

MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED): **DYNALENE® 600**

CHEMICAL NAME/CLASS: Heat Transfer Fluids
SYNONYMS: Mixture; None applicable.

DISTRIBUTOR'S NAME: **Dynalene Inc**
ADDRESS: 5250 West Coplay Road
 Whitehall, PA 18052

EMERGENCY PHONE: 1- 800-424-9300 (CHEMTREC)
BUSINESS PHONE: 1-610-262-9686

DATE OF PREPARATION: August 25, 2003.
REVISION DATE: January 31, 2011

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	% v/v	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			
			TLV	STEL	PEL	STEL	IDLH	OTHER
			ppm	ppm	ppm	ppm	ppm	
Silicone	Not Known		NE	NE	NE	NE	NE	NE

NE = Not Established C = Ceiling Level See Section 16 for Definitions of Terms Used.
 NOTE (1): All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.
 Note (2): All hazard information pertinent to the proprietary compounds has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This product is a liquid, brown color, with a slight odor. The product will ignite and burn at elevated temperature in the presence of an ignition source. In the event of an emergency involving this product, it must be treated as a combustible liquid. Emergency responders must wear proper personal protective equipment and have adequate fire protection since toxic fumes are released in a fire situation.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:

The below listed effects of overexposure are based on actual data results of studies performed upon similar compositions component data/ or expert review of the product.

INHALATION: No irritation to eyes and respiratory passages. For relatively short exposure of less than 8 hours, no injury is likely to occur.




CONTACT WITH SKIN or EYES: Direct eye contact may cause temporary discomfort along with slight redness and dryness similar to windburn.

SKIN ABSORPTION: A single prolonged exposure (24 to 48 hours) causes no known adverse side effects.

INGESTION: accidental ingestion of this product in small amounts, while not likely in an industrial setting should not cause injury. Swallowing large amounts of this product may cause digestive discomfort.

INJECTION: Accidental injection of this product may cause local irritation and redness.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. This product is generally low risk for possible health hazards.

HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH		(BLUE)	1
FLAMMABILITY		(RED)	1
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		
For routine industrial applications			

PART II

What should I do if a hazardous situation occurs?

4. FIRST-AID MEASURES

SKIN EXPOSURE:

If the product is spilled on the skin, immediately begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. The minimum recommended flushing time is 15 minutes; use soap if available. If irritation or redness develops, seek medical attention.

EYE EXPOSURE:

If these products enter the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. If irritation or redness develops, seek medical attention.

INHALATION:

No first aid should be required.

INGESTION:

No first aid should be required.

If the need to seek medical attention is required, a copy of the MSDS Sheet and label should accompany victim to physician or health professional.

5. FIRE-FIGHTING MEASURES

FLASH POINT, °C (method): 315°C (600°F) Open cup

AUTOIGNITION TEMPERATURE, °C: Not Determined.

FLAMMABLE LIMITS (in air by volume, %): Not Determined.

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES (cooling only)

Carbon Dioxide: YES

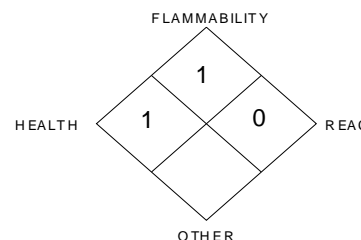
Foam: YES

Dry Chemical: YES

Other: Any "ABC" Class

Halon: YES

NFPA RATING



UNUSUAL FIRE AND EXPLOSION HAZARDS:

When involved in a fire, this material may decompose and produce irritating fumes and toxic gases including oxides of carbon and heavy, black soot and smoke.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES:

Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE:

In case of a spill, clear the affected area, protect people, and respond with trained personnel. Clean-up small spills (5 gallons or less) promptly. Wear safety glasses, gloves, or other equivalent body protection, and full works shoes.

Small Spills: absorb spilled liquid with polypads or other suitable absorbent materials. Clean any remaining slippery surfaces with appropriate equipment. Mop or swab contaminated area with an appropriate solvent; then wash with mild caustic detergents or solutions. High-pressure steam may be used on large areas. For non-silicones, use typical industrial cleaning materials. Observe all safety precautions applicable to the cleaning solution being used. Dispose of in accordance with Federal, State and local hazardous waste disposal regulations (see Section 13, Disposal Considerations).

Large Spills: Provide diking or other appropriate containment to keep material from spreading. **Uncontrolled releases should be responded to by trained personnel using pre-planned procedures.** Observe all personal protection equipment recommendations as described in Section 5 and 8. Dispose of in accordance with federal, State, and Local Hazardous waste disposal regulations (see Section 13, Disposal Considerations).

PROTECT THE ENVIRONMENT:

This product may float on water. Measures should be taken to limit runoff onto soil, waterways, or sewer.

PART III

How can I prevent hazardous situations from occurring?

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES:

As with all chemicals, avoid getting these products ON YOU or IN YOU. Wash hands after handling this product.

Do not eat or drink while handling these materials.

STORAGE AND HANDLING PRACTICES:

All employees who handle this material should be trained to handle it safely. Wash thoroughly after using this material. Inspect containers to ensure proper labeling and good condition before storage or use. Keep containers away from incompatible chemicals mainly oxidizers. Empty containers may contain ignitable vapors, and may explode, if subject to a cutting torch.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS:

General ventilation is recommended.

RESPIRATORY PROTECTION:

None needed for normal circumstances of use. Maintain airborne contaminant concentrations below exposure limits listed in Section 2 (Composition and Information on Ingredients).

EYE PROTECTION:

Splash goggles or safety glasses

HAND PROTECTION:

Wear Viton™, Silver Shield™, or Nitrile Rubber gloves for routine industrial use. Use Nitrile Rubber or Viton™ or other suitable resistant gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS.

BODY PROTECTION:

Use body protection appropriate for task.

9. PHYSICAL and CHEMICAL PROPERTIES

<u>RELATIVE VAPOR DENSITY (air = 1):</u>	Not Determined.
<u>SPECIFIC GRAVITY @ 25°C (water = 1):</u>	0.97
<u>SOLUBILITY IN WATER:</u>	Insoluble.
<u>VAPOR PRESSURE, mm Hg @ 204 °C (400°F):</u>	~2.5 mm Hg
<u>ODOR THRESHOLD:</u>	Various reports: Not Determined.
<u>COEFFICIENT WATER/OIL DISTRIBUTION:</u>	Not available.
<u>APPEARANCE AND COLOR:</u>	Brown liquid with a minimal odor.
<u>THERMAL CONDUCTIVITY @ 25°C:</u>	0.00030 BTU/ft ² •sec
<u>EVAPORATION RATE (n-BuAc=1):</u>	< 1
<u>FREEZING/MELTING POINT or RANGE:</u>	Not Applicable.
<u>pH:</u>	Not Applicable.
<u>INITIAL BOILING POINT:</u>	>315°C (>600°F)

10. STABILITY and REACTIVITY

STABILITY:

Stable

DECOMPOSITION PRODUCTS:

Thermal breakdown of this product during fire or very high heat conditions may evolve the following hazardous decomposition products. Carbon Oxides and traces of incompletely burned carbon compounds
For additional information, call the Dynalene Engineering Department, at +1 - 610 - 262 - 9686.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:

Strong oxidizers

HAZARDOUS POLYMERIZATION:

Will not occur

CONDITIONS TO AVOID:

Avoid contact with oxidizing materials.

PART IV

Is there any other useful information about this material?

11. TOXICOLOGICAL INFORMATION

COMPLETE INFORMATION NOT YET AVAILABLE

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

This product may aggravate pre-existing skin disorders.

RECOMENDATON TO PHYSICIANS:

Treat symptoms and reduce exposures.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY:

COMPLETE INFORMAYION NOT YET AVAILABLE.

EFFECT OF MATERIAL ON PLANTS or ANIMALS:

While no specific data exist related to the effect of this product or animals, it is expected to cause effects similar to those describe for humans. Vegetation may be severely stressed, due to the oily nature of this product.

EFFECT OF CHEMICAL ON AQUATIC LIFE:

This product will float on water and will cut-off oxygenation of bodies of water, contributing to aquatic toxicity.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL:

Waste disposal must be in accordance with appropriate Federal, State, and Local regulations. This chemical, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

When this material is discarded in its as-received condition, is it classified as a hazardous waste? NO.

Federal Hazardous Waste Code: Not Applicable.

Characteristic Waste: Not Applicable.

Corrosive: Not Applicable.

Reactive: Not Applicable.

TCLP: Not Applicable.

State or Local laws may impose additional regulatory requirements regarding disposal.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS NON-HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION WHEN SHIPPED BY AIR, VESSEL OR IN BULK HIGHWAY or RAIL CONTAINERS (> 110 gallons).

PROPER SHIPPING NAME: Not Applicable.

HAZARD CLASS NUMBER and DESCRIPTION: Not Applicable.

UN IDENTIFICATION NUMBER: 0000

PACKING GROUP: Not Applicable.

DOT LABEL (S) REQUIRED: None Required.

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1998): Not Applicable.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL CONSIDERED AS NON HAZARDOUS.

15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: The components of these products are subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows.

COMPOUND	SECTION 302	SECTION 304	SECTION 313
Silicone	NO	NO	NO

SARA THRESHOLD PLANNING QUANTITY: Not Applicable.

TSCA INVENTORY STATUS: The chemicals in this product are listed on the TSCA Inventory.

CERCLA REPORTABLE QUANTITY (RQ): Not Applicable.

OTHER FEDERAL REGULATIONS: No special regulations are applicable.

STATE REGULATORY INFORMATION: Components of this product are covered under specific State regulations, as denoted below:

Massachusetts – No ingredient regulated by MA Right - to – Know Law present

New Jersey – 100 Iron siloxane complex

Pennsylvania – 100 Iron siloxane complex

CALIFORNIA PROPOSITION 65: No component of this solution is on the California Proposition 65 lists.

16. OTHER INFORMATION

PREPARED BY: DYNALENE INC
5250 West Coplay Road
Whitehall, PA 18052
1-610-262-9686

Date of Printing: January 31, 2011.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Dynalene Heat Transfer Fluids assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Dynalene Heat Transfer Fluids assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.
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DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

CAS #: This is the Chemical Abstract Service Number, which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association that establishes exposure limits.

TLV - Threshold Limit Value - an airborne concentration of a substance, which represents conditions under which it is generally believed that nearly all workers, may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour **Time Weighted Average (TWA)**, the 15-minute **Short Term Exposure Limit**, and the instantaneous **Ceiling Level**. Skin adsorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - this exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL", is placed next to the PEL which was vacated by Court Order.

IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The**

DFG - MAK is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issue exposure guidelines called **Recommended Exposure Levels (RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

FLAMMABILITY LIMITS IN AIR

Much of the information related to fire and explosion is derived from the **National Fire Protection Association (NFPA)**. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** -the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds is presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LCLO**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause death. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

REGULATORY INFORMATION

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and Transport Canada, respectively. The following laws are pertinent to the information presented in the MSDS: **Superfund Amendments and Reauthorization Act (SARA)**; the **Toxic Substance Control Act (TSCA)**; Marine Pollutant status according to the **DOT**; California's Safe Drinking Water Act (**Proposition 65**); the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)**. This section also includes information on the precautionary warnings, which appear, on the material's package label.