

## MATERIAL SAFETY DATA SHEET

### PRODUCT INFORMATION

Product Name	DOWTHERM SR-1	
Vendor Name & Address:	HOOD CHEMICAL 295 ALLIANCE ROAD #14 MILTON ON L9T 4W8 TEL: 905-876-0707	
WHMIS Classification:	D;2A	
TDG Hazard Classification:	NOT REGULATED	

### TOXICOLOGICAL PROPERTIES

<u>Hazardous Ingredients:</u>		
Ethylene Glycol	45 % W/W	CAS NO 107-21-1
Water	50	CAS NO 7732-18-5
Dipotassium Phosphate	1-5	CAS 7758-11-4
LD 50 (oral rats):	4000 mg/kg	
LD50 (skin rabbit):	9530 uL/kg	

### PHYSICAL/CHEMICAL PROPERTIES

Boiling Point;	316.°F 158°C
Freezing/Melting Point	-19.4-2.92°C/ °F
Vapour Pressure:	2.2 MMHG @ 20°C
Vapour Density (Air=1):	>1.0
Solubility in Water:	COMPLETELY MISCELLANEOUS
Specific Gravity:	1.1295 2 20°C
% Volatile by Volume:	Not available
Appearance & Odour:	COLOURLESS TO PINK
pH	9.5 @50% ASTM D1287
Evaporation Rate	Not available
Solubility	100%
VOCs	Not available
Viscosity	14 cSt @ 20°C
Molecular Weight	Not available
Other	Not available

### FIRE AND EXPLOSION HAZARD

Flash Point:	241 DEG. F, 116 DEG. C
Method Used:	CLOSED CUP
Flammable Limits (% in air):	LFL: 3.2% UFL: 15.3%
Extinguishing Equipment:	WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL
Fire-fighting Equipment:	WEAR POSITIVE-PRESSURE, SELF-CONTAINED BREATHING APPARATUS

Hazardous Decomposition Products: BURNING PRODUCES NORMAL PRODUCT OF COMBUSTION  
SUCH AS CARBON MONOXIDE, CARBON DIOXIDE AND  
WATER

### REACTIVITY DATA

Stability: (Conditions To Avoid)	STABLE
Incompatibility: (Specific Materials to Avoid):	OXIDIZING MATERIAL
Hazardous Polymerization:	WILL NOT OCCUR

### HEALTH HAZARD DATA

Eye Contact:	MAY CAUSE SLIGHT TRANSIENT (TEMPORARY EYE IRRITATION. CORNEAL INJURY IS UNLIKELY. VAPORS OR MISTS MAY IRRITATE EYES.
Skin Contact:	ESSENTIALLY NON-IRRITATING TO SKIN
Skin Absorption:	REPEATED SKIN EXPOSURE TO LARGE QUANTITIES MAY RESULT IN ABSORPTION OF HARMFUL AMOUNTS.
Ingestion:	SINGLE DOSE ORAL TOXICITY IS MODERATE. EXCESSIVE EXPOSURE MAY CAUSE CENTRAL NERVOUS SYSTEM

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EFFECTS, CARDIOPULMONARY EFFECTS (METABOLIC ACIDOSIS), AND KIDNEY FAILURE. THE ESTIMATED AMOUNTS INGESTED INCIDENTAL TO INDUSTRIAL HANDLING ARE NOT LIKELY TO CAUSE INJURY; HOWEVER INGESTION OF LARGER AMOUNTS COULD CAUSE SERIOUS INJURY, EVEN DEATH.

Inhalation: ACGIH TLV IS 50 PPM FOR ETHYLENE GLYCOL VAPOUR. AT ROOM TEMPERATURE, VAPOURS ARE MINIMAL DUE TO LOW VAPOUR PRESSURE. IF HEATED OR SPRAYED AS AN AEROSOL, CONCENTRATIONS MAY BE ATTAINED THAT ARE SUFFICIENT TO CAUSE IRRITATION AND OTHER EFFECTS.

Systemic & Other Effects: EXCESSIVE EXPOSURE MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT. OBSERVATIONS IN ANIMALS INCLUDE KIDNEY AND LIVER EFFECTS AND DEPOSITION OF CALCIUM SALTS IN VARIOUS TISSUES AFTER LONG-TERM DIETARY INTAKE OF ETHYLENE GLYCOL. DID NOT CAUSE CANCER IN LONG-TERM ANIMAL STUDIES. HAS BEEN REPORTED TO CAUSE BIRTH DEFECTS IN RATS AND MICE GIVEN HIGH ORAL DOSES WHICH WERE TOXIC TO THE MOTHERS. BIRTH DEFECTS WERE ALSO REPORTED IN MICE AT A HIGH ORAL DOSE WHICH WAS APPARENTLY NON-TOXIC TO THE MOTHER. EXPOSURE OF RATS AND MICE TO HIGH AEROSOL CONCENTRATION RESULTED IN TERATOGENIC EFFECTS IN MICE BUT NOT IN RATS. MUCH OF THE TOTAL DOSE OF ETHYLENE GLYCOL IN THE AEROSOL STUDIES PROBABLY RESULTED FROM INGESTION OF MATERIAL DEPOSITED ON FUR. IN STUDIES ON RATS, HAS BEEN SHOWN NOT TO INTERFERE WITH REPRODUCTION. IN STUDIES ON MICE, INGESTION OF ETHYLENE GLYCOL IN LARGE AMOUNTS CAUSE A SMALL DECREASE IN THE NUMBER OF LITTERS PER PAIR, LIVE VITRO (TEST TUBE) MUTAGENICITY TESTS HAVE BEEN NEGATIVE. RESULTS OF MUTAGENICITY TESTS IN ANIMALS HAVE BEEN NEGATIVE

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**PRECAUTIONS FOR SAFE HANDLING AND USE**

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Exposure Guidelines: ACGIH TLV IS 50 PM CEILING FOR ETHYLENE GLYCOL VAPOR.

Ventilation: GOOD GENERAL VENTILATION SHOULD BE SUFFICIENT FOR MOST CONDITIONS. LOCAL EXHAUST VENTILATION MAY BE NECESSARY FOR SOME OPERATIONS.

Respiratory Protection: ATMOSPHERIC LEVELS SHOULD BE MAINTAINED BELOW THE EXPOSURE GUIDELINE. WHEN RESPIRATORY PROTECTION IS REQUIRED FOR CERTAIN OPERATIONS, USE AN APPROVED AIR-PURIFYING RESPIRATOR.

Skin Protection: USE IMPERVIOUS GLOVES WHEN PROLONGED OR FREQUENTLY REPEATED CONTACT COULD OCCUR.

Eye Protection: USE SAFETY GLASSES. IF VAPOUR EXPOSURE CAUSES EYE DISCOMFORT, USE A FULL-FACE RESPIRATOR

**ACTION TO TAKE FOR SPILLS/LEAKS:**

Avoid entry into sewers to natural waters.

Small Spills: SOAK UP WITH ABSORBENT MATERIAL

Large Spills: DIKE AND DUMP INTO SUITABLE CONTAINERS FOR DISPOSAL

Waste Disposal: BURN IN APPROVED INCINERATOR IN ACCORDANCE WITH FEDERAL, PROVINCIAL AND LOCAL REQUIREMENTS OR SALVAGE

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**EMERGENCY FIRST AID PROCEDURES**

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Eyes: IRRIGATE IMMEDIATELY WITH WATER FOR AT LEAST 5 MINS.  
Skin: WASH OFF IN FLOWING WATER OR SHOWER  
Inhalation: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSULT PHYSICIAN  
Ingestions: IF VICTIM IS ALERT AND NOT CONVULSING, RINSE MOUTH OUT  
AND GIVE ½ TO 1 GLASS OF WATER TO DILUTE MATERIAL.  
IMMEDIATELY CONTACT LOCAL POISON CONTROL CENTRE.

VOMITTING SHOULD ONLY BE INDUCED UNDER THE DIRECTION OF A PHYSICIAN OR A POISON CONTROL CENTRE. IF SPONTANEOUS VOMITING OCCURS HAVE VICTIM LEAN FORWARD WITH HEAD DOWN TO AVOID BREATHING IN OF VOMITUS; RINSE MOUTH AND ADMINISTER MORE WATER. IMMEDIATELY TRANSPORT VICTIM TO AN EMERGENCY FACILITY

Notes to Physician: EARLY ADMINISTRATION OF ETHANOL MAY COUNTER THE TOXIC EFFECTS OF ETHYLENE GLYCOL (METABOLIC ACIDOSIS AND RENAL DAMAGE). HEMODIALYSIS OR PERITONEAL DIALYSIS HAVE BEEN OF BENEFIT NEW ENG. J. MED. 304:21 1981

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**ADDITIONAL INFORMATION**

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**Special Precautions To Be Taken in Handling And Storage:**

AVOID INGESTION. PRACTICE REASONABLE CAUTION AND PERSONAL CLEANLINESS. AVOID SKIN AND EYE CONTACT. TRACE QUANTITIES OF ETHYLENE OXIDE (EO) MAY BE PRESENT IN THIS PRODUCT. WHILE THESE TRACE QUANTITIES COULD ACCUMULATE IN HEADSPACE AREAS OF STORAGE AND TRANSPORT VESSELS, THEY ARE NOT EXPECTED TO CREATE A CONDITION WHICH WILL RESULT IN EO CONCENTRATIONS GREATER THAN 0.5 PPM (8 HOUR TWA) IN THE BREATHING ZONE OF THE WORKPLACE FOR APPROPRIATE APPLICATIONS. OSHA HAS ESTABLISHED A PERMISSIBLE EXPOSURE LIMIT OF 1.0 PPM 8 HR TWA FOR EO (CODE OF FEDERAL REGULATIONS PART 1910.1047 OF TITLE 29)

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**PREPARATION INFORMATION**

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Prepared by: LAB PERSONNEL  
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