Therminol® 59 Heat Transfer Fluid

Version	Revision Date:	SDS Number:	Date of last issue: -
1.1	08/07/2019	150000093435	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

SECTION 1. IDENTIFICATION

Product name : Therminol® 59 Heat Transfer Fluid

Product code : 34128-00, P3412805, P3412807, P3412801, P3412800, P3412804, P3412806, P3412808, E3412801

Manufacturer or supplier's details

Company name of supplier : Eastman Chemical Company

Address : 200 South Wilcox Drive
Kingsport TN 37660-5280

Telephone : (423) 229-2000

Emergency telephone : CHEMTREC: +1-800-424-9300, +1-703-527-3887 CCN7321

Recommended use of the chemical and restrictions on use

Recommended use : Heat transfer fluids

Restrictions on use : None known.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation : Category 2

Skin sensitization : Category 1

Aspiration hazard : Category 1

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.

Precautionary Statements :

Prevention:

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of

the workplace.
P280 Wear protective gloves.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P331 Do NOT induce vomiting.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components

Chemical name	CAS-No.	Concentration (% w/w)
ethyl diphenylethane	64800-83-5	30 - 60
diphenylethane	38888-98-1	< 30
Benzene, ethyl(phenylethyl)-, mono-ar-ethyl deriv.	68398-19-6	10 - 30
ethylbenzene polymers	27536-89-6	7 - 13

SECTION 4. FIRST AID MEASURES

If inhaled : Remove person to fresh air and keep comfortable for breathing.
Get medical attention if symptoms occur.
If breathing is difficult, give oxygen.

In case of skin contact : Wash off with soap and plenty of water.
Get medical attention if symptoms occur.
Wash contaminated clothing before reuse.

In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
Get medical attention if symptoms occur.

If swallowed : Immediately call a POISON CENTER/doctor.
Do NOT induce vomiting.

Most important symptoms and effects, both acute and : May be fatal if swallowed and enters airways.
Causes skin irritation.

delayed		May cause an allergic skin reaction.
Notes to physician	:	Do NOT induce vomiting. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Carbon dioxide (CO2) Dry chemical Foam
Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.
Hazardous combustion products	:	Carbon oxides
Further information	:	Use a water spray to cool fully closed containers. Do not allow run-off from fire fighting to enter drains or water courses. This product is not classified as a fire-resistant heat transfer fluid. Precautions to avoid sources of ignitions should be taken.
Special protective equipment for fire-fighters	:	Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Remove all sources of ignition. Ventilate the area. Do not breathe vapors or spray mist. Avoid contact with skin and eyes. Material can create slippery conditions. Wear appropriate personal protective equipment. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	:	Clear up spills immediately and dispose of waste safely. Avoid release to the environment. Collect spillage.
Methods and materials for containment and cleaning up	:	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not breathe vapors or spray mist. Handle product only in closed system or provide appropriate

exhaust ventilation at machinery.
In case of insufficient ventilation, wear suitable respiratory equipment.
Keep away from flames and sparks.
Wear appropriate personal protective equipment.
Avoid contact with skin, eyes and clothing.
Wash thoroughly after handling.
Wash contaminated clothing before reuse.
Drain or remove substance from equipment prior to break-in or maintenance.
Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Keep in a cool place away from oxidizing agents.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Therminol® 59	Not Assigned	TWA	2 mg/m3	Eastman Chemical Company occupational exposure limit

Engineering measures : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary.
Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable.
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Hand protection

Remarks	:	Wear suitable gloves. When handling hot material, use heat resistant gloves. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations.
Eye protection	:	Wear safety glasses with side shields (or goggles).
Skin and body protection	:	Wear suitable protective clothing.
Protective measures	:	Ensure that eye flushing systems and safety showers are located close to the working place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	light yellow
Odor	:	aromatic, hydrocarbon-like
Odor Threshold	:	not determined
pH	:	not determined
Pour point	:	-90 °F / -68 °C (1,013 hPa)
Boiling point/boiling range	:	552 °F / 289 °C (1,013 hPa)
Evaporation rate	:	not determined
Flammability (solid, gas)	:	Not applicable
Self-ignition	:	759 °F / 404 °C Method: ASTM E659
Upper explosion limit / Upper flammability limit	:	not determined
Lower explosion limit / Lower flammability limit	:	not determined
Vapor pressure	:	0.15 Pa (77 °F / 25 °C)
Relative vapor density	:	not determined
Relative density	:	0.979 (77 °F / 25 °C)
Density	:	971 kg/m3 (77 °F / 25 °C)
Solubility(ies)		

Water solubility	:	0.55 mg/l (77 °F / 25 °C)
Partition coefficient: n-octanol/water	:	Pow: 12,000 - 1,020,000 log Pow: 4.08 - 6.01
Autoignition temperature	:	not determined
Decomposition temperature	:	not determined
Viscosity		
Viscosity, dynamic	:	not determined
Viscosity, kinematic	:	4.0 mm2/s (104 °F / 40 °C)
Explosive properties	:	Not classified
Oxidizing properties	:	Not classified

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	None reasonably foreseeable.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	None known.
Conditions to avoid	:	Heating in air. Keep away from flames and sparks.
Incompatible materials	:	Strong oxidizing agents
Hazardous decomposition products	:	Emits acrid smoke and fumes when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	LD50 Oral (Rat, Male and Female): > 5,000 mg/kg Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50 (Rat, male): > 1.6 mg/l Exposure time: 1 h Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 Dermal (Rabbit): > 5,000 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Causes skin irritation.

Product:

Species	:	Rabbit
Exposure time	:	24 h
Assessment	:	Moderate
Result	:	Irritating to skin.

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Species	:	Rabbit
Result	:	No eye irritation
Assessment	:	Not classified

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Product:

Test Type	:	Skin sensitization
Species	:	Mouse
Result	:	May cause sensitization by skin contact.

Germ cell mutagenicity

Not classified based on available information.

Product:

Genotoxicity in vitro : Test Type: Salmonella typhimurium assay (Ames test)
Metabolic activation: +/- activation
Method: Bacterial Reverse Mutation Assay
Result: negative

Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Chromosome Aberration Test
Result: negative

Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Cell Gene Mutation Test
Result: negative

Carcinogenicity

Not classified based on available information.

Product:

Remarks : This information is not available.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Product:

Effects on fertility : Remarks: No data available

STOT-single exposure

Not classified based on available information.

Product:

Routes of exposure : inhalation (dust/mist/fume)
Assessment : Not classified

STOT-repeated exposure

Not classified based on available information.

Product:

Assessment : Not classified

Repeated dose toxicity

Product:

Species : Rat
NOAEL : 20 mg/kg
Application Route : by gavage
Exposure time : 14 d

Species : Rat
: 20 mg/m³
Application Route : Inhalation
Exposure time : 28 d

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

May be fatal if swallowed and enters airways.

Information on likely routes of exposure

Product:

Inhalation	:	Remarks: None known.
Skin contact	:	Remarks: Causes skin irritation. May cause an allergic skin reaction.
Eye contact	:	Remarks: None known.
Ingestion	:	Remarks: May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.97 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Ceriodaphnia dubia (water flea)): 0.029 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (algae)): 0.485 mg/l Exposure time: 72 h
		NOEC (Pseudokirchneriella subcapitata (algae)): 0.0959 mg/l Exposure time: 72 h

Persistence and degradability

Product:

Biodegradability	:	Result: Inherently biodegradable.

Bioaccumulative potential

Product:

Bioaccumulation	:	Bioconcentration factor (BCF): 250 - 1,090

Mobility in soil

Product:

Distribution among environmental compartments	:	log Koc: 3.7

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
This material when discarded may be a hazardous waste as that term is defined by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261.24, due to its toxicity characteristic. This material should be analyzed in accordance with Method 1311 for the compound D018 BENZENE.
Consult 40 CFR 268.40 or appropriate local regulations for concentration based standards.
This product meets the criteria for a synthetic used oil under the U.S. EPA Standards for the Management of Used Oil (40 CFR 279). Those standards govern recycling and disposal in lieu of 40 CFR 260 -272 of the Federal hazardous waste program in states that have adopted these used oil regulations. Consult your attorney or appropriate regulatory official to be sure these standards have been adopted in your state. Recycle or burn in accordance with the applicable standards.
Eastman Chemical Company operates a used fluid return program for certain fluids under these used oil standards. Contact your Sales Representative for details.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. ()
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ()
Class	:	9
Packing group	:	III
Labels	:	9

EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

Not regulated as a dangerous good
Remarks : Shipping in package sizes of less than 5 L (liquids) or 5 KG (solids) may lead to a non-regulated classification.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Skin corrosion or irritation
Respiratory or skin sensitization
Aspiration hazard

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:

DSL : All components of this product are on the Canadian DSL

AICS : On the inventory, or in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

ISHL : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory

TSCA list

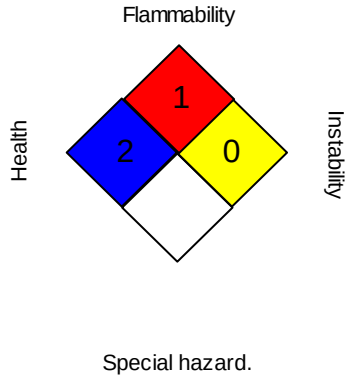
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

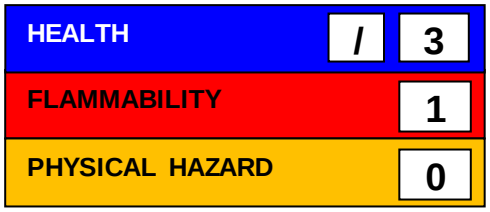
Further information

NFPA 704:



Special hazard.

HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemi-

cals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet	:	www.therminol.com/products/
Revision Date	:	08/07/2019

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / Z8