



Safety Data Sheet

DOW CHEMICAL COMPANY LIMITED
Safety Data Sheet according to Reg. (EC) N. 453/2010

Product Name: DOWTHERM™ RP Heat Transfer Fluid

Revision Date: 05.04.2013

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DOW CHEMICAL COMPANY LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

Section 1. Identification of the substance/preparation and of the company/undertaking

1.1 Product identifiers

Product Name

DOWTHERM™ RP Heat Transfer Fluid

Chemical Name: 1,2,3,4-Tetrahydro-(1-phenylethyl)-naphthalene

CAS-No. 63674-30-6

EC-No. 400-370-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Intended as a heat transfer fluid for closed-loop systems. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

DOW CHEMICAL COMPANY LIMITED
DIAMOND HOUSE, LOTUS PARK,
KINGSBURY CRESCENT,
STAINES
England
TW18 3AG
UNITED KINGDOM

Customer Information Number:

+44 (0) 203 139 4000
SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact:

0031 115 694 982

Local Emergency Contact:

00 31 115 69 4982

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Section 2. Hazards Identification

2.1 Classification of the substance or mixture

Classification - REGULATION (EC) No 1272/2008

Acute aquatic toxicity	Category 1	H400	Very toxic to aquatic life.
Chronic aquatic toxicity	Category 1	H410	Very toxic to aquatic life with long lasting effects.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

N	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
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2.2 Label elements

Labelling - REGULATION (EC) No 1272/2008

Hazard pictograms



Hazard statements:

H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

P273 Avoid release to the environment.

P391 Collect spillage.

P501 Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

2.3 Other Hazards

No information available.

Section 3. Composition/information on ingredients

3.1 Substance

This product is a substance.

CAS-No. / EC-No. / Index	REACH No.	Amount	Component	Classification: REGULATION (EC) No 1272/2008
CAS-No. 63674-30-6 EC-No. 400-370-7	—	> 99.0 %	1,2,3,4-Tetrahydro-(1-phenylethyl)-naphthalene	Aquatic Acute, 1, H400 Aquatic Chronic, 1, H410
CAS-No. / EC-No. / Index	Amount	Component	Classification: 67/548/EEC	
CAS-No.	> 99.0 %	1,2,3,4-Tetrahydro-(1-	N: R50/53	

63674-30-6

EC-No.
400-370-7phenylethyl)-
naphthalene

For the full text of the H-Statements mentioned in this Section, see Section 16.
See Section 16 for full text of R-phrases.

Section 4. First-aid measures

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin Contact: Wash skin with plenty of water.

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. Suitable emergency eye wash facility should be available in work area.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 Indication of immediate medical attention and special treatment needed

Maintain adequate ventilation and oxygenation of the patient. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Section 5. Fire Fighting Measures

5.1 Extinguishing Media

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Extinguishing Media to Avoid: Do not use direct water stream. May spread fire.

5.2 Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Liquid mist of this product can burn. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

6.3 Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Non-combustible material. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Dike area to contain spill. Wash the spill site with large quantities of water. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Handling

General Handling: Avoid contact with eyes, skin, and clothing. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Other Precautions: Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Store in original container. Store away from incompatible materials. See STABILITY AND REACTIVITY section. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

7.3 Specific end uses

See the technical data sheet on this product for further information.

Section 8. Exposure Controls / Personal Protection

8.1 Control parameters

Exposure Limits

None established

8.2 Exposure controls

Personal Protection

Eye/Face Protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin Protection: When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, use an approved air-purifying respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical State	Liquid.
Color	Colorless to yellow
Odor	Mild
Odor Threshold	No test data available
pH	Not applicable
Melting Point	-34 °C <i>Literature</i>
Freezing Point	-34 °C <i>Literature</i>
Boiling Point (760 mmHg)	332 - 355 °C <i>Literature</i> .
Flash Point - Closed Cup	194 °C <i>Pensky-Martens Closed Cup ASTM D 93</i>

Evaporation Rate (Butyl Acetate = 1)	< 0.1 <i>Estimated.</i>
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	Lower: 0.39 %(V) <i>Literature</i> Approximately Upper: 4.59 %(V) <i>Literature</i>
Vapor Pressure	<= 1.0 mmHg @ 20 °C <i>Literature</i>
Vapor Density (air = 1)	Not available
Specific Gravity (H2O = 1)	1.03 <i>Literature</i>
Solubility in water (by weight)	< 0.01 % @ 25 °C <i>Literature</i>
Partition coefficient, n-octanol/water (log Pow)	6.11 <i>Estimated.</i>
Autoignition Temperature	385 °C <i>ASTME659</i>
Decomposition Temperature	No test data available
Kinematic Viscosity	30.8 cSt @ 25 °C <i>Literature</i>
Explosive properties	no data available
Oxidizing properties	no data available

9.2 Other information

Molecular Weight	236.4 g/mol <i>Literature</i>
Henry's Law Constant (H)	4.67E-04 atm*m ³ /mole; 25 °C <i>Estimated.</i>

Section 10. Stability and Reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Thermally stable at typical use temperatures.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

10.5 Incompatible Materials: Avoid contact with oxidizing materials. Avoid contact with: Mineral acids.

10.6 Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Acute Toxicity

Ingestion

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. No deaths occurred at this concentration. LD50, rat > 2,000 mg/kg

Aspiration hazard

Based on physical properties, not likely to be an aspiration hazard.

Dermal

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

No deaths occurred at this concentration. LD50, rabbit > 2,000 mg/kg

Inhalation

At room temperature, exposure to vapor is minimal due to low volatility. If material is heated or aerosol/mist is produced, concentrations may be attained that are sufficient to cause respiratory irritation and other effects. May cause central nervous system effects. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. The LC50 has not been determined.

Eye damage/eye irritation

May cause moderate eye irritation. Corneal injury is unlikely.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin. Prolonged contact may cause skin irritation with local redness. Repeated exposure may cause irritation, even a burn.

Sensitization

Skin

Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory

No relevant data found.

Repeated Dose Toxicity

Repeated skin application to laboratory animals did not produce systemic toxicity.

Chronic Toxicity and Carcinogenicity

No relevant data found.

Developmental Toxicity

Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive Toxicity

In animal studies, did not interfere with reproduction.

Genetic Toxicology

In vitro genetic toxicity studies were negative.

Section 12. Ecological Information

12.1 Toxicity

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

Aquatic Invertebrate Acute Toxicity

LC50, Daphnia magna (Water flea), 48 h: 0.0225 mg/l

Aquatic Plant Toxicity

EbC50, Pseudokirchneriella subcapitata (green algae), biomass growth inhibition, 96 h: > 0.07 mg/l

Toxicity to Micro-organisms

EC50, activated sludge test (OECD 209), Respiration inhibition, 3 h: 0.062 mg/l

12.2 Persistence and Degradability

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
6 %	28 d	OECD 301B Test	fail
> 40 %	28 d	OECD 302B Test	Not applicable

12.3 Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Partition coefficient, n-octanol/water (log Pow): 6.11 Estimated.

12.4 Mobility in soil

Mobility in soil: Expected to be relatively immobile in soil ($K_{oc} > 5000$).

Partition coefficient, soil organic carbon/water (K_{oc}): $> 5,000$ Estimated.

Henry's Law Constant (H): $4.67E-04 \text{ atm} \cdot \text{m}^3/\text{mole}$; $25 \text{ }^\circ\text{C}$ Estimated.

12.5 Results of PBT and vPvB assessment

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Section 13. Disposal Considerations

13.1 Waste treatment methods

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

Section 14. Transport Information

ADR/RID

14.1 UN number

UN3082

14.2 UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: 1,2,3,4-TETRAHYDRO-(1-PHENYLETHYL)-NAPHTHALENE

14.3 Transport hazard class(es)

Hazard Class: 9

14.4 Packing Group

PG III

14.5 Environmental hazards

Environmentally hazardous

14.6 Special precautions for user

Special Provisions: no data available

Hazard identification No:90

ADNR / ADN

14.1 UN number

UN3082

14.2 UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: 1,2,3,4-TETRAHYDRO-(1-PHENYLETHYL)-NAPHTHALENE

14.3 Transport hazard class(es)

Hazard Class: 9

14.4 Packing Group

PG III

14.5 Environmental hazards

Environmentally hazardous

14.6 Special precautions for user

no data available

IMDG

14.1 UN number

UN3082

14.2 UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: 1,2,3,4-TETRAHYDRO-(1-PHENYLETHYL)-NAPHTHALENE

14.3 Transport hazard class(es)

Hazard Class: 9

14.4 Packing Group

PG III

14.5 Environmental hazards

Marine pollutant

14.6 Special precautions for user

EMS Number: F-A,S-F

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

Not applicable

ICAO/IATA

14.1 UN number

UN3082

14.2 UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: 1,2,3,4-TETRAHYDRO-(1-PHENYLETHYL)-NAPHTHALENE

14.3 Transport hazard class(es)

Hazard Class: 9

14.4 Packing Group

PG III

14.5 Environmental hazards

Environmentally hazardous

14.6 Special precautions for user

no data available

Section 15. Regulatory Information

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

European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

15.2 Chemical Safety Assessment

Not applicable.

Section 16. Other Information

Hazard statement in the composition section

H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Risk-phrases in the Composition section

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Revision

Identification Number: 50870 / A279 / Issue Date 05.04.2013 / Version: 9.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

DOW CHEMICAL COMPANY LIMITED *urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.*