

PRODUCT NAME: polycool HC -50
PART NUMBER: 060330
REVISION DATE: 01/31/2011

SUPERSEDES: 08/28/2004

1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

Chemical Name: Dynalene HC®
Product Description: Colorless to light yellow liquid, odorless
Product Use: Heat Transfer Fluid

Supplier:
Dynalene Heat Transfer Fluids
5250 West Coplay Road
Whitehall, PA 18052
Telephone: (610)262-9686

Bottler:
Accumetric Inc
411 E Dixie
Elizabethtown, KY 42701

Distributor:
PolyScience
6600 W Touhy Ave
Niles, IL 60714
Telephone: (847)647-0611

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS, CALL - CHEMTREC (800) 424-9300

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Color: Colorless to light yellow
Physical State: Liquid
Odor: Odorless

Hazards of Product: The primary health hazard associated with this product is the potential for irritation of skin, eyes, or other contaminated tissue. This product is not flammable or reactive under typical emergency response conditions. Emergency responders must wear proper personal protective equipment for the situation to which they are responding.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of exposure to this product are by inhalation of mists or vapors generated by the product and contact with the skin and eyes.

INHALATION: Inhalation of the mists or vapors of this product can be irritating to the nose, throat, mucous membranes, and other tissues of the respiratory system. Symptoms of such overexposure can include sneezing and coughing. These symptoms are generally alleviated when overexposure ends.

CONTACT WITH SKIN OR EYES: The liquid may cause local redness or irritation of the skin following prolonged exposure. Repeated or prolonged exposure may lead to dermatitis (red, inflamed skin). Contact with the eyes will cause irritation and possibly burning, which is generally alleviated when the product is rinsed from the eyes.

SKIN ABSORPTION: Skin absorption is not known to be a potential route of over-exposure for the components of this product.

INGESTION: Ingestion of this product, while not likely to occur in an industrial setting, may cause irritation of the mouth and throat, gastric upset, stomach ache, cramps, nausea, and vomiting.

INJECTION: Though not an expected route of occupational exposure for this product, injection (via punctures or lacerations in the skin) may cause local reddening, tissue swelling and discomfort.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: AN EXPLANATION IN LAY TERMS. Symptoms associated with overexposure to this product are as follows:

acute: The chief health hazards associated with this product would be the potential for irritation of contaminated skin and eyes.

chronic: Prolonged or repeated skin exposures can lead to dermatitis (dry, chapped skin). Refer to Section 11 (Toxicological Information) for additional information.

target organs: Skin, eyes, respiratory system.

NFPA Ratings (0-4):
Health: 1
Fire: 0
Reactivity: 0

3. COMPOSITION/INGREDIENTS INFORMATION

Chemical Name	CAS #	% w/w	EXPOSURE LIMITS IN AIR						
			ACGIH			OSHA			
			TLV	STEL	PEL	STEL	IDLH	Other	
			mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	
Dissolved Ionic Solid/Water		Approx. 50/50	NE	NE	NE	NE	NE	NE	NE
Other components each present in less than 2 percent concentration in this product.			None of the other components contributes any significant, additional hazard to this product. All pertinent hazard information has been provided in this Material Safety Data Sheet, per the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards.						

NE = Not Established C = Ceiling Level See Section 16 for definitions of terms used.

Note (1): All WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1993 format.

Note (2): Information on this product is being claimed as proprietary. All pertinent hazard information has been provided, per the Trade Secret requirements of U.S. Federal Occupational Safety and Health Administration Standards (29 CFR 1910.1200) and Canadian WHMIS (CPR 12 and 19). Information on this mixture will be released when the conditions specified in these Standards are met.

4. FIRST-AID MEASURES

EYE CONTACT: If the product enters 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. Contaminated individual must seek immediate medical attention, especially if symptoms persist.

SKIN CONTACT: If the product contaminates the skin, begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. The recommended flushing time is 15 minutes if pain or irritation occurs. Contaminated individual must seek medical attention, especially if irritation or redness develops.

INHALATION: If vapors or mists of the product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

INGESTION: If the product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Contaminated individuals should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who is unable to swallow. Contaminated individual must be taken for medical attention if any adverse reaction occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or health professional with victim.

NOTE TO PHYSICIAN: None.

5. FIRE-FIGHTING MEASURES

Flash Point: Not applicable

Autoignition Temperature: Not applicable.

Flammable Limits (in air by volume, %): Lower (LEL): not applicable
Upper (UEL): not applicable

Fire Extinguishing Materials

Water Spray: Yes Carbon Dioxide: Yes Foam: Yes
Dry Chemical: Yes Halon: Yes Other: Any "ABC" Class

FIRE FIGHTING PROCEDURE:

Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. If possible, prevent run-off water from entering storm drains, bodies of water, or other environmental areas. Decontaminate fire-response equipment with soap and water solution if necessary.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Personal Protective Equipment should be **Level D**: chemical resistant gloves (rubber gloves, Nitrile)

UNUSUAL FIRE AND EXPLOSION HAZARDS:

When involved in a fire, this material may decompose and produce irritating vapors, toxic gases (e.g., oxides of carbon, potassium compounds), soot, and smoke.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

6. ACCIDENTAL RELEASE MEASURES

Spill and Leak Response: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used.

Small spills: Cover with absorbent material (floor absorbent, vermiculite, etc.). Soak up all spill and place material into a drum.

Large spills: Personnel involved with large release should wear protective equipment. Stop spill at source; dike the area surrounding the spill to prevent further exposure. Prevent material from entering sewer system. If pump is available, pump spilled material into 55-gallon drums for proper disposal. If necessary, absorbents such as vermiculite, clay, floor absorbent may be used on spill and shoveled into drums.

7. STORAGE AND HANDLING

Work Practices and Hygiene Practices

As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Use in well-ventilated location. Do not eat, drink, smoke, or apply cosmetics while handling this material. Use ventilation and other engineering controls to minimize potential exposure to the aerosol sprays and vapors of this product.

Storage and Handling Practices

All employees who handle this material should be trained to handle it safely. Open containers slowly, on a stable surface. Drums and other containers of this product should be properly labeled. Empty containers may contain residual amounts of this product; therefore empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight or sources of intense heat. Keep containers away from incompatible chemicals (See Section 10, Stability and Reactivity). Keep drums and other containers of this product tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

Protective Practices During Maintenance of Contaminated Equipment

Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely, if necessary. Decontaminate equipment using soapy water before maintenance begins.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal Protection

EYE/FACE PROTECTION: Splash goggles or safety glasses.

SKIN PROTECTION: Use body protection appropriate for task.

HAND PROTECTION: Wear rubber or neoprene gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS.

RESPIRATORY PROTECTION: None needed for normal circumstances of use. Maintain airborne contaminant concentrations below exposure limits listed in Section 3 (Composition and Information on Ingredients). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134 or applicable State regulations. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.

ENGINEERING CONTROLS

VENTILATION: Use with adequate ventilation to minimize exposure to mists or sprays of this product. Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Colorless to light yellow
Odor:	Odorless
Autoignition Temperature:	Not applicable.
Vapor Pressure, mbar @ 20°C:	23
Boiling Point:	>100°C (212°F)
Vapor Density (air = 1):	Not applicable.
Evaporation Rate (n-BuAc = 1):	Similar to water
Specific Gravity (H ₂ O = 1):	>1.0
Freezing Point/Melting Point:	<0°C (<32°F)
Solubility in Water:	Soluble.
pH	7.5-10.5

10. STABILITY AND REACTIVITY

Stability/Instability: Stable

Incompatible Materials: Strong oxidizers.

Conditions to Avoid: Contact with strong oxidizers and exposure to extremely high temperatures.

Decomposition Products

If this product is exposed to extremely high temperatures, decomposition of this product will generate carbon dioxide, carbon monoxide, and potassium compounds.

Hazardous Polymerization

Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicity Data

Considered non-toxic based on recommendations of the Hazardous Substances Labeling Act.

Oral

LD50, Rat: >5000mg/kg

Dermal

LD50, Rabbit: >2000mg/kg

Testing of HC40 showed no mortalities and no adverse clinical signs in rats receiving a single oral dose of 5000mg/kg.

Testing of HC40 showed no treatment-related mortalities, clinical signs, or gross pathological changes in rabbits receiving a single dermal dose of 2000mg/kg.

Chronic Toxicity and Carcinogenicity

Suspected Cancer Agent: The ingredients of this product are not listed on the following lists: FEDERAL OSHA Z LIST, NTP, IARC or CAL/OSHA, and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

Irritancy of Product

Repeated or prolonged exposure to this product may cause irritation to contaminated tissues.

Sensitization to the Product

No components of this product are reported to be sensitizers upon prolonged or repeated exposures.

Reproductive Toxicity

Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to cause teratogenic effects in humans.

Reproductive Toxicity: This product is not reported to cause reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance, which interferes in any way with the reproductive process.

Medical Conditions Aggravated by Exposure

Pre-existing dermatitis and other skin disorders may be aggravated by skin contact with this product.

Recommendations to Physicians

Treat symptoms and reduce exposures.

Biological Exposure Indices

Currently, there are no Biological Indices (BEIs) associated with the components of this product.

12. ECOLOGICAL INFORMATION

All work practices must be aimed at eliminating environmental contamination.

Environmental Stability: The components of this product will be degraded over time into other organic compounds.

Effects of Material on Plants or Animals: This product may be harmful to contaminated plants and animal life (especially if large quantities are released). Refer to Section 11 (Toxicological Information) for specific information regarding effects of this product's components on test animals.

Effect of Chemical on Aquatic Life: This product may be harmful to aquatic life if large quantities are released into bodies of water.

13. DISPOSAL CONSIDERATIONS

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

EPA Waste Number: Not applicable to wastes consisting only of this product.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

Proper Shipping Name: Not applicable.

Hazard Class Number and Description: Not applicable.

UN Identification Number: Not applicable.

Packing Group: Not applicable.

DOT Label(s) Required: Not applicable.

North American Emergency Response Guidebook Number (1996): Not applicable.

Marine Pollutant: No component of this product is listed as a Marine Pollutant (49 CFR 172.101, Appendix B)

Transport Canada Transportation of Dangerous Goods Regulations: This material is not considered as dangerous goods.

15. REGULATORY INFORMATION

U.S. SARA REPORTING REQUIREMENTS: The components of this product are not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

CANADIAN DSL STATUS: The components listed in Section 3 (Composition and Information on Ingredients) are listed on the DSL Inventory.

U.S. TSCA STATUS: The components of this product listed in Section 3 (Composition and Information on Ingredients) are on the TSCA Inventory.

U.S. SARA THRESHOLD PLANNING QUANTITY: Not applicable.

U.S. CERCLA REPORTABLE QUANTITIES (RQ): Not applicable.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

Alaska - Designated Toxic and Hazardous Substances: No

California - Permissible Exposure Limits for Chemical

Contaminants: No

Florida - Substance List: No

Illinois - Toxic Substance List: No

Kansas - Section 302/313 List: No

Massachusetts - Substance List: No

Michigan - Critical Materials Register: No

Minnesota - List of Hazardous Substances: No

Missouri - Employer Information/Toxic Substance List: No

New Jersey - Right-to-Know Hazardous Substance List: No

North Dakota - List of Hazardous Chemicals, Reportable

Quantities: No

Pennsylvania - Hazardous Substance List: No

Rhode Island - Hazardous Substance List: No

Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List: No

Wisconsin - Toxic and Hazardous Substances: No

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this solution is on the California Proposition 65 lists.

LABELING (Precautionary Statements): CAUTION! MAY CAUSE SKIN AND EYE IRRITATION. FOR INDUSTRIAL USE ONLY. KEEP AWAY FROM CHILDREN. Avoid contact with skin, eyes, and clothing. Avoid prolonged skin contact. Wash thoroughly after handling. Use in well-ventilated area. Use gloves, safety goggles, and appropriate body protection. **FIRST AID:** In case of skin or eye contact, flush with water for 15 minutes. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If ingested, do not induce vomiting. Get medical attention if adverse reactions occur. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂ or "alcohol" foam. **IN CASE OF SPILL:** Absorb with an inert material (i.e. polypads), then place in a suitable container. Consult Material Safety Data Sheet for additional information.

CANADIAN WHMIS SYMBOLS: Not applicable

16. OTHER INFORMATION

This 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 and PolyScience assume 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 and PolyScience assume 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.

OTHER INFORMATION continued.

NOTICE

MSDS prepared by Dynalene Heat Transfer Fluids

Product manufactured by Dynalene Heat Transfer Fluids, bottled and packed for distribution by Accumetric, and distributed by PolyScience.

Definitions of Terms

A large number of abbreviations and acronyms appear on an 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 which established 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 absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Association

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 issues exposure guidelines called Recommended Exposure Levels (RELs). When no exposure guidelines are established, an entry of *NE* is made for reference.

Hazard Ratings:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: **Health Hazard: 0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). **Flammability Hazard: 0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93BC [100-200BF]); **3** (Class IB and IC flammable liquids with flash points below 38BC [100BF]); **4** (Class IA flammable liquids with flash points below 23BC [73BF] and boiling points below 38BC [100BF]). **Reactivity Hazard: 0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: **Health Hazard: 0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury).

Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System."

Flammability Limits in Air: Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). **Flash Point:** Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature:** The minimum temperature required to initiate combustion in air with no other source of ignition. **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 and 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**, **LDLo**, 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 the Transport Canada, respectively. **Superfund Amendments and Reauthorization Act (SARA)**; the **Canadian Domestic Substances List (DSL)**; the U.S. **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)**, and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.