

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name(s): Therm-O-Light Type 2, Therm-O-Spray, Therm-O-Barrier
Product Use: Thermal and Sound Insulation, Thermal Barrier
Manufacturer/Supplier: Therm-O-Comfort Co. Ltd.
Address: 75 South Edgeware Road, Rd. Thomas, Ontario N5P 2H7
EMERGENCY PHONE NO. (519) 631-3400
MSDS No. Effective Date: June 27, 2010

2. INFORMATION ON INGREDIENTS

<u>Ingredients</u>	<u>CAS #</u>	<u>% Range</u>	<u>LD 50 (ORAL)</u>		<u>LD 50 (DERMAL)</u>		<u>LC 50 INHALATION</u>	
			<u>mg/kg</u>	<u>Species</u>	<u>mg/kg</u>	<u>Species</u>	<u>mg/m³</u>	<u>Species</u>
Cellulose	65996-61-4	> 82%	NAv	NAP	NAv	NAP	NAv	NAP
Boric Acid	10043-35-3	< 12%	3500	Rat	2000	Rabbit	>2000	Rat
Sodium Borate	12179-04-3	< 12%	3200	Rat	2000	Rabbit	>2000	Rat

3. HAZARDOUS IDENTIFICATION

Emergency Overview

AVOID EXTREME HEAT AND OPEN FLAME. MAY EMIT CARBON MONOXIDE GAS, BORIC ACID AND OTHER HAZARDOUS PARTICULATES DURING THE THERMAL DECOMPOSITION.

Potential Health Effects (effect of acute exposure)

ROUTES OF ENTRY:

Eyes:

Eye contact is a slight irritant.

Skin:

Does not normally irritate the skin. In case of broken skin, wear gloves. Large amounts absorbed into bloodstream may cause rash, skin peeling, diarrhea, nausea and dizziness.

Ingestion:

Small amounts are not likely to cause harm. Ingestion of large amounts may cause rash, diarrhea, nausea.

Inhalation:

Slightly irritating to the upper respiratory tract. Persons with respiratory problems should avoid breathing dust.

Chronic Effects: None reported.

4. FIRST AID MEASURES

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. If irritation persists, get medical attention immediately.

Skin: If broken skin is exposed, wash dust from skin with soap and water. If irritation persists call a physician.

Ingestion: DO NOT INDUCE VOMITING! Symptoms may include diarrhea, nausea and vomiting. Give large quantities of water or milk, if available. Never give anything by mouth to an unconscious person. Seek medical attention if material was ingested and symptoms occur.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

5. FIRE FIGHTING MEASURES

Flammability:

Flash Point:	NAP	Method:	NAP
Upper Flammable Limits (UFL)	NAP	Lower Flammable Limit:	NAP
Auto Ignition Temperature:	Not Determined		
Sensitivity to Static Charge:	Not Determined		
Sensitivity to Impact:	Not Sensitive		
Combustible:	Material may decompose on contact with extreme temperatures and open flame.		
Hazardous Combustion Products:	Oxides of Carbon (carbon dioxide and carbon monoxide) and Sulfur		
Explosion Hazard:	None expected, based on particle size.		
Extinguishing Media:	Water, dry chemical and other agents rated for a wood fire (Type A Fire). Use Type A rated extinguisher.		
Fire Fighting Instructions:	In the event of a fire, evacuate the area and notify the fire department. If possible, isolate the fire by moving other combustible material. If the fire is small, use a hose-line or extinguisher rated for Type A fire. If possible, dike and collect water used to fight fires. Wear full protective clothing and a NIOSH-approved self-contained breathing apparatus with full face piece, operated in positive pressure mode.		

6. ACCIDENTAL RELEASE MEASURES

Contains water-soluble inorganic mineral salts which may damage trees or vegetation exposed to large quantities of the product.

Land:

Shovel, sweep or vacuum product. Place in disposal container. Avoid bodies of water. Dispose of in accordance with Federal, Provincial/State or Municipal regulations.

Water:

Large quantities may cause localized contamination of surrounding waters depending on the quantity spilled. At high concentrations, may damage localized vegetation, fish and other aquatic life. Therm-O-Light Type 2, Therm-O-Spray and Therm-O-Barrier Insulation is a non-hazardous waste when spilled or disposed of as defined by RCRA, regulation 40 CFR 261. Refer to regulatory information in Section 15 for additional information regarding EPA and California Regulations.

7. HANDLING AND STORAGE

No special handling is required. Store sealed bags in a dry indoor location. To maintain product integrity, handle on a "first-in first-out" basis. Use good housekeeping and engineering controls so that dust levels are below the exposure limits listed in Section 8. Store at ambient temperatures, atmospheric pressure, and away from incompatible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Airborne Exposure Limits: Therm-O-Light, Type 2, Therm-O-Spray, Therm-O-Barrier:

PEL-TWA	15 mg/m ³ total dust (PNOC)
PEL-TWA	5 mg/m ³ respirable fraction
TLV-TWA	10 mg/m ³ inhalable, no asbestos and quartz <1%, (PNOC)
TLV-TWA	3mg/m ³ respirable, no asbestos and quartz <1% (PNOC)

Boric Acid and Sodium Borate is classified as hazardous under the OSHA Hazard Communication Standard, based on animal chronic toxicity studies. Therm-O-Light Type 2, Therm-O-Spray and Therm-O-Barrier are not considered hazardous under 29 CFR 1910.1200

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the containment at its source, preventing dispersion of it into the general work area.

Respiratory Protection (NIOSH Approved):

If the exposure limit is exceeded, or if the dust concentration is unknown or engineering controls do not maintain nuisance dust levels below regulatory limits, use a NIOSH-95 approved dust mask.

Skin Protection:

If skin is broken or sensitive, use gloves.

Eye Protection:

Wear ANSI-approved eye protection if environment is excessively dusty. Maintain eye wash fountain and quick-drench facilities in work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Grey fiber
Odor:	Odorless
Odor Threshold:	NAp
Vapor Pressure in mm Hg at 20 ⁰ C:	Negligible @ 20 ⁰ C
Vapor Density (Air = 1.0):	NAp
Evaporation Rate: (BuOAc = 1):	NAp
Boiling Point:	NAp
Specific Gravity (Water = 1):	0.12 – 0.15 (compressed)
Solubility in Water:	Fiber is not soluble. Chemical additive is soluble at the rate of 10 – 15.0% @ 23 ⁰ C
pH (2% solution @ 20 ⁰ C):	7.5 – 8.5
Coefficient of Water/Oil Distribution:	NAp

10, STABILITY AND REACTIVITY

Conditions of Stability:

Therm-O-Light Type 2, Therm-O-Spray and Therm-O-Barrier are stable under ordinary conditions of use and storage.

Conditions and Materials to Avoid:

Reaction with strong reducing agents such as metal hydrides or alkali metals may generate hydrogen gas which could create an explosive hazard. Keep away from strong oxidizers, such as concentrated nitric acid, hydrogen peroxide and chlorine.

Hazardous Decomposition Products:

Carbon dioxide, carbon monoxide and oxides of sulfur may form when heated to decomposition.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

BORIC ACID

Eye: None listed. Not considered to be an eye irritant under normal industrial use.

Skin: Mild irritation based on Standard Draize Test. LDLo, skin, human. 1200 mg/kg

Ingestion: LDLo, oral, human, 429 mg/kg
Cardiovascular effect, Systemic effects

Inhalation: LCLo, rat, 28 mg/m³/4H

Subchronic: TDLo, oral, rat, 45 g/kg/90D-C

Chronic: TDLo, oral, rat, 244 gm/kg/2Y-C

Teratology: None reported

Reproduction: TDLo, oral, rat 6000 mg/kg, specific developmental abnormalities-musculoskeletal system

Mutagenicity: Mutation in microorganisms. E. coli, 17000 ppm/24H

SODIUM BORATE

Eye: None listed. Not considered to be an eye irritant under normal industrial use.

Skin: LD50 in rabbits is greater than 2,000 mg/kg of body weight. Borax is poorly absorbed through intact skin.

Ingestion: LDLo (oral, man) = 709 mg/kg; Behavioral: convulsions or effect on seizure threshold; Cardiac: change in rate; Gastrointestinal: nausea or vomiting

Inhalation: Low acute inhalation toxicity. LC₅₀ in rates is greater than 2.0 mg/L or grm/m³

Subchronic: High dietary exposure studies in rats and dogs showed effect on fertility and testes. Normal exposure to borate dust has shown no effect on human fertility.

Chronic: See Subchronic

Teratology: None reported

Reproduction: High dose animal feeding studies of rats mice and dogs have demonstrated and effect on fertility and testes. Normal exposure to borate dust has shown no effect on human fertility.

Mutagenicity: None reported

12. ECOLOGICAL INFORMATION

BORIC ACID

Ecotoxicity: LC₅₀, Daphnia magna, 133 mg/L/48H.
LC₅₀ Trout, 100ppm

Chemical Rate Information: Boron is absorbed into clay particles with the maximum adsorption in the pH range of 7-9. The amount of Boron adsorbed depends on the surface area of the clay.

SODIUM BORATE

Ecotoxicity: Green Algae: 96-hr EC₁₀= 24 mg B/L, Daphnia Magna 24-hr EC₅₀ = 242 mg B/L, Trout (embryo-larval stage) 24-day LC₅₀= 88 mg B/L, Goldfish (embryo-larval stage) 7-day LC₅₀= 65 mg B/L

Chemical Rate Information: See Boric Acid

13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be disposed of as a non-hazardous waste. Dispose of waste in accordance with Federal, State/Provincial and Municipal Regulations.

14. TRANSPORTATION INFORMATION

May be shipped normally as a non-hazardous material

Proper Shipping Name: NAp
Class: NAp

UN: NAp
Packing Group: NAp

15. REGULATORY INFORMATION

Chemical Inventory Status Listing of Boric Acid and Ammonium Sulfate in Therm-O-Light Type 2, Therm-O-Spray, Therm-O-Barrier:

TSCA	EC	Japan	Australia	Korea	DSL	NDSL
Yes	Yes	Yes	Yes	Yes	Yes	No

UNITED STATES

Federal, State and International Regulations: 1. Cellulose; 2. Boric Acid; 3. Sodium Borate

SARA 302		SARA 313		CERCLA	RCRA	TSCA	TSCA	CDTA
<u>RQ</u>	<u>TPQ</u>	<u>List</u>	<u>Chemical Catg</u>		<u>261.33</u>	<u>8 (d)</u>	<u>12(b)</u>	
1. No	No	No	No	No	No	No	No	No
2. No	No	No	No	No	No	No	No	No
3. No	No	No	No	No	No	No	No	No

SARA 311/312

<u>Acute</u>	<u>Chronic</u>	<u>Fire</u>	<u>Pressure</u>	<u>Reactivity</u>
1. No	No	No	No	No
2. Yes	Yes	No	No	No
3. Yes	No	No	No	No

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR. Therm-O-Light Type 2, Therm-O-Spray and Therm-O-Barrier are considered to be non-hazardous according to the criteria of CPR.

16. OTHER INFORMATION

Revised: July 31, 2013
Prepared by: Dr. Nathan Schiff
Revised by: C. Holzschere

ABBREVIATIONS:

CAS	Chemical Abstract Services	OSHA	Occupational Safety and Health Administration
LCLo	Lethal concentration low	PNOC	Particulates Not Otherwise Classified
LC ₅₀	Lethal Concentration 50%	PEL	OSHA
LD ₅₀	Lethal Dose 50%	ppm	parts per million
LOAEL	Lowest Observed Adverse Effect Level	RfD	Reference Dose
Mg/L/H	milligrams per liter per hour	TDLo	Toxic dose low
Mg/kg	milligrams per kilogram	TLV	ACGIH Threshold Limit Value
Mg/m ³	milligrams per cubic meter	TWA	8 hour Time Weighted Average

Information for this MSDS was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained. No warranty, expressed or implied, is made and the supplier will not be liable for any losses, injuries or consequential damages which may result from the use or reliance on any information contained in this form.