

Therminol® 62 Heat Transfer Fluid

Version: 2.1 PRD, Revision Date: 10/18/2019, SDS Number: 150000093437 SDSUS / Z8 / 0001, Date of last issue: 04/03/2018, Date of first issue: 09/06/2016

SECTION 1. IDENTIFICATION

Product name: Therminol® 62 Heat Transfer Fluid
Product code: 34130-00, P3413004, P3413003, P3413002, P3413000, E3413001

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

Specific target organ toxicity - repeated exposure (Oral): Category 2 (Liver, Blood, Thyroid, Reproductive organs)
Aspiration hazard: Category 1

GHS label elements

Hazard pictograms: GHS08 (Health hazard symbol)

Signal Word: Danger

Hazard Statements: H304 May be fatal if swallowed and enters airways. H373 May cause damage to organs (Liver, Blood, Thyroid, Reproductive organs) through prolonged or repeated exposure if swallowed.

Precautionary Statements: Prevention: P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Response: P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

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P314 Get medical advice/ attention if you feel unwell.
P331 Do NOT induce vomiting.

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)
Diisopropylbiphenyl	69009-90-1	70 - 85
Triisopropylbiphenyl	29225-91-0	10 - 25

SECTION 4. FIRST AID MEASURES

- If inhaled : Remove person to fresh air and keep comfortable for breathing.
If breathing is difficult, give oxygen.
Get medical attention if symptoms occur.
- In case of skin contact : Wash off with soap and plenty of water.
If skin irritation occurs: Get medical advice/ attention.
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 : Call a physician or poison control center immediately.
Do NOT induce vomiting.
Rinse mouth.
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : May be fatal if swallowed and enters airways.
May cause damage to organs through prolonged or repeated exposure if swallowed.
The molten product can cause serious burns.
May be fatal if swallowed and enters airways.
May cause damage to organs through prolonged or repeated exposure if swallowed.
- Notes to physician : Do NOT induce vomiting.
Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

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- 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 : Hazardous decomposition products due to incomplete combustion
Carbon oxides
- No hazardous combustion products are known
- 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.
- Special protective equipment for fire-fighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.
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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Ventilate the area.
Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
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.
- 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).
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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
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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**

Contains no substances with occupational exposure limit values.

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.

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

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Color	:	colorless
Odor	:	mild
Odor Threshold	:	not determined
pH	:	not determined
Pour point	:	-44 °F / -42 °C
Boiling point/boiling range	:	631 °F / 333 °C
Flash point	:	320 °F / 160 °C
		Method: Pensky-Martens closed cup
Evaporation rate	:	not determined
Self-ignition	:	765 °F / 407 °C
		Method: ASTM E659
Upper explosion limit / Upper flammability limit	:	not determined
Lower explosion limit / Lower flammability limit	:	not determined
Vapor pressure	:	0.139 Pa (77 °F / 25 °C)
Relative vapor density	:	not determined
Relative density	:	0.95 (77 °F / 25 °C)
Density	:	951.1 kg/m ³ (77 °F / 25 °C)
Solubility(ies)		
Water solubility	:	0.012 mg/l (68 °F / 20 °C)
Partition coefficient: n-octanol/water	:	log Pow: 6.67 (68 °F / 20 °C)
Autoignition temperature	:	not determined
Decomposition temperature	:	not determined
Viscosity		
Viscosity, dynamic	:	10.1 mPa,s (104 °F / 40 °C)
Viscosity, kinematic	:	103 mm ² /s (32 °F / 0 °C)
		10.7 mm ² /s (104 °F / 40 °C)

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2.52 mm²/s (212 °F / 100 °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
Remarks: Read-across from a similar materialAcute inhalation toxicity : LC50 (Rat, Male and Female): > 5.64 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Acute inhalation toxicity
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Read-across from a similar materialAcute dermal toxicity : LD50 Dermal (Rabbit, Male and Female): > 5,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity**Skin corrosion/irritation**

Not classified based on available information.

Product:Species : Rabbit
Exposure time : 24 h

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Assessment : Not classified
Result : Mild skin irritation

Result : Repeated exposure may cause skin dryness or cracking.

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**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

Test Type : OECD 406: Guinea pig sensitization
Species : Guinea pig
Assessment : Not classified
Result : non-sensitizing

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 Cell Gene Mutation Test
Result: negative

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

Genotoxicity in vivo : Test Type: Mutagenicity
Result: No data available

Carcinogenicity

Not classified based on available information.

Product:

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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:

Assessment : Not classified

STOT-repeated exposure

May cause damage to organs (Liver, Blood, Thyroid, Reproductive organs) through prolonged or repeated exposure if swallowed.

Product:

Target Organs : Liver, Thyroid, Blood, Reproductive organs

Repeated dose toxicity**Product:**

Species : Rat
LOAEL : 35 mg/kg
Application Route : by gavage
Exposure time : 28 days
Target Organs : Liver, Thyroid, Blood, Reproductive organs

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Information on likely routes of exposure**Product:**

Inhalation : Remarks: None known.

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Skin contact : Remarks: Prolonged skin contact may defat the skin and produce dermatitis.

Eye contact : Remarks: None known.

Ingestion : Remarks: May be fatal if swallowed and enters airways. May cause damage to organs through prolonged or repeated exposure.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity**Product:**

Toxicity to fish : NOEC: (Oncorhynchus mykiss (rainbow trout)): > 0.00824 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : NOEC: (Daphnia magna (Water flea)): > 0.00452 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (algae)): > 0.0101 mg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC:
Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.0063 mg/l
Exposure time: 21 d

M-Factor (Chronic aquatic toxicity) : 10

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

Persistence and degradability**Product:**

Biodegradability : Method: Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)
Remarks: Expected to be biodegradable

Remarks: Read-across from a similar material

Biochemical Oxygen Demand (BOD) : Remarks: No data available

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Chemical Oxygen Demand (COD) : Remarks: No data available

Bioaccumulative potential**Product:**

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 3,690
Remarks: Read-across from a similar material

Mobility in soil**Product:**

Distribution among environmental compartments : Koc: 117517, log Koc: 5.07
Method: QSAR model
Remarks: Read-across from a similar material

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.

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SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

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 : Aspiration hazard
Specific target organ toxicity (single or repeated exposure)

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:

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

TSCA : All substances listed as active on the TSCA inventory

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

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

AICS : Not listed, For research use only.

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

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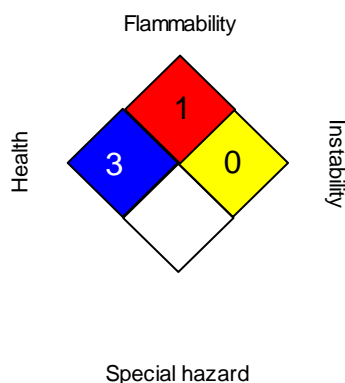
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IECSC : On the inventory, or in compliance with the inventory

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:****HMIS® IV:**

HEALTH	*	3
FLAMMABILITY		1
PHYSICAL HAZARD		0

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 Chemicals 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)

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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

www.therminol.com/products/

Sources of key data used to : Chemical Safety Report
compile the Material Safety
Data Sheet

Revision Date : 10/18/2019

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