EASTMAN

# Therminol® D-12 Heat Transfer Fluid

| Version | Revision Date: | SDS Number: | Date of last issue: 02.09.2021 |
|---|---|---|---|
| 3.3 | 22.09.2021 | 150000093448 | Date of first issue: 20.05.2015 |
| PRD | | SDSIN / EN / 0001 | |

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Therminol® D-12 Heat Transfer Fluid

Product code : 34141-00, P3414102, E3414101

**Manufacturer or supplier's details**

Company : Eastman Chemical Company

Address : 200 South Wilcox Drive
Kingsport TN 37660-5147

Telephone : (423) 229-2000

Emergency telephone : 000 800 100 7479, NCEC +65 3158 1198, International +65 6262-6462

**Recommended use of the chemical and restrictions on use**

Recommended use : Heat transfer fluids

Restrictions on use : None known.

## 2. HAZARDS IDENTIFICATION

**Manufacture, Storage and Import of Hazardous Chemicals Rules 1989**

**Classification**

**GHS Classification**

Flammable liquids : Category 4

Skin corrosion/irritation : Category 3

Aspiration hazard : Category 1

**GHS label elements**

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H227 Combustible liquid.
H304 May be fatal if swallowed and enters airways.
H316 Causes mild skin irritation.

Precautionary Statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames

and other ignition sources. No smoking.
P280 Wear protective gloves/ eye protection/ face protection.

**Response:**

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**

P403 Store in a well-ventilated place.
P405 Store locked up.

**Disposal:**

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

**Other hazards which do not result in classification**

Prolonged skin contact may defat the skin and produce dermatitis.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Substance name : Alkanes, C10-13-iso-

CAS-No. : 68551-17-7

**Components**

| Chemical name | CAS-No. | Concentration (% w/w) |
|---|---|---|
| C10-13 isoalkanes | 68551-17-7 | >= 90 - <= 100 |

## 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.
Rinse mouth with water.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed : Aspiration hazard
Causes mild skin irritation.
Prolonged skin contact may defat the skin and produce dermatitis.
Contact with hot product will cause thermal burns.
May be fatal if swallowed and enters airways.
Causes mild skin irritation.

Notes to physician : Do NOT induce vomiting.
Treat symptomatically.

## 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 : Hazardous decomposition products due to incomplete combustion
Carbon oxides

Specific extinguishing methods : Combustible liquid and vapour.

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.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.
Ventilate the area.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ 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).

## 7. HANDLING AND STORAGE

Advice on safe handling : Keep away from flames and sparks.
Take precautionary measures against static discharges.
Do not taste or swallow.
Avoid contact with skin, eyes and clothing.
Wear appropriate personal protective equipment.
Handle product only in closed system or provide appropriate exhaust ventilation at machinery.
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 : Store in a well-ventilated place.
Store in cool place.

## 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 : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| Appearance | : | oily |
| Color | : | colourless |
| Odor | : | mild |
| Odor Threshold | : | not determined |
| pH | : | not determined |
| Melting point/freezing point | : | < -100 °C |
| Boiling point/boiling range | : | 192 °C<br>(1,013 hPa) |
| Flash point | : | 62 °C<br>Method: Pensky-Martens closed cup |
| Evaporation rate | : | not determined |
| Self-ignition | : | 247 °C<br>Method: ASTM E659 |
| Upper explosion limit / Upper flammability limit | : | 6.5 %(V)<br>Medium: air |
| Lower explosion limit / Lower flammability limit | : | 0.6 %(V)<br>Medium: air |
| Vapor pressure | : | < 1 hPa (20 °C) |
| Relative vapor density | : | not determined |
| Relative density | : | 0.763 |
| Density | : | 0.756 g/cm3 (25 °C) |
| Solubility(ies)<br>Water solubility | : | < 1 mg/l (25 °C) |
| Partition coefficient: n- | : | No data available |

octanol/water

| | | |
|---|---|---|
| Autoignition temperature | : | not determined |
| Decomposition temperature | : | not determined |
| Viscosity | | |
| Viscosity, dynamic | : | not determined |
| Viscosity, kinematic | : | 14.8 mm2/s ( -50 °C) |
| | | 1.23 mm2/s ( 40 °C) |
| | | 0.65 mm2/s ( 100 °C) |
| Explosive properties | : | Not classified |
| Oxidizing properties | : | Not classified |

## 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Reactivity | : | None reasonably foreseeable. |
| Chemical stability | : | Stable under normal conditions. |
| Possibility of hazardous reactions | : | Stable |
| 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. |

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Acute oral toxicity | : | Remarks: No data available |
| Acute inhalation toxicity | : | LC50(Rat): > 4,951 mg/m3<br>Exposure time: 4 h<br>Assessment: Not classified |
| Acute dermal toxicity | : | LD50 Dermal(Rabbit): > 5,000 mg/kg<br>Assessment: Not classified |

**Components:**

**C10-13 isoalkanes:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 Oral (Rat): > 5,000 mg/kg |
| Acute inhalation toxicity | : | LC50 (Rat): > 4,951 mg/m3<br>Exposure time: 4 h<br>Remarks: (highest concentration obtainable) |
| Acute dermal toxicity | : | LD50 Dermal (Rat): > 2,000 mg/kg |

**Skin corrosion/irritation**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Exposure time | : | 4 h |
| Result | : | slight |

**Components:**

**C10-13 isoalkanes:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Exposure time | : | 4 h |
| Assessment | : | Causes mild skin irritation. |
| Result | : | Mild skin irritation |

**Serious eye damage/eye irritation**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Exposure time | : | 24 h |
| Assessment | : | Not classified |

**Components:**

**C10-13 isoalkanes:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Exposure time | : | 24 h |
| Result | : | none |

**Respiratory or skin sensitization**

**Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Test Type | : | Skin Sensitization |
| Species | : | Guinea pig |
| Assessment | : | Does not cause skin sensitisation. |

**Components:**

**C10-13 isoalkanes:**

| | | |
|---|---|---|
| Test Type | : | Skin Sensitization |
| Species | : | Guinea pig |
| Result | : | non-sensitizing |

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**C10-13 isoalkanes:**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Test Type: Mutagenicity - Bacterial<br>Metabolic activation: +/- activation<br>Result: negative<br>Remarks: Read-across from a similar material<br><br>Test Type: Chromosome aberration test in vitro<br>Metabolic activation: +/- activation<br>Result: negative<br>Remarks: Read-across from a similar material<br><br>Test Type: Mutagenicity - Mammalian<br>Metabolic activation: +/- activation<br>Result: negative<br>Remarks: Read-across from a similar material |
| Genotoxicity in vivo | : | Species: Mouse<br>Application Route: oral: gavage<br>Result: negative<br><br>Species: Rat<br>Application Route: inhalation (vapour)<br>Result: negative |

**Carcinogenicity**

Not classified based on available information.

**Product:**

| | | |
|---|---|---|
| Remarks | : | This information is not available. |

**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:**

Remarks : No data available

**Components:**

**C10-13 isoalkanes:**

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

**STOT - repeated exposure**

Not classified based on available information.

**Product:**

Remarks : No data available

**Components:**

**C10-13 isoalkanes:**

Routes of exposure : Oral, Dermal, Inhalation
Assessment : Not classified

**Aspiration toxicity**

May be fatal if swallowed and enters airways.

**Product:**

May be fatal if swallowed and enters airways.

**Components:**

**C10-13 isoalkanes:**

May be fatal if swallowed and enters airways.

**Routes of exposure**

**Product:**

Inhalation : Remarks: None known.

Skin contact : Remarks: None known.

Eye contact : Remarks: None known.

Ingestion : Remarks: May be fatal if swallowed and enters airways.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Product:**

| | | |
|---|---|---|
| Toxicity to fish | : | LL50 (Oncorhynchus mykiss (rainbow trout)): > 1,000 mg/l<br>Exposure time: 96 h<br>Test Type: Fish, Acute Toxicity Test<br>Method: OECD Test Guideline 203<br>Remarks: Read-across from a similar material |
| Toxicity to daphnia and other aquatic invertebrates | : | EL50 (Daphnia magna (Water flea)): > 1,000 mg/l<br>Exposure time: 48 h<br>Test Type: Daphnia sp. Acute Immobilisation Test<br>Method: OECD Test Guideline 202<br>Remarks: Read-across from a similar material |
| Toxicity to algae/aquatic plants | : | NOELR (Pseudokirchneriella subcapitata (algae)): 1,000 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>Remarks: Read-across from a similar material<br><br>EL50 (Pseudokirchneriella subcapitata (algae)): > 1,000 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>Remarks: Read-across from a similar material |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOELR: > 1 mg/l<br>Exposure time: 21 d<br>Species: Daphnia magna (Water flea)<br>Test Type: Daphnia magna Reproduction Test<br>Method: OECD Test Guideline 211 |

**Components:**

**C10-13 isoalkanes:**

| | | |
|---|---|---|
| Toxicity to fish | : | LL50 (Oncorhynchus mykiss (rainbow trout)): > 1,000 mg/l<br>Exposure time: 96 h<br>Test Type: Fish, Acute Toxicity Test<br><br>NOELR (Oncorhynchus mykiss (rainbow trout)): 0.103 mg/l<br>Exposure time: 28 d<br>Method: calculated |
| Toxicity to daphnia and other aquatic invertebrates | : | EL50 (Daphnia magna (Water flea)): > 1,000 mg/l<br>Exposure time: 48 h<br>Test Type: Daphnia sp. Acute Immobilisation Test |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: > 1 mg/l<br>Exposure time: 21 d<br>Species: Daphnia magna (Water flea)<br>Test Type: Daphnia magna Reproduction Test |

**Persistence and degradability**

**Product:**

Biodegradability : Biodegradation: 41 %
Exposure time: 41 d
Method: OECD Test Guideline 301F
Remarks: Read-across from a similar material

**Components:**

**C10-13 isoalkanes:**

Biodegradability : Biodegradation: 31 %
Exposure time: 28 d
Method: Ready Biodegradability: Manometric Respirometry Test
Remarks: Not readily biodegradable.

**Bioaccumulative potential**

No data available

**Mobility in soil**

**Product:**

Stability in soil : Remarks: Given its physical and chemical characteristics, the product generally shows low soil mobility The product is insoluble and floats on water

**Other adverse effects**

No data available

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

## 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 IMO instruments**

Not applicable for product as supplied.

**Special precautions for user**

Not applicable

## 15. REGULATORY INFORMATION

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

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

| | | |
|---|---|---|
| TSCA | : | All substances listed as active on the TSCA inventory |
| 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 |
| KECI | : | On the inventory, or in compliance with the inventory |
| PICCS | : | On the inventory, or in compliance with the inventory |
| IECSC | : | On the inventory, or in compliance with the inventory |

## 16. OTHER INFORMATION

**Further information**

| | | |
|---|---|---|
| Other information | : | Other means of identification<br>CAS# 64742-48-9, 90622-58-5, 246538-76-1 |
| Sources of key data used to compile the Material Safety Data Sheet | : | www.therminol.com/products/ |
| Date format | : | dd.mm.yyyy |

**Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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 Or-

ganisation 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals 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; WHMIS - Workplace Hazardous Materials Information System

The information provided in this 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.

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