

FROSTO®

Material Safety Data Sheet

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FROSTO® is a registered trademark of TANNER SYSTEMS, INC.

Prepared by Tanner Systems, Inc. for distribution in Canada

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: FROSTO®
Synonyms: Methyl alcohol, methyl hydrate, wood spirit, methyl hydroxide
Chemical Family: Alcohol
Application: De-icants

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2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS

<u>Ingredients</u>	<u>Percent</u>	<u>LD50s and LC50s Route & Species:</u>
Methanol	60-100	Inhalation LC50 Rat: 64000 ppm/4H
67-56-1		Oral LD50 Rat: 5628 mg/kg
		Oral LD50 Mouse: 7300 mg/kg
		Dermal LD50 Rabbit: 15800 mg/kg

3. HAZARDS IDENTIFICATION

POTENTIAL ACUTE HEALTH EFFECTS

Eye Contact: High vapor concentration or liquid contact with eyes causes irritation, tearing and burning. Moderate irritant.

Skin Contact: May be absorbed through the skin in toxic or lethal amounts.

Inhalation: Inhalation of high airborne concentrations can also irritate mucous membranes, cause headaches, sleepiness, nausea, confusion, loss of consciousness, digestive and visual disturbances and death.

Ingestion: May be fatal or cause blindness if swallowed.

4. FIRST AID MEASURES

Eye Contact: Obtain medical attention. Flush immediately with gentle running water for a minimum of 15 minutes, ensuring all surfaces and crevices are flushed by lifting lower and upper lids.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Get medical attention. Remove contaminated clothing and discard.

Inhalation: Remove to fresh air, restore or assist breathing if necessary, obtain medical attention immediately.

Ingestion: Seek immediate medical attention. Swallowing methanol is life threatening. Onset of symptoms may be delayed for 18 to 24 hours after ingestion. If conscious and medical aid is not immediately available, do not induce vomiting.

Notes to Physician: Acute exposure to methanol, either through ingestion or breathing high airborne concentrations can result in symptoms appearing between 40 minutes and 72 hours after exposure. Symptoms and signs are usually limited to CNS, eyes and gastrointestinal tract. Because of the initial CNS's effects of headache, vertigo, lethargy and confusion, there may be an impression of ethanol intoxication. Blurred vision, decreased acuity and photophobia are common complaints. Treatment with ipecac or lavage is indicated in any patient presenting within two hours of ingestion. A profound metabolic acidosis occurs in severe poisoning and serum bicarbonate levels are a more accurate measure of severity than serum methanol levels. Treatment protocols are available from most major hospitals and early collaboration with appropriate hospital is recommended.

5. FIRE FIGHTING MEASURES

Flash Point: (C) 12⁰ (F) 54⁰

Flash Point Method: Tag Closed Cup

Autoignition Temperature: (C) 385⁰ (F) 725⁰

Flammable Limits in Air - Lower (%): 6

Flammable Limits in Air - Upper (%): 36

Extinguishing Media: Alcohol foam Carbon Dioxide Dry chemical. Water spray.

Special Exposure Hazards: Flammable Liquid. Methanol burns with a clean clear flame that is almost invisible in daylight. Stay upwind. Isolate and restrict area access. Concentrations of greater than 25% methanol in water can be ignited. Use fine water spray or fog to control fire spread and cool adjacent structures or containers. Contain fire control water for later disposal.

Special Protective Equipment: Fire fighters must wear full face, positive pressure, self-contained breathing apparatus and appropriate protective clothing. Protective fire fighting structural clothing is not effective protection from methanol. Do not walk through spilled product.

NEPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, REACTIVITY 0

HMS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Procedure for Cleanup/Absorption: Flammable liquid. Release can cause an immediate fire/explosion hazard. Eliminate all ignition sources. Stop leak. Use absorbent materials. Contain spill by diking. Fluorocarbon alcohol resistant foams may be applied to spill to diminish vapor and fire hazard. Maximize recovery for recycling or reuse. Collect liquid with explosion proof pumps. For small spills, collect with non-combustible absorbent. Prevent spilled material from entering sewers, confined spaces, drains, or waterways. Do not walk through spilled product as it may be on fire and not visible.

Personal Precautionary Measures: Restrict access to unprotected personnel. Full-face, positive pressure self-contained breathing apparatus or airline and protective clothing must be worn. Do not walk through spilled product as it may be on fire and not visible.

Environmental Precautionary Measures: Prevent from entering sewers, waterways or low areas. Consult local authorities.

7. HANDLING AND STORAGE

HANDLING: No smoking or open flame in storage, use or handling areas. Use explosion proof electrical equipment. Ensure proper electrical grounding procedures are in place.

STORAGE: Tanks must be grounded and vented and should have vapor emission controls. Tanks must be diked. Avoid storage with incompatible materials. Anhydrous methanol is non-corrosive to most metals at ambient temperatures except lead and magnesium. However coatings of copper (or copper alloys), zinc (including galvanized steel) or aluminum are unsuitable for storage as they are attacked slowly. Mild steel is the recommended construction material.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: In confined areas, local and general ventilation should be provided to maintain airborne concentrations below permissible exposure limits. Ventilation systems must be designed according to approved engineering standards.

Respiratory Protection: NIOSH approved supplied air respirator when airborne concentrations exceed exposure limits.

Gloves: Nitrile gloves. Butyl rubber gloves.

Skin Protection: Wear chemical resistant pants and jackets, preferably butyl or nitrile rubber.

Eyes: Monogoggles. Face shield.

Other Personal Protection Data: Chemical resistant footwear.

HAZARDOUS COMPONENTS:

Ingredients	Percent	ACGIH 2000 - Time Weighted Averages	OSHA - Vacated PELs - Time Weighted Averages
Methanol 67-56-1	60-100	200 ppm TWA	200 ppm TWA; 260 mg/m ³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Pale green
Odor:	Slight Alcohol
pH:	Not Available
Specific Gravity:	0.8
Boiling Point:	(C) 64.5 ⁰ (F) 148 ⁰
Freezing Point:	(C) -97.8 ⁰ (F) -144 ⁰
Vapor Pressure:	100
Vapor Density:	1.105
% Volatile by Volume:	>99
Evaporation Rate:	2.0
Solubility:	Miscible in water
VOCs (lbs/gallon):	Not Available
Viscosity:	Not Available
Molecular Weight:	Not Available

10. STABILITY AND REACTIVITY

Chemical Stability: Stable

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Avoid any source of ignition. Incompatible materials.

Materials to Avoid: Strong acids. May be corrosive to lead and aluminium. Strong oxidizers. Strong bases.

Hazardous Decomposition Products: Carbon Monoxide. Carbon Dioxide. Formaldehyde.

11. TOXICOLOGICAL INFORMATION

PRINCIPLE ROUTES OF EXPOSURE

Ingestion: May be fatal or cause blindness if swallowed.

Skin Contact: May be absorbed through the skin in toxic or lethal amounts.

Inhalation: Inhalation of high airborne concentrations can also irritate mucous membranes, cause headaches, sleepiness, nausea, confusion, loss of consciousness, digestive and visual disturbances and death.

Eye Contact: High vapor concentration or liquid contact with eyes causes irritation, tearing and burning. Moderate irritant.

Aggravated Conditions: Repeated exposure by inhalation or absorption may cause systemic poisoning, brain disorders, impaired vision and blindness. Inhalation may worsen conditions such as emphysema or bronchitis. Repeated skin contact may cause dermal irritation, dryness and cracking.

Other: Effects of sub lethal doses may be nausea, headache, abdominal pain, vomiting and visual disturbances ranging from blurred vision to light sensitivity. NOTE: The odour threshold of methanol is several times higher than the TLV-TWA.

ACUTE TEST OF PRODUCT

Acute Oral LD50: >5000 mg/kg (rat)

Acute Dermal LD50: 20 ml/kg (rabbit)

Acute Inhalation LC50: 64000 ppm (rat)

Carcinogenicity: Not listed with IARC, NTP, ACGIH or OSHA as a carcinogen.

HAZARDOUS COMPONENTS

<u>Ingredients</u>	<u>Percent</u>	<u>ACGIH 2000 - Carcinogens</u>
Methanol 67-56-1	60-100	Not listed.

Genotoxicity: Not Available.

Reproductive/Developmental Toxicity: Methanol is reported to cause birth defects in rats exposed to 20,000 ppm.

Teratogenicity: No

Embryotoxicity: Not Available

Mutagenicity: No

12. ECOLOGICAL INFORMATION

ECOTOXICOLICAL INFORMATION

<u>Ingredients</u>	<u>Percent</u>	<u>Ecotoxicity - Fish Species Data</u>	<u>Acute Crustaceans Toxicity</u>	<u>Ecotoxicity - Freshwater Algae Data</u>
Methanol 67-56-1	60-100	LC50 (96 hr) fathead minnow (28-29 days old) 29400 mg/L:25 C, pH 7.63-7.69, 43.5 mg/L CaCo3.;LC50 (96 hr) rainbow trout (fingerling):13-68 mg/L: LC50 (48 hr) trout: 8000 mg/L.	Not Available.	Not Available.

Chemical Fate Information: Biodegrades easily in water.

Other Information: Methanol in fresh or salty water may have serious effects on aquatic life. A study on methanol's toxic effects on sewage sludge bacteria reported little effect on digestion at 1.0% while 0.5% methanol retarded digestion. Methanol will be broken down to carbon dioxide and water.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Incineration is the recommended disposal method. Methanol wastes are not suitable for underground injection. Biological treatment may be used on dilute aqueous waste methanol. Waste materials must be disposed of in accordance with your municipal, state, provincial and federal regulations.

Contaminated Packaging: Waste materials must be disposed of in accordance with your municipal, state, provincial and federal regulations.

14. TRANSPORT INFORMATION

DOT (U.S.A.): **DOT Shipping Name:** Methanol Solution
 Hazard Class: 3 (6.1)
 UN/NA Number: UN1230 (UN1993 in continental U.S.A.)
 DOT Packing Group: II
 DOT Reportable Quantity (lbs): Not applicable
 Marine Pollutant: No

ICAO/IATA: **IATA Proper Shipping Name:** Methanol Solution
 IATA Hazard Class: 3 (6.1)
 UN/NA Number: UN1230
 Packing Group: II
 IATA Label: Flammable liquid

IMDG: **IMDG Proper Shipping Name:** Methanol Solution
 Hazard Class: 3 (6.1)
 Packing Group: II
 EMS No.: 3-06
 MFAG Table No.: Table 19
 Marine Pollutant: No
 IMDG Flash Point (C): 12°
 IMDG Label: Flammable. Toxic.

TDG (CANADA): **TDG Proper Shipping Name:** Methanol Solution
 Hazard Class: 3 (6.1)
 UN Number: UN1230
 Packing Group: II
 Marine Pollutant: No

15. REGULATORY INFORMATION

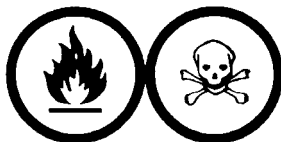
U.S. TSCA Inventory Status: Listed
Canadian DSL Inventory Status: Listed
Canadian NDSL Inventory Status: Not Listed

U.S. REGULATORY RULES

Methanol 60-100 67-56-1
CERCLA/SARA - Section 302: Not Listed
SARA (311, 312) Hazard Class: Listed
CERCLA/SARA - Section 313: Listed

CALIFORNIA PROPOSITION 65: Not Listed
MASSACHUSETTS Right to Know List: Listed
NEW JERSEY Right-to-Know List: Listed
PENNSYLVANIA Right to Know List: Listed

CANADA - WHMIS CLASSIFICATION: B2 FLAMMABLE LIQUIDS
D1A VERY TOXIC MATERIALS



16. OTHER INFORMATION

ADDITIONAL INFORMATION:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and this MSDS contains all the information required by the CPR.

DISCLAIMER: NOTICE TO READER -- The information contained herein is based on the data available to us and is believed to be correct. However, TANNER SYSTEMS, INC. makes no warranty expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. TANNER SYSTEMS, INC. assumes no responsibility for injury from the use of the product described therein.

END OF MSDS

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