

**MATERIAL SAFETY DATA SHEET****SECTION 1: IDENTIFICATION**

<b>Product identifier</b>	: <b>AIR BRAKE ANTIFREEZE</b>
<b>Product Use</b>	: Prevention of frozen lines, and corrosion of metals, in heavy duty air brake systems.
<b>Chemical Family</b>	: Alcohol
<b>Manufacturer part no.</b>	: M2832, M2834, M2832C, M2832/6C, M2834C
<b>Supplier's name and address:</b>	<b>Manufacturer's name and address:</b>
<b>Radiator Specialty Co., of Canada</b> 1711 Aimco Blvd. Mississauga, ON, Canada L4W 1H7	<b>Refer to Supplier</b>
<b>Information Telephone #</b>	: (905) 625-9117 (Mon. - Fri., 8 AM - 4 PM)
<b>24 Hr. Emergency Tel #</b>	: 613-996-6666 (CANUTEC)

**SECTION 2 - HAZARDS IDENTIFICATION**

<b>Classification</b>	: 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 B2 (Flammable Liquids); Class D1B (Materials Causing Immediate and Serious Toxic Effects, Toxic Material); Class D2A (Materials Causing Other Toxic Effects, Very Toxic Material); Class D2B (Materials Causing Other Toxic Effects, Toxic Material).
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Labelling: Phrases recommended to appear on a supplier label, can be found in Section 15.  
WHMIS symbols required on a supplier label:



<b>Emergency Overview</b>	: Clear, colorless liquid. Mild alcohol odour. DANGER! Flammable liquid and vapour. Vapour may cause flash fire! Burns with colourless flame. POISON! May be fatal or cause blindness if swallowed in sufficient quantities. Harmful by inhalation and in contact with skin. May cause nausea, vomiting, headache and other central nervous system effects. Causes eye irritation. May cause respiratory irritation. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness. Prolonged or repeated contact with skin may cause irritation in some cases. May be an aspiration hazard. Possible birth defect hazard - contains material that may cause birth defects, based on animal data.
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**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. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness.
- Skin* : Direct skin contact may result in little or no irritation. May be absorbed and cause symptoms similar to those for inhalation.
- Eyes* : May cause mild to moderate irritation. May cause burning sensation, redness and tearing (watering).
- Ingestion* : May cause blindness if swallowed - cannot be made non-poisonous. May cause irritation of mouth, throat, and stomach. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness. May result in unconsciousness and possibly death. May be an aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal.

**Effects of long-term (chronic) exposure**

- : Prolonged or repeated contact may cause drying, cracking and defatting of the skin.
- Carcinogenic status** : See TOXICOLOGICAL INFORMATION, Section 11.
- Additional health hazards** : May cause birth defects. See TOXICOLOGICAL INFORMATION, Section 11.

**Potential environmental effects**

: See ECOLOGICAL INFORMATION, Section 12.

**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Ingredients</b>	<b>CAS #</b>	<b>Wt.%</b>
Methyl alcohol (Methanol)	67-56-1	60.00 - 100.00

**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.
- Skin contact** : Remove/Take off immediately all contaminated clothing. Wash off immediately with plenty of 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. Seek immediate medical attention/advice.
- Ingestion** : Seek immediate medical attention/advice. Do not induce vomiting, unless directed to do so by qualified medical personnel. Never give anything by mouth to an unconscious person.
- Notes For Physician** : Immediate medical attention is required. Contains methanol. Administration of ethanol can slow the metabolism of methanol, thus reducing the potential for harmful effects.

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

- : Flammable liquid and vapour. Burns with colourless flame. Will ignite when exposed to heat, flame and other sources of ignition. Vapours are heavier than air and collect in confined and low-lying areas. Vapour can travel to ignition source and flash back. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

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

- : Not expected to be sensitive to mechanical impact. May be sensitive to static discharge. Vapours in the flammable range may be ignited by a static discharge of sufficient energy.

**Suitable extinguishing media** : Dry chemical, foam, carbon dioxide and water fog. Water may be ineffective because it may not cool product below the flashpoint.**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; formaldehyde; Other unidentified organic compounds.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES****Personal precautions** : All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up.**Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. For large spills, dike the area to prevent spreading.**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 absorbents, such as sawdust.

**SECTION 7 - HANDLING AND STORAGE**

- Safe Handling procedures** : Use in a well-ventilated area. Wear suitable protective equipment during handling. Do not ingest. Avoid breathing vapour or mist. 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.
- 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; Acids; Reactive metals; Alkali metals; Isocyanates.
- Special packaging materials** : Always keep in containers made of the same materials as the supply container.

**SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION**

<u>Exposure Limits</u>				
<u>Ingredients</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Methyl alcohol (Methanol)	200 ppm (skin)	250 ppm (skin)	200 ppm (260 mg/m <sup>3</sup> )	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. A respiratory protection program that meets CSA Z94.4-02 requirements must be followed whenever workplace conditions warrant use of a respirator.

**Skin protection**

- : Wear impervious gloves, such as butyl rubber. Advice should be sought from glove suppliers. The following glove material(s) are not recommended: Natural Rubber; Neoprene; Nitrile rubber; Polyethylene; polyvinyl alcohol; Polyvinylchloride.

**Eye / face protection**

- : Chemical splash goggles are recommended. A full face shield may also be necessary. Refer to CSA Z94.3 or other appropriate standards.

**Other protective equipment**

- : Wear resistant clothing and boots. Other equipment may be required depending on workplace standards. 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.

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state</b>	: liquid	<b>Appearance</b>	: colourless
<b>Odour</b>	: Alcohol	<b>Odour threshold</b>	: N/Av
<b>pH</b>	: N/Av		
<b>Boiling point</b>	: 64.6°C	<b>Specific gravity</b>	: 0.7925 @ 20°C
<b>Melting/Freezing point</b>	: - 97.8°C	<b>Coefficient of water/oil distribution</b>	: N/Av
<b>Vapour pressure (mmHg @ 20° C / 68° F)</b>	: 96	<b>Solubility in water</b>	: Soluble
<b>Vapour density (Air = 1)</b>	: 1.11	<b>Evaporation rate (n-Butyl acetate = 1)</b>	: 2.0
<b>Volatile organic Compounds (VOC's)</b>	: N/Av	<b>Volatiles (% by weight)</b>	: 100%
<b>Flash point</b>	: 12°C		
<b>Flash point Method</b>	: Tag closed cup	<b>Auto-ignition temperature</b>	: N/Av
<b>Lower flammable limit (% by vol.)</b>	: 5.5%	<b>Upper flammable limit (% by vol.)</b>	: 36.5%

Flame Projection Length : N/Ap  
 Absolute pressure of container : N/Ap  
 Flashback observed : 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.  
 Materials To Avoid And Incompatibility : Strong oxidizing agents; Acids; Reactive metals; Alkali metals; Isocyanates.  
 Hazardous decomposition products : None known, refer to hazardous combustion products in Section 5.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

Target organs : Eyes, skin, respiratory system, digestive system, central nervous system.  
 Routes of exposure : Inhalation: YES Skin Absorption: YES Skin & Eyes: YES Ingestion: YES  
 Irritancy : Moderate eye irritant. Mild skin irritant.  
 Toxicological data : See below for toxicological data on the substance.

Ingredients	LC <sub>50</sub> (4hr) inh, rat	LD <sub>50</sub>	
		(Oral, rat)	(Rabbit, dermal)
Methyl alcohol (Methanol)	> 5000 ppm/6H (4.1 mg/L/4H (vapour))	5628 mg/kg (rat) The estimated human lethal dose is: 300 - 1000 mg/kg	> 393 mg/kg (Monkey) 15 800 mg/kg (rabbit)

Carcinogenic status : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.  
 Reproductive effects : Not expected to cause reproductive effects.  
 Teratogenicity : Contains methanol, which may cause teratogenic effects at doses which are not maternally toxic.  
 Mutagenicity : Not expected to be mutagenic in humans.  
 Epidemiology : Not available.  
 Sensitization to material : Not expected to be a skin or respiratory sensitizer.  
 Synergistic materials : Methanol can increase the toxicity of other liver toxins (e.g. Carbon tetrachloride).  
 other important hazards : Causes central nervous system depression.  
 Conditions aggravated by overexposure : Pre-existing skin, eye, respiratory and central nervous system disorders.

**SECTION 12 - ECOLOGICAL INFORMATION**

Ecotoxicity : The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

See the following tables for individual ingredient ecotoxicity data.

**Ecotoxicity data:**

Ingredients	CAS No	Toxicity to Fish		
		LC <sub>50</sub> / 96h	NOEC / 21 day	M Factor
Methyl alcohol (Methanol)	67-56-1	15 400 mg/L (Bluegill sunfish)	446.7 mg/L/28-day (Fathead minnow) (QSAR)	None.

Ingredients	CAS No	Toxicity to Daphnia		
		EC <sub>50</sub> / 48h	NOEC / 21 day	M Factor
Methyl alcohol (Methanol)	67-56-1	> 10 000 mg/L (Daphnia magna)	208 mg/L (QSAR)	None.

<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Methyl alcohol (Methanol)	67-56-1	22 000 mg/L/96hr (Green algae)	N/Av	None.

- Mobility** : No data is available on the product itself.  
**Persistence** : Methanol is readily biodegradable.  
**Bioaccumulation potential** : See the following data for ingredient information.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Methyl alcohol (Methanol) (CAS 67-56-1)	- 0.82 to - 0.64	< 10 (common carp)

**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. Empty containers retain residue (liquid and/or vapour) and can be dangerous. Do not cut, weld, drill or grind on or near this container.

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

**SECTION 14: TRANSPORT INFORMATION**

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	UN1230	METHANOL	3(6.1)	II	 
<b>TDG Additional information</b>	Document as Class 3 (6.1). May be shipped as LIMITED QUANTITY when transported in containers no larger than 1.0 Litre, in packages not exceeding 30 kg gross mass. Under the TDGR, refer to Section 1.17 for additional exemption information, if shipping under this exemption.				

**SECTION 15 - REGULATORY INFORMATION**

**Labelling:**

Danger. Flammable liquid and vapour. May cause flash fire or explosion. POISON! May be fatal or cause blindness if swallowed, cannot be made non-poisonous. Harmful by inhalation and in contact with skin. May cause nausea, vomiting, headache and other central nervous system effects. May cause respiratory irritation. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness. Causes eye irritation. May be an aspiration hazard. Aspiration into lungs may be fatal. Possible birth defect hazard - contains material that may cause birth defects, based on animal data.

Precautions: Use in a well-ventilated area. Wear chemically resistant protective equipment during handling. Do not ingest. Avoid breathing vapours. Avoid contact with skin, eyes and clothing. Keep away from heat, sparks and open flames. Ground all equipment during handling. 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. If breathing is difficult, give oxygen by qualified medical personnel only. Get medical attention if symptoms persist. For skin contact, flush with water for at least 15 minutes, while removing contaminated clothing. Get medical attention if symptoms persist. For eye contact, flush with running water for at least 15 minutes. Get medical attention if symptoms persist. If INGESTED call nearest Poison Control Centre or physician immediately. Do not induce vomiting unless instructed by medical personnel. 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).

**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
- CSA: Canadian Standards Association
- HSDB: Hazardous Substances Data Bank
- IARC: International Agency for Research on Cancer
- Inh: Inhalation
- 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.

<p><b><u>Prepared for:</u></b>                  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.</p>	
<p><b><u>Prepared by:</u></b>                  ICC The Compliance Center Inc.  <a href="http://www.thecompliancecenter.com">http://www.thecompliancecenter.com</a></p>	

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