in the blood and blood system, causing methemoglobinemia. Could cause cyanosis (bluish discoloration of the skin due to deficient oxygenation of the blood).

Effects of long-term (chronic) exposure

: Prolonged or repeated contact may cause drying, cracking and defatting of the skin. Repeated overexposure to naphthalene may cause destruction of red blood cells with anemia, fever, jaundice and kidney and liver damage.

Carcinogenic status : Possible cancer hazard. See TOXICOLOGICAL INFORMATION, Section 11.

Additional health hazards : May cause birth defects. See TOXICOLOGICAL INFORMATION, Section 11.

Potential environmental effects

: This product contains marine pollutants. See ECOLOGICAL INFORMATION, Section 12.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredients</u>	CAS #	Wt. %
stoddard solvent	8052-41-3	60.00 - 100.00
2-Ethylhexyl nitrate	27247-96-7	10.00 - 30.00
Petroleum naphtha	64742-94-5	1.00 - 5.00
1,2,4-Trimethylbenzene	95-63-6	1.00 - 5.00
1,3,5-Trimethylbenzene	108-67-8	1.00 - 5.00
Xylene	1330-20-7	1.00 - 5.00
Naphthalene	91-20-3	0.10 - 0.30

SECTION 4 - FIRST AID MEASURES

- Inhalation** : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Get medical attention if symptoms persist.
- Skin contact** : Remove/Take off immediately all contaminated clothing. Wash exposed area thoroughly with soap and water for at least 15 minutes. Get medical attention if symptoms persist.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists, seek prompt medical attention.
- Ingestion** : Seek immediate medical attention/advice. Do not induce vomiting. Never give anything by mouth to an unconscious person.
- Notes For Physician** : Treat symptomatically. This product is a CNS depressant. Material is an aspiration hazard.

SECTION 5 - FIRE FIGHTING MEASURES**Fire hazards/conditions of flammability**

- : Combustible liquid and vapour. Will ignite when exposed to heat, flame and other sources of ignition. Vapours may be heavier than air and may collect in confined and low-lying areas. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Product may float, and be re-ignited at the water's surface.

Oxidizing properties : None known.**Explosion data: Sensitivity to mechanical impact / static discharge**

- : May be sensitive to static discharge. Not expected to be sensitive to mechanical impact.

Suitable extinguishing media : Dry chemical, foam, carbon dioxide and water fog. Do not use water jet, as this may spread burning material.**Special fire-fighting procedures/equipment**

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.

Hazardous combustion products

- : Carbon oxides; Nitrogen oxides (NOx); Sulfur oxides; Aldehydes; Hydrocarbons; Other unidentified organic compounds.

SECTION 6 - ACCIDENTAL RELEASE MEASURES**Personal precautions** : All persons dealing with the clean-up should wear the appropriate personal protective equipment. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to protective measures listed in sections 7 and 8.**Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. Avoid release to the environment.

Spill response/cleanup : Ventilate area of release. Remove all sources of ignition. Use only non-sparking tools and equipment in the clean-up process. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Notify the appropriate authorities as required.

Prohibited materials : Do not use combustible materials, such as sawdust, as absorbent material.

SECTION 7 - HANDLING AND STORAGE

Safe Handling procedures : Use in a well-ventilated area. Wear suitable protective equipment during handling. Avoid breathing vapours. Avoid contact with skin, eyes and clothing. Keep away from heat, sparks and open flames. Use proper bonding and grounding techniques when transferring liquid. Avoid contact with incompatible materials. Wash thoroughly after handling. Launder clothing before reuse.

Storage requirements : Store in a cool, dry, well-ventilated area. Store away from incompatibles and out of direct sunlight. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area.

Incompatible materials : Strong oxidizing agents; Bases; Acids; Reducing agents.

Special packaging materials : Always keep in containers made of the same materials as the supply container.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits

<u>Ingredients</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
stoddard solvent	100 ppm	N/Av	500 ppm (2900 mg/m ³)	N/Av
2-Ethylhexyl nitrate	N/Av	N/Av	N/Av	N/Av
Petroleum naphtha	N/Av	N/Av	500 ppm (2000 mg/m ³) (as petroleum distillates, naphtha)	N/Av
1,2,4-Trimethylbenzene	25 ppm (mixed isomers)	N/Av	25 ppm (trimethylbenzene isomers) (final rule limit)	N/Av
1,3,5-Trimethylbenzene	25 ppm (mixed isomers)	N/Av	25 ppm (trimethylbenzene isomers) (final rule limit)	N/Av
Xylene	100 ppm	150 ppm	100 ppm (435 mg/m ³)	N/Av
Naphthalene	10 ppm (skin)	N/Av	10 ppm (50 mg/m ³)	N/Av

Ventilation and engineering measures

: Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection : If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised. Advice should be sought from respiratory protection specialists.

Skin protection : Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers. Depending on conditions of use, an impervious apron should be worn.

Eye / face protection : Safety glasses with side-shields or chemical splash goggles.

Other protective equipment : An eyewash station and safety shower should be made available in the immediate working area.

General hygiene considerations

: Avoid breathing vapors or mists. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid.	Appearance	: dark amber
Odour	: Petroleum odour.	Odour threshold	: N/Av
pH	: N/Av		
Boiling point	: N/Av	Specific gravity	: 0.83
Melting/Freezing point	: N/Av	Coefficient of water/oil distribution	: N/Av
Vapour pressure (mmHg @ 20° C / 68° F)	: N/Av	Solubility in water	: Insoluble.
Vapour density (Air = 1)	: N/Av	Evaporation rate (n-Butyl acetate = 1)	: N/Av
Volatile organic Compounds (VOC's)	: N/Av	Volatiles (% by weight)	: N/Av
Flash point	: 48.9°C		
Flash point Method	: Tag closed cup	Auto-ignition temperature	: N/Av
Lower flammable limit (% by vol.)	: N/Av	Upper flammable limit (% by vol.)	: N/Av
Flame Projection Length	: N/Ap	Flashback observed	: N/Ap
Absolute pressure of container	: N/Ap	Viscosity	: N/Av
General Information	: No additional information.		

Section 10: STABILITY AND REACTIVITY

Stability and reactivity	: Stable under the recommended storage and handling conditions prescribed.
Hazardous polymerization	: Hazardous polymerization does not occur.
Conditions to avoid	: Avoid heat and open flame. Keep away from direct sunlight. Ensure adequate ventilation, especially in confined areas. Avoid contact with incompatible materials.
Materials To Avoid And Incompatibility	: Strong oxidizing agents; Acids; Bases; Reducing agents.
Hazardous decomposition products	: Refer to Section 5 for additional 'Hazardous combustion products'.

SECTION 11 - TOXICOLOGICAL INFORMATION

Target organs	: Eyes, skin, respiratory system, central nervous system, blood system, liver, brain and kidneys.
Routes of exposure	: <i>Inhalation:</i> YES <i>Skin Absorption:</i> YES <i>Skin & Eyes:</i> YES <i>Ingestion:</i> YES
Irritancy	: Moderate skin irritant. Mild eye irritant.
Toxicological data	: There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

<u>Ingredients</u>	LC₅₀ (4hr)	LD₅₀	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
stoddard solvent	> 5.5 mg/L (vapour)	> 5000 mg/kg	> 3000 mg/kg
2-Ethylhexyl nitrate	> 14 mg/L	> 9600 mg/kg	> 4800 mg/kg
Petroleum naphtha	> 17.1 mg/L (mist)	> 6000 mg/kg	> 3160 mg/kg
1,2,4-Trimethylbenzene	18 mg/L (vapour)	5000 mg/kg	> 3160 mg/kg
1,3,5-Trimethylbenzene	24 mg/L (vapour)	23 000 mg/kg	> 3160 mg/kg
Xylene	6350 ppm (27.6 mg/L) (vapour)	3253 mg/kg	12 180 mg/kg
Naphthalene	N/Av	490 mg/kg (rat) 533 mg/kg (mouse)	> 20 000 mg/kg

Carcinogenic status	: Contains Naphthalene. Naphthalene is classified as carcinogenic by IARC (Group 2B) and NTP (Group 2 - Reasonably anticipated). No other components are classified as carcinogenic by IARC, ACGIH, OSHA or NTP.
Reproductive effects	: Not expected to have other reproductive effects.

- Teratogenicity** : This product contains Xylene. Xylene may cause fetotoxic effects at doses which are not maternally toxic, based on animal data.
- Mutagenicity** : Not expected to be mutagenic in humans.
- Epidemiology** : No information available.
- Sensitization to material** : May cause an allergic skin reaction (e.g. hives, rash) in some hypersensitive individuals. No data available to indicate product or components may be respiratory sensitizers.
- Synergistic materials** : N/Av
- other important hazards** : This product is a CNS depressant. CNS depression may result from extreme exposures.

Conditions aggravated by overexposure

- : Pre-existing eye, skin, respiratory, liver, kidney and central nervous system disorders.
Blood disorders.

SECTION 12 - ECOLOGICAL INFORMATION

- Ecotoxicity** : Toxic to aquatic life with long lasting effects. This product contains marine pollutants. No data is available on the product itself. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. The product contains the following substances which are hazardous for the environment: stoddard solvent; 2-Ethylhexyl nitrate; Petroleum naphtha; 1,3,5-Trimethylbenzene; Xylene; 1,2,4-Trimethylbenzene; Naphthalene.

See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
stoddard solvent	8052-41-3	2.1 - 4.2 mg/L (Bluegill sunfish)	N/Av	None.
2-Ethylhexyl nitrate	27247-96-7	2 mg/L (Zebra fish)	N/Av	None.
Petroleum naphtha	64742-94-5	3.6 mg/L (Rainbow trout)	N/Av	None.
1,2,4-Trimethylbenzene	95-63-6	7.72 mg/L (Fathead minnow)	N/Av	None.
1,3,5-Trimethylbenzene	108-67-8	12.52 mg/L (Goldfish)	N/Av	None.
Xylene	1330-20-7	8.2 mg/L (Rainbow trout)	N/Av	None.
Naphthalene	91-20-3	0.96 mg/L (pink salmon)	0.12 mg/L/40 days	1

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
stoddard solvent	8052-41-3	N/Av	N/Av	None.
2-Ethylhexyl nitrate	27247-96-7	> 12.6 mg/L (Daphnia magna)	N/Av	None.
Petroleum naphtha	64742-94-5	1.1 mg/L (Daphnia magna)	N/Av	None.
1,2,4-Trimethylbenzene	95-63-6	3.6 mg/L (Daphnia magna)	N/Av	None.
1,3,5-Trimethylbenzene	108-67-8	6 mg/L (Daphnia magna)	N/Av	None.
Xylene	1330-20-7	3.2 - 9.56 mg/L (Daphnia magna)	N/Av	None.
Naphthalene	91-20-3	3.4 mg/L (Daphnia magna)	0.22 - 0.6 mg/L	None.

<u>Ingredients</u>	CAS No	<u>Toxicity to Algae</u>		
		<u>EC50 / 96h or 72h</u>	<u>NOEC / 96h or 72h</u>	<u>M Factor</u>
stoddard solvent	8052-41-3	N/Av	N/Av	None.
2-Ethylhexyl nitrate	27247-96-7	1.57 mg/L/72hr (Green algae)	12.6 mg/L/72hr	None.
Petroleum naphtha	64742-94-5	7.2 mg/L/72hr (Green algae)	0.22 mg/L/72hr	None.
1,2,4-Trimethylbenzene	95-63-6	2.356 mg/L/96hr (Green algae) (QSAR)	N/Av	None.
1,3,5-Trimethylbenzene	108-67-8	3.191 mg/L/96hr (Green algae) (QSAR)	N/Av	None.
Xylene	1330-20-7	3.2 - 4.9 mg/L/72hr (Green algae)	N/Av	None.
Naphthalene	91-20-3	0.4 mg/L/72hr (Skeletonema costatum)	N/Av	1

Mobility : No data is available on the product itself.

Persistence : No data is available on the product itself.
 Contains the following chemicals which are considered to be inherently biodegradable: Stoddard solvent; Xylene.
 Contains the following chemicals which are not readily biodegradable: 2-Ethylhexyl nitrate; Petroleum naphtha; 1,2,4-Trimethylbenzene; 1,3,5-Trimethylbenzene; Naphthalene.

Bioaccumulation potential : No data is available on the product itself. See the following data for ingredient information.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
stoddard solvent (CAS 8052-41-3)	3.16 - 7.06	N/Av
2-Ethylhexyl nitrate (CAS 27247-96-7)	5.24	N/Av
Petroleum naphtha (CAS 64742-94-5)	> 3, < 6.5	N/Av
1,2,4-Trimethylbenzene (CAS 95-63-6)	3.78	31 - 275
1,3,5-Trimethylbenzene (CAS 108-67-8)	3.6 - 3.93	23 - 328
Naphthalene (CAS 91-20-3)	3.7	427 (Fathead minnow)
Xylene (CAS 1330-20-7)	3.12 - 3.2	50 - 58

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13 - DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle waste according to recommendations in Section 7. Do not cut, weld, drill or grind on or near this container. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

Methods of Disposal : Dispose of in accordance with federal, provincial and local hazardous waste laws.

SECTION 14: TRANSPORT INFORMATION

<u>Regulatory Information</u>	<u>UN Number</u>	<u>Shipping Name</u>	<u>Class</u>	<u>Packing Group</u>	<u>Label</u>
TDG	UN1268	PETROLEUM PRODUCTS, N.O.S.	3	III	
TDG Additional information	Within Canada only, the 'Flammable Liquids General Exemption' may apply. Section 1.33 of the Regulations is an exemption permitting the transportation of this product in small means of containment as not regulated. Note: This product contains marine pollutants. This product contains: stoddard solvent; 2-Ethylhexyl nitrate.				

SECTION 15 - REGULATORY INFORMATION**Labelling:**

Warning! Combustible liquid and vapour. Harmful if inhaled. Harmful or fatal if swallowed. May cause nausea, vomiting, headache and other central nervous system effects. May cause respiratory irritation. Could result in pulmonary edema (fluid accumulation). May be an aspiration hazard. Can enter the lungs and cause damage. Causes skin irritation. Repeated absorption may cause disorder of central nervous system, liver, kidneys and blood. Possible birth defect hazard - contains material that may cause birth defects, based on animal data. Contains material which may cause cancer, based on animal data.

Precautions: Use in a well-ventilated area. Wear suitable protective equipment during handling. Avoid breathing vapors or mists. Avoid contact with skin, eyes and clothing. Keep away from heat, sparks and open flames. Avoid contact with incompatible materials. Wash thoroughly after handling. Store in a cool, dry, well ventilated area, away from heat and ignition sources.

FIRST AID: If inhaled, move to fresh air. If breathing stops, provide artificial respiration. Get medical attention if symptoms persist. For skin contact, wash with soap and water while removing contaminated clothing. Get medical attention if symptoms persist. For eye contact, flush with running water for at least 15 minutes. If irritation persists, seek prompt medical attention. If ingested, do not induce vomiting. Immediately call a POISON CENTRE or doctor/physician. Never give anything by mouth to an unconscious person.

Refer To Material Safety Data Sheet for further information.

Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

US Federal Information:

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

SECTION 16 - OTHER INFORMATION**Legend**

: ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Services
CNS: Central Nervous System
ECOTOX: U.S. EPA Ecotoxicology Database
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
Inh: Inhalation
IUCLID: International Uniform Chemical Information Database
LC: Lethal Concentration
LD: Lethal Dose
MSHA: Mine Safety and Health Administration
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PEL: Permissible exposure limit
RTECS: Registry of Toxic Effects of Chemical Substances
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

- References** :
1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2016.
 2. International Agency for Research on Cancer Monographs, searched 2016.
 3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2016 (Chempendium, HSDB and RTECs).
 4. Material Safety Data Sheets from manufacturer.
 5. OECD The Global Portal to Information on Chemical Substances - eChemPortal, 2016.

<u>Prepared for:</u> Radiator Specialty Co. of Canada 1711 Aimco Blvd. Mississauga, ON, Canada, L4W 1H7 Telephone: 905-625-9117 (Mon. - Fri., 8 AM - 4 PM) Please direct all enquiries to Radiator Specialty.	
<u>Prepared by:</u> ICC The Compliance Center Inc. http://www.thecompliancecenter.com	

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MSDS Preparation Date (mm/dd/yyyy)

: 08/02/2007

MSDS Revision Date (mm/dd/yyyy)

: 06/22/2016

Revision No.

: 4

Revision Information

- : (M)SDS sections updated:
8. EXPOSURE CONTROLS / PERSONAL PROTECTION;
 11. TOXICOLOGICAL INFORMATION (Toxicological data);
 12. ECOLOGICAL INFORMATION.

END OF DOCUMENT