

MATERIAL SAFETY DATA SHEET**SECTION 1: IDENTIFICATION****Product identifier** : **TITSEAL MEDIUM WEIGHT****Product Use** : Gasket and joint sealing compound.**Chemical Family** : Mixture.**Manufacturer part no.** : T2566, T2575**Supplier's name and address:****Manufacturer's name and address:****Radiator Specialty Co., of Canada**

Refer to Supplier

1711 Aimco Blvd.
Mississauga, ON, Canada
L4W 1H7**Information Telephone #** : (905) 625-9117 (Monday - Friday, 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 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**

: paste; grey. Mild odour.
WARNING! May cause allergic respiratory reaction. May cause allergic skin reaction. May be harmful if inhaled. May cause mild eye irritation. May cause mild skin irritation. Ingestion of large amounts may be harmful.

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

Inhalation : If product is heated or mists are formed, inhalation may cause irritation to the nose, throat and respiratory tract. Inhalation of fumes may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath.

Skin : May cause mild skin irritation.

Eyes : May cause mild transient irritation.

Ingestion : Ingestion of large amounts may cause stomach irritation. May cause nausea, vomiting, and diarrhea.

Effects of long-term (chronic) exposure

: None known or reported by the manufacturer.

Carcinogenic status : See TOXICOLOGICAL INFORMATION, Section 11.**Additional health hazards** : Possible sensitizer. See TOXICOLOGICAL INFORMATION, Section 11.**Potential environmental effects**

: See ECOLOGICAL INFORMATION, Section 12.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredients</u>	CAS #	Wt.%
Vegetable oil	68187-84-8	45.00 - 65.00
Aluminum oxide	1344-28-1	10.00 - 20.00
Mica	12001-26-2	10.00 - 20.00
Kaolin	1332-58-7	10.00 - 20.00
Rosin	8050-09-7	1.00 - 5.00

SECTION 4 - FIRST AID MEASURES

- Inhalation** : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. Consult a physician.
- Skin contact** : Remove/Take off immediately all contaminated clothing. Wash off immediately with soap and plenty of water. If irritation persists, seek prompt medical attention.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists, seek prompt medical attention.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention.
- Notes For Physician** : Treat symptomatically.

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

- : Not flammable under normal conditions of use. However, may ignite if exposed to extreme heat and flame. 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 available.

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; Sulphur oxides; Ketones; Alcohol; Aldehydes; Other unidentified organic compounds.

SECTION 6 - ACCIDENTAL RELEASE MEASURES**Personal precautions**

- : All persons dealing with the clean-up should wear the appropriate chemically 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. For large spills, dike the area to prevent spreading.

Spill response/cleanup

- : Ventilate area of release. Remove all sources of ignition. Absorb material with inert absorbent, and place into labelled containers for disposal. Shovel into suitable container for disposal. Refer to Section 13 for disposal of contaminated material. Notify the appropriate authorities as required.

Prohibited materials

- : None known.

SECTION 7 - HANDLING AND STORAGE

- Safe Handling procedures** : Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this preparation is being used. Once a person is sensitized, no further exposure to the material that caused the sensitization should be permitted.
Use in a well-ventilated area. Wear suitable protective equipment during handling. Do not inhale. Avoid contact with skin, eyes and clothing. Keep away from heat, sparks, and open flames. Avoid contact with incompatible materials. Wash thoroughly after handling.
- Storage requirements** : Store in a cool, dry, well-ventilated area. 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; Bases.
- 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>
Vegetable oil	N/Av	N/Av	N/Av	N/Av
Aluminum oxide	1 mg/m ³ (respirable)	N/Av	15 mg/m ³ (total dust); 5 mg/m ³ (respirable)	N/Av
Mica	3 mg/m ³ (respirable)	N/Av	20 mppcf	N/Av
Kaolin	2 mg/m ³ (respirable)	N/Av	15 mg/m ³ (total dust); 5 mg/m ³ (respirable)	N/Av
Rosin	N/Av	N/Av	N/Av	N/Av

Ventilation and engineering measures

- : Use in a well-ventilated area. 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

- : Gloves impervious to the material are recommended. 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

- : Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice. Wash contaminated clothing before reuse. Wash hands thoroughly after using this product, and before eating, drinking or smoking.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: paste	Appearance	: grey
Odour	: Mild odour.	Odour threshold	: N/Av
pH	: neutral		
Boiling point	: N/Av	Specific gravity	: 1.3 @ 20°C
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)	: none
Volatile organic Compounds (VOC's)	: 0	Volatiles (% by weight)	: < 1

Flash point : 154.4°C
Flash point Method : Cleveland Open Cup
Lower flammable limit (% by vol.) : N/Av
Flame Projection Length : N/Av
Absolute pressure of container : N/Av
General Information : No additional information.

Auto-ignition temperature : Not available.
Upper flammable limit (% by vol.) : N/Av
Flashback observed : N/Av
Viscosity : N/Av

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.
Materials To Avoid And Incompatibility : Strong oxidizing agents; Acids; Bases.
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 : Mild.
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>	<u>LC₅₀(4hr)</u>	<u>LD₅₀</u>	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Vegetable oil	N/Av	N/Av	N/Av
Aluminum oxide	N/Av	> 5000 mg/kg	N/Av
Mica	N/Av	N/Av	N/Av
Kaolin	N/Av	> 5000 mg/kg	> 5000 mg/kg
Rosin	N/Av	7600 mg/kg	> 2000 mg/kg

Carcinogenic status : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.
Reproductive effects : Not expected to have other reproductive effects.
Teratogenicity : Not expected to be a teratogen.
Mutagenicity : Not expected to be mutagenic in humans.
Epidemiology : None known or reported by the manufacturer.
Sensitization to material : May cause allergic respiratory reaction (sensitization) with asthmatic symptoms such as wheezing and chest tightness. May cause severe skin sensitization with allergic contact dermatitis symptoms such as swelling, rash and eczema.
Synergistic materials : None known or reported by the manufacturer.
other important hazards : None known or reported by the manufacturer.
Conditions aggravated by overexposure : Pre-existing skin and respiratory disorders.

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:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Vegetable oil	68187-84-8	N/Av	N/Av	None.
Aluminum oxide	1344-28-1	N/Av	> 100 mg/L/96hr (Brown trout)	None.
Mica	12001-26-2	N/Av	N/Av	None.
Kaolin	1332-58-7	N/Av	N/Av	None.
Rosin	8050-09-7	> 1000 mg/L (Fathead minnow)	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Vegetable oil	68187-84-8	N/Av	N/Av	None.
Aluminum oxide	1344-28-1	N/Av	> 100 mg/L/48hr (Daphnia magna)	None.
Mica	12001-26-2	N/Av	N/Av	None.
Kaolin	1332-58-7	N/Av	N/Av	None.
Rosin	8050-09-7	911 mg/L (Daphnia magna)	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Vegetable oil	68187-84-8	N/Av	N/Av	None.
Aluminum oxide	1344-28-1	N/Av	> 100 mg/L/72hr (Green algae)	None.
Mica	12001-26-2	N/Av	N/Av	None.
Kaolin	1332-58-7	N/Av	N/Av	None.
Rosin	8050-09-7	> 1000 mg/L/72hr (Green algae)	N/Av	None.

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.

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! May cause allergic respiratory reaction. May cause allergic skin reaction. May be harmful if inhaled. May be mildly irritating to eyes and skin. Swallowing large amounts may be harmful.

Precautions: Use in a well-ventilated area. Wear suitable protective equipment during handling. Do not inhale. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and flame. Avoid contact with incompatible materials. Keep containers closed when not in use. 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 stopped, begin artificial respiration. Consult a physician. For skin contact, wash with soap and water while removing contaminated clothing. If irritation persists, seek prompt medical attention. 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. Never give anything by mouth to an unconscious person. Get medical attention.

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
 mppcf: million particles per cubic foot
 MSHA: Mine Safety and Health Administration
 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
 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

References

- TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System
- : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2013.
 - 2. International Agency for Research on Cancer Monographs, searched 2013.
 - 3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2013 (Chempendium, HSDB and RTECs).
 - 4. Material Safety Data Sheets from manufacturer.
 - 5. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2013.

<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)

: 08/28/2007

MSDS Revision Date (mm/dd/yyyy)

: 08/23/2013

Revision No.

: 3

Revision Information

- : (M)SDS sections updated:
 - 5. FIRE-FIGHTING MEASURES (Hazardous combustion products) ;
 - 12. ECOLOGICAL INFORMATION.

END OF DOCUMENT