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SECTION 1. IDENTIFICATION

Product identifier used on the label
: **AIR BRAKE ANTIFREEZE**

Product Code(s) : M2832, M2834, M2832C, M2832/6C, M2834C

Recommended use of the chemical and restrictions on use
: Prevention of frozen lines, and corrosion of metals, in heavy duty air brake systems.
No restrictions on use known.

Chemical family : Mixture of: Alcohols

Name, address, and telephone number of the supplier:

Radiator Specialty Co., of Canada

3-3055 Dundas St West, Suite 50
Mississauga, ON, Canada
L5L 3R8

Supplier's Telephone # : (905) 625-9117 (Mon. - Fri.; 8 AM to 4 PM)

24 Hr. Emergency Tel # : No information available.

Name, address, and telephone number of the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Clear colourless liquid. Mild alcohol odour.

Most important hazards:
Highly flammable liquid and vapour. This material may be ignited by heat, sparks and direct flame. Burns with a nearly invisible flame.
Toxic if swallowed, in contact with skin or if inhaled. Irritating to eyes. Contains material which can cause birth defects based on animal data. Causes damage to organs. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Avoid release to the environment. See Section 12 for more environmental information.

This product is packaged and sold as a consumer product. The below WHMIS 2015 classification and labeling information is being provided for informational purposes.

This material is classified as hazardous under Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).
Classification:
- Flammable liquid - Category 2
- Acute toxicity - Category 3 (Inhalation; Oral; Dermal)
- Eye damage/irritation - Category 2A
- Reproductive toxicity - Category 2
- Specific target organ toxicity, single exposure - Category 1

Label elements

Hazard pictogram(s)

Signal Word
DANGER!

Hazard statement(s)
- Highly flammable liquid and vapor.
- Toxic if swallowed, in contact with skin or if inhaled.
- Causes serious eye irritation.
- Suspected of damaging the unborn child.
- Causes damage to organs.

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Precautionary statement(s)

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources - No smoking.
Keep container tightly closed.
Ground/Bond container and receiving equipment.
Use explosion-proof electrical and ventilating equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe mist or vapor.
Wash exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/clothing and eye/face protection.

If exposed or concerned: Call a POISON CENTER or doctor/physician.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/physician if you feel unwell. Take off immediately all contaminated clothing and wash it before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
In case of fire, use dry chemical, CO2, or alcohol foam to extinguish.

Store in a well-ventilated place. Keep container tightly closed.
Keep cool.
Store locked up.

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:
Toxic fumes, gases or vapours may evolve on burning. May cause mild skin irritation. May cause gastrointestinal irritation. Prolonged overexposure may cause slight liver effects, such as increased organ weights.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical name	Common name and synonyms	CAS #	Concentration (% by weight)
Methanol	Carbinol Methyl alcohol Methyl hydrate	67-56-1	**80,0 – 100,0**

The exact concentrations of the above listed chemicals are being withheld as a trade secret.

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

Ingestion : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person.

Inhalation : IF INHALED: Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stops, provide artificial respiration. Call a POISON CENTER or doctor/physician.

Skin contact : IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/physician if you feel unwell. Take off immediately all contaminated clothing and wash it before reuse.

Eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Flush eyes with water for at least 15 minutes. If eye irritation persists: get medical advice/attention.

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Most important symptoms and effects, both acute and delayed

: Toxic if swallowed, in contact with skin or if inhaled. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. May cause headache, nausea, dizziness and other symptoms of central nervous system depression. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause blindness if swallowed - cannot be made non-poisonous. Causes damage to the optic nerves (eyes) if swallowed. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness.
Causes serious eye irritation. Contact may cause redness, swelling and a painful sensation.
Suspected of damaging the unborn child. Symptoms may include fetal malformations, increased fetal resorptions, and decreased numbers of live fetuses.
May cause mild skin irritation. Exposure may cause temporary irritation, redness or discomfort.
Prolonged overexposure may cause slight liver effects, such as increased organ weights.

Indication of any immediate medical attention and special treatment needed

: Immediate medical attention is required.
Contains methanol. Onset of symptoms may be delayed for 18 to 24 hours after ingestion. Medical supervision for minimum 48 hours.
Provide general supportive measures and treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

: Carbon dioxide (CO2); Dry chemical; Alcohol resistant foam; Water fog

Unsuitable extinguishing media

: Water may be ineffective because it may not cool product below the flashpoint.

Special hazards arising from the substance or mixture / Conditions of flammability

: Highly flammable liquid and vapour. Product may ignite when exposed to heat, sparks and direct flame. Burns with a nearly invisible flame. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Toxic fumes may be released during a fire.

Hazardous combustion products

: Carbon oxides; formaldehyde; Other irritating fumes and smoke.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

: Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

: Keep people away from and upwind of spill/leak. Wear appropriate protective equipment. Restrict access to area until completion of clean-up. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Prevent product from entering drains, sewers, waterways and soil.

Methods and material for containment and cleaning up

: Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. Use only non-sparking tools. For spilled liquids: absorb spill with inert, non-combustible material such as sand, then place into suitable containers. Do not use combustible absorbents, such as sawdust. Pick up and transfer to properly labeled containers. Contaminated absorbent material may pose the same hazards as the spilled product. Contact the proper local authorities. For waste disposal, see Section 13 of the SDS.

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SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
Use only outdoors or in a well-ventilated area. Wear suitable protective equipment during handling. Wear protective gloves/clothing and eye/face protection. Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources - No smoking. Ground/Bond container and receiving equipment. Use explosion-proof electrical and ventilating equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep away from incompatibles. Keep containers tightly closed when not in use. Wash thoroughly after handling. Empty containers retain residue (liquid and/or vapour) and can be dangerous. Do not cut, weld, drill or grind on or near this container.

Conditions for safe storage : Store in cool/well-ventilated place. Store locked up. 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. Have appropriate fire extinguishers and spill clean-up equipment in or near storage area. Keep away from incompatibles.

Incompatible materials : Strong oxidizing agents; Strong acids; Reactive metals; Alkali metals; Strong bases

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Methanol	200 ppm (skin)	250 ppm (skin)	200 ppm (260 mg/m³)	N/Av

Exposure controls

Ventilation and engineering measures

: Use only outdoors or in a well-ventilated area. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Use explosion-proof electrical and ventilating equipment. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection : If airbourne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02. Advice should be sought from respiratory protection specialists.

Skin protection : Wear protective gloves/clothing. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Advice should be sought from glove suppliers. Full chemical-resistant protective clothing should be used whenever splashing is anticipated. Wear resistant clothing and boots.

Eye / face protection : Wear eye/face protection. Wear as appropriate: Tightly fitting safety goggles; Safety glasses with side shields. A full face shield may also be necessary.

Other protective equipment : Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.

General hygiene considerations

: Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Clear colourless liquid.

Odour : Mild alcohol odour.

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Odour threshold	:	4.2 - 5960 ppm (detectable) (Methanol)
pH	:	N/Av
Melting/Freezing point	:	- 118°C
Initial boiling point and boiling range	:	67°C
Flash point	:	11°C
Flashpoint (Method)	:	closed cup
Evaporation rate (BuAe = 1)	:	> 1 (butyl acetate = 1) (Methanol)
Flammability (solid, gas)	:	Not applicable.
Lower flammable limit (% by vol.)	:	5.5% (Methanol)
Upper flammable limit (% by vol.)	:	44% (Methanol)
Oxidizing properties	:	None known.
Explosive properties	:	Not explosive
Vapour pressure	:	12.8 kPa (96 mmHg) @ 20°C (Methanol)
Vapour density	:	> 1 (Air = 1.0)
Relative density / Specific gravity	:	0.822 @ 15.6°C
Solubility in water	:	Soluble
Other solubility(ies)	:	Insoluble in: Ethanol; Other alcohols; Benzene; Chloroform; Diethyl ether; Other ethers; Esters; Ketones; Most other organic solvents
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution	:	N/Av
Auto-ignition temperature	:	385 - 470°C (Methanol)
Decomposition temperature	:	N/Av
Viscosity	:	N/Av
Volatiles (% by weight)	:	N/Av
Volatile organic Compounds (VOC's)	:	N/Av
Absolute pressure of container	:	N/Ap
Flame projection length	:	N/Ap
Other physical/chemical comments	:	No additional information.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not normally reactive.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerization does not occur.
Conditions to avoid	:	Keep away from heat, sparks and flame. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.
Incompatible materials	:	Strong oxidizing agents; Strong acids; Reactive metals; Alkali metals; Strong bases
Hazardous decomposition products	:	None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry inhalation	:	YES
Routes of entry skin & eye	:	YES
Routes of entry Ingestion	:	YES

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Routes of exposure skin absorption

: YES

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

: Toxic if inhaled. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. Inhalation of high concentrations may cause dizziness, disorientation, incoordination, narcosis, nausea or narcotic effects. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness.

Sign and symptoms ingestion

: Toxic if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion of larger amounts may cause defects to the central nervous system (e.g. dizziness, headache). May cause blindness if swallowed - cannot be made non-poisonous. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness.

Sign and symptoms skin : Toxic in contact with skin. May cause mild skin irritation. Exposure may cause temporary irritation, redness or discomfort. May be absorbed through the skin, producing symptoms similar to ingestion or inhalation.

Sign and symptoms eyes : Causes serious eye irritation. Contact may cause redness, swelling and a painful sensation.

Potential Chronic Health Effects

: Prolonged or repeated skin contact may cause drying and irritation.
Prolonged overexposure may cause slight liver effects, such as increased organ weights.

Mutagenicity : No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity : Not classifiable as a human carcinogen. No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

: This material is classified as hazardous under Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Reproductive toxicity - Category 2. Suspected of damaging the unborn child.
Contains Methanol. Methanol may cause fetotoxic and teratogenic effects at doses which are not maternally toxic, based on animal data. Symptoms may include fetal malformations, increased fetal resorptions, and decreased numbers of live fetuses.

Sensitization to material : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects : This material is classified as hazardous under Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Specific target organ toxicity, single exposure - Category 1. Causes damage to the optic nerves (eyes) if swallowed. Contains: Methanol. May cause blindness if swallowed - cannot be made non-poisonous. Affected person could experience a latent period of no symptoms, followed by blurred vision and possibly blindness.

According to the classification criteria of Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015), this product is not expected to cause target organ toxicity through single exposures.

Medical conditions aggravated by overexposure

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

Synergistic materials : Methanol can increase the toxicity of other liver toxins (e.g. Carbon tetrachloride). Administration of ethanol can slow the metabolism of methanol, thus reducing the potential for harmful effects.

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Toxicological data : This material is classified as hazardous under Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Acute toxicity - Category 3. Toxic if swallowed, in contact with skin or if inhaled.

See below for toxicological data on the substance.

Chemical name	LC_{50} (4hr) inh, rat	LD_{50} (Oral, rat)	LD_{50} (Rabbit, dermal)
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)

Other important toxicological hazards
: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : 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.

See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

Ingredients	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
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		
		EC50 / 48h	NOEC / 21 day	M Factor
Methanol	67-56-1	> 10 000 mg/L (Daphnia magna)	208 mg/L (QSAR)	None.

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

Persistence and degradability
: Expected to be readily biodegradable.

Bioaccumulation potential : The product itself has not been tested. See the following data for ingredient information.

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

Mobility in soil : High water solubility indicates a high mobility in soil.

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.

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SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8. This material and its container must be disposed of in a safe way.
Empty containers retain residue (liquid and/or vapour) and can be dangerous. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

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

SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	UN1230	METHANOL	3(6.1)	II	
TDG Additional information	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 TDG, refer to Section 1.17 for additional exemption requirements, if shipping under this exemption.				

Special precautions for user : Appropriate advice on safety must accompany the package. Keep away from heat, sparks and open flame. - No smoking.

Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: This information is not available.

SECTION 15 - REGULATORY INFORMATION

Canadian Information:

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

Canadian National Pollutant Release Inventory (NPRI): This product contains the following substances listed on the NPRI:
Methanol (Part 1, Group A Substance; Part 5: Individual Substances)

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

US Federal Information:

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

International Information:

Components listed below are present on the following International Inventory list:

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	New Zealand IOC
Methanol	67-56-1	200-659-6	Present	Present	(2)-201	KE-23193	Present	HSR001186

SECTION 16. OTHER INFORMATION

Legend : ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Services
CSA: Canadian Standards Association
EC50: Effective Concentration 50%
EINECS: European Inventory of Existing Commercial chemical Substances
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer

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IBC: Intermediate Bulk Container
IECSC: Inventory of Existing Chemical Substances
IOC: Inventory of Chemicals
ISHL: Industrial Safety Health Law
KECI: Korean Existing Chemicals Inventory
KECL: Korean Existing Chemicals List
LC: Lethal Concentration
LD: Lethal Dose
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
NOEC: No observable effect concentration
NTP: National Toxicology Program
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PEL: Permissible exposure limit
PICCS: Philippine Inventory of Chemicals and Chemical Substances
QSAR: Quantitative structure-activity relationship
RTECS: Registry of Toxic Effects of Chemical Substances
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
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 2018.
2. International Agency for Research on Cancer Monographs, searched 2018.
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2018 (Chempendium, HSDB and RTECs).
4. Material Safety Data Sheets from manufacturer.
5. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2018.

Preparation Date (mm/dd/yyyy)

: 08/14/2018

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

Prepared for: Radiator Specialty Co. of Canada 3-3055 Dundas St West, Suite 50 Mississauga, ON, Canada, L5L 3R8 Telephone: 905-625-9117 (Mon. - Fri., 8 AM - 4 PM) Please direct all enquiries to Radiator Specialty.	
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