

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

Product identifier : **LIQUID BOILER SEAL**

Product Use : Sealing cracks and leaks in boilers and fittings.

Chemical Family : Mixture.

Manufacturer part no. : B232C

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 (Monday - Friday, 9AM - 5PM)

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 E (Corrosive 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 : Red viscous liquid. Mild odour.
 WARNING! Contact with metals may release small amounts of flammable hydrogen gas. Causes severe skin and eye irritation, possible burns on prolonged contact. Irritating to respiratory system. Harmful if swallowed.

POTENTIAL HEALTH EFFECTS:**Signs and symptoms of short-term (acute) exposure**

Inhalation : May cause severe irritation to the nose, throat and respiratory tract. Symptoms may include coughing, chest pain and shortness of breath.

Skin : Causes severe irritation. Prolonged contact may produce chemical burns to affected skin areas.

Eyes : Severe irritation, burns and possibly permanent eye damage may result from direct contact.

Ingestion : May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include burning pain, vomiting and diarrhea.

Effects of long-term (chronic) exposure

: Chronic skin contact with low concentrations may cause dermatitis.

Carcinogenic status : See TOXICOLOGICAL INFORMATION, Section 11.

Additional health hazards : See TOXICOLOGICAL INFORMATION, Section 11.

Potential environmental effects

: See ECOLOGICAL INFORMATION, Section 12.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt.%
Sodium silicate	1344-09-8	40.00 - 70.00

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. Seek immediate medical attention/advice.
- 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. Never give anything by mouth to an unconscious person.
- Notes For Physician** : Treat symptomatically.

SECTION 5 - FIRE FIGHTING MEASURES

- Fire hazards/conditions of flammability** : Not flammable under normal conditions of use. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Contact with metals may release small amounts of flammable hydrogen gas.
- Oxidizing properties** : None known.
- Explosion data: Sensitivity to mechanical impact / static discharge** : Not expected to be sensitive to mechanical impact or static discharge.
- Suitable extinguishing media** : Dry chemical, foam, carbon dioxide and water fog.
- 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** : silicon oxides; Sodium oxides.

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.
- Spill response/cleanup** : Ventilate area of release. Remove all sources of ignition. 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** : None known.

SECTION 7 - HANDLING AND STORAGE

- Safe Handling procedures** : Use in a well-ventilated area. Wear suitable protective equipment during handling. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and flame. Avoid contact with incompatible materials. Wash thoroughly after handling.
- Storage requirements** : Store in a cool, dry, well-ventilated area. Keep away from incompatibles. Inspect periodically for damage or leaks. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel.
- Incompatible materials** : Acids; halogens; Metals (e.g. tin, aluminum, zinc and alloys containing these metals).
- 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>
Sodium silicate	N/Av	N/Av	N/Av	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.
- Eye / face protection** : Chemical splash goggles or face shield is recommended.
- Other protective equipment** : Depending on conditions of use, an impervious apron should be worn. An eyewash station and safety shower should be made available in the immediate working area.
- General hygiene considerations** : Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink, smoke or use cosmetics while working with this product. Remove and wash contaminated clothing before re-use. Wash thoroughly after handling.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

- Physical state** : viscous liquid
- Appearance** : Red viscous liquid.
- Odour** : Mild odour.
- Odour threshold** : N/Av
- pH** : 11 - 12
- Boiling point** : 100°C
- Specific gravity** : 1.24
- Melting/Freezing point** : N/Av
- Coefficient of water/oil distribution** : N/Av
- Vapour pressure (mmHg @ 20° C / 68° F)** : N/Av
- Solubility in water** : dispersible
- 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** : Non-flammable.
- Flash point Method** : N/Av
- Auto-ignition temperature** : N/Av
- Lower flammable limit (% by vol.)** : N/Av
- Upper flammable limit (% by vol.)** : N/Av
- Flame Projection Length** : Not applicable.
- Flashback observed** : Not applicable.
- Absolute pressure of container** : N/Av
- 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. Contact with metals may release small amounts of flammable hydrogen gas.
- Hazardous polymerization** : Hazardous polymerisation does not occur.
- Conditions to avoid** : Open flames, sparks, high heat and close proximity to incompatible substances.
- Materials To Avoid And Incompatibility** : See Section 7 (Handling and Storage) for further details.
- Hazardous decomposition products** : None known, refer to hazardous combustion products in Section 5.

SECTION 11 - TOXICOLOGICAL INFORMATION

- Target organs** : Eyes, skin, respiratory system and digestive system.
- Routes of exposure** : *Inhalation:* YES *Skin Absorption:* NO *Skin & Eyes:* YES *Ingestion:* YES
- Irritancy** : Severe irritation, tissue damage, and possible blindness will result from direct contact.
- Toxicological data** : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

Ingredients	LC₅₀(4hr)		LD₅₀	
	inh. rat	(Oral, rat)	(Rabbit, dermal)	
Sodium silicate	N/Av	1960 mg/kg	> 4640 mg/kg	

- Carcinogenic status** : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

- Reproductive effects** : None known. Not expected to cause reproductive effects.
- Teratogenicity** : None known. Not expected to be a teratogen.
- Mutagenicity** : None known. Not expected to be mutagenic in humans.
- Epidemiology** : None known or reported by the manufacturer.
- Sensitization to material** : None known. Not expected to be a skin or respiratory sensitizer.
- Synergistic materials** : None known or reported by the manufacturer.
- other important hazards** : None known or reported by the manufacturer.
- Conditions aggravated by overexposure** : None known or reported by the manufacturer.


SECTION 12 - ECOLOGICAL INFORMATION

- Ecotoxicity** : The ecological characteristics of this product have not been fully investigated. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.
- Mobility** : No data is available on the product itself.
- Persistence** : No data is available on the product itself.
- Bioaccumulation potential** : No data is available on the product itself.
- Other Adverse Environmental effects** : No data is available on the product itself.

SECTION 13 - DISPOSAL CONSIDERATIONS

- Handling for Disposal** : Handle waste according to recommendations in Section 7. Do not puncture or incinerate containers.
- 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	None	Not regulated.	Not regulated	none	
TDG Additional information	None.				

SECTION 15 - REGULATORY INFORMATION

Labelling:

WARNING! Contact with metals may release small amounts of flammable hydrogen gas. Causes severe skin and eye irritation, possible burns on prolonged contact. Irritating to respiratory system. Harmful if swallowed.

PRECAUTIONS: Use in a well-ventilated area. Wear chemically resistant protective equipment during handling. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and flame. Avoid contact with incompatible materials. Wash thoroughly after handling. Keep containers closed when not in use. Store in a cool, dry, well ventilated area, away from heat and ignition sources.

FIRST AID: If inhaled, move to fresh air. If breathing stopped, begin artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Get medical attention. For skin contact, flush with water for at least 15 minutes, while removing contaminated clothing. Seek immediate medical attention/advice. For eye contact, flush with running water for at least 15 minutes. Seek immediate medical attention/advice. If ingested, do not induce vomiting. Never give anything by mouth to an unconscious person. Seek immediate medical attention/advice.

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
 HSDB: Hazardous Substances Data Bank
 IARC: International Agency for Research on Cancer
 Inh: Inhalation
 LC: Lethal Concentration
 LD: Lethal Dose
 N/Ap: Not Applicable
 N/Av: Not Available
 NIOSH: National Institute of Occupational Safety and Health
 NTP: National Toxicology Program
 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 2010.
 2. International Agency for Research on Cancer Monographs, searched 2010.
 3. Canadian Centre for Occupational Health and Safety, CCHInfoWeb databases, 2010 (Chempendium, HSDB and RTECs).
 4. Material Safety Data Sheets from manufacturer.

<p>Prepared for: Radiator Specialty Co. of Canada 1711 Aimco Blvd. Mississauga, ON, Canada, L4W 1H7 Telephone: 905-625-9117 (Mon. - Fri., 9 AM - 5 PM) Please direct all enquiries to Radiator Specialty.</p>	
<p>Prepared by: ICC The Compliance Center Inc. http://www.thecompliancecenter.com</p>	

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: 2

Revision Information

: Sections 2 and 3, switched.

(M)SDS sections updated:

- 2. HAZARDS IDENTIFICATION;
- 3. COMPOSITION/INFORMATION ON INGREDIENTS;
- 5. FIRE-FIGHTING MEASURES;
- 8. EXPOSURE CONTROLS / PERSONAL PROTECTION;
- 9. PHYSICAL AND CHEMICAL PROPERTIES;
- 11. TOXICOLOGICAL INFORMATION;
- 12. ECOLOGICAL INFORMATION;
- 14. TRANSPORT INFORMATION;
- 15. REGULATORY INFORMATION.

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