SAFETY DATA SHEET

DOW BENELUX B.V.

Safety Data Sheet according to Reg. (EU) 2020/878

Product name: DOWTHERM™ A Heat Transfer Fluid

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DOW BENELUX B.V. 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/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product name: DOWTHERM™ A Heat Transfer Fluid
UFI: R4EU-M0V2-U00E-X3W4

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Formulation or re-packing: Formulation & (re)packing of substances and mixtures. Use at industrial sites: Use in functional fluids, Heat transfer fluids.

1.3 Details of the supplier of the safety data sheet
COMPANY IDENTIFICATION
DOW BENELUX B.V.
HERBERT H.DOWWEG 5
HOEK
4542 NM TERNEUZEN
NETHERLANDS

Customer Information Number: (31) 115 67 2626
SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 31-(0)115 694982
Local Emergency Contact: 00 31 115 69 4982
The phone number of the national poisoning information center (NVIC). Only for the purpose of informing medical personnel in case of acute intoxications: 088 755 8000

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:
Skin irritation - Category 2 - H315
Eye irritation - Category 2 - H319
Reproductive toxicity - Category 1B - H360Fd

Specific target organ toxicity - single exposure - Category 3 - H335
Short-term (acute) aquatic hazard - Category 1 - H400
Long-term (chronic) aquatic hazard - Category 1 - H410
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

Hazard pictograms

Signal word: DANGER

Hazard statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P201	Obtain special instructions before use.
P261	Avoid breathing mist or vapours.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.

Contains Diphenyl oxide; Diphenyl

2.3 Other hazards
This product contains no substances assessed to be PBT or vPvB at levels of 0.1% or higher.

Endocrine disrupting properties

Environment:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Human Health:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 101-84-8 **EC-No.** 202-981-2 **Index-No.** –	01-2119472545-33	73,0%	Diphenyl oxide	Eye Irrit. 2; H319 Repr. 1B; H360Fd Aquatic Acute 1; H400 Aquatic Chronic 3; H412 M-Factor (Acute aquatic toxicity): 1 Acute toxicity estimate Acute oral toxicity: 2 830 mg/kg Acute dermal toxicity: > 7 940 mg/kg
CASRN 92-52-4 **EC-No.** 202-163-5 **Index-No.** 601-042-00-8	01-2119480408-33	27,0%	Diphenyl	Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 (Respiratory system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1 Acute toxicity estimate Acute oral toxicity: 2 180 - 5 040 mg/kg Acute dermal toxicity: > 5 010 mg/kg

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

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 and keep comfortable for breathing; consult a physician.

Skin contact: Wash off with plenty of water. Suitable emergency safety shower facility should be immediately available.

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.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

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:
Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May damage fertility. Suspected of damaging the unborn child.

4.3 Indication of any immediate medical attention and special treatment needed
Notes to physician: Repeated excessive exposure may aggravate preexisting lung disease. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.. Water fog, applied gently may be used as a blanket for fire extinguishment..

Unsuitable extinguishing media: 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.. Dense smoke is produced when product burns..

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.. Water fog, applied gently may be used as a blanket for fire extinguishment.. 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, see Section 8 of the safety data sheet..

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Keep upwind of spill. Ventilate area of leak or spill. Keep unnecessary and unprotected personnel from entering the area. 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: Contain spilled material if possible. Small spills: Non-combustible material. Large spills: Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections: References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid contact with skin and clothing. Avoid breathing vapor. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage, including any incompatibilities: Do not store in: Opened or unlabeled containers. Store in tightly closed container. See Section 10 for more specific information. 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 use(s): See the technical data sheet on this product for further information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Diphenyl oxide	ACGIH	TWA Vapour	1 ppm
	ACGIH	STEL Vapour	2 ppm
	2017/164/EU	STEL	14 mg/m3 2 ppm
	Further information: Indicative		
	2017/164/EU	TWA	7 mg/m3 1 ppm
	Further information: Indicative		
	NL WG	TLV-8hr	7 mg/m3 1 ppm
	NL WG	TLV-15 min	14 mg/m3 2 ppm
Diphenyl	ACGIH	TWA	0,2 ppm

Recommended monitoring procedures

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with the Occupational Exposure Limits and the adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples should be analysed by an accredited laboratory.

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy); European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents); European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods.
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods.
Health and Safety Executive (HSE), United Kingdom: Methods for the Determination of Hazardous Substances.
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany.
L'Institut National de Recherche et de Securité, (INRS), France.

Derived No Effect Level

Diphenyl oxide

Workers

Acute systemic effects		*Acute local effects*		*Long-term systemic effects*		*Long-term local effects*	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	14 mg/m3	25 mg/kg bw/day	1,8 mg/m3	n.a.	7 mg/m3

Consumers

Acute systemic effects			*Acute local effects*		*Long-term systemic effects*			*Long-term local effects*	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation

n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Diphenyl

Workers

Acute systemic effects		***Acute local effects***		***Long-term systemic effects***		***Long-term local effects***	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	63 mg/kg bw/day	11,17 mg/m3	n.a.	n.a.

Consumers

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	38 mg/kg bw/day	3,3 mg/m3	1,9 mg/kg bw/day	n.a.	n.a.

Predicted No Effect Concentration

Diphenyl oxide

Compartment	**PNEC**
Fresh water	0,0162 mg/l
Intermittent use/release	0,005 mg/l
Marine water	0,0162 mg/l
Sewage treatment plant	10 mg/l
Fresh water sediment	3,29 mg/kg dry weight (d.w.)
Marine sediment	0,329 mg/kg dry weight (d.w.)
Soil	0,648 mg/kg dry weight (d.w.)

Diphenyl

Compartment	**PNEC**
Fresh water	0,017 mg/l
Marine water	0,0017 mg/l
Intermittent use/release	0,17 mg/l
Sewage treatment plant	10 mg/l
Soil	0,528 mg/kg dry weight (d.w.)
Fresh water sediment	2,69 mg/kg dry weight (d.w.)
Marine sediment	0,269 mg/kg dry weight (d.w.)
Oral (Secondary Poisoning)	16,7 mg/kg food

8.2 Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent.

Skin protection

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 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. 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.

Other protection: Wear clean, body-covering clothing.

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.

Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2 (meeting standard EN 14387).

Environmental exposure controls

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Color	Colorless to yellow
Odor	Aromatic

Odor Threshold	No test data available
pH	Not applicable, substance/mixture is non-polar/aprotic
Melting point/freezing point	
Melting point/range	Not applicable to liquids
Freezing point	12,0 °C *Literature*
Boiling point or initial boiling point and boiling range	
Boiling point (760 mmHg)	257 °C *Literature*
Flash point	**closed cup** 113 °C *Closed Cup*
Flammability (solid, gas)	Not applicable to liquids
Flammability (liquids)	Not expected to be a static-accumulating flammable liquid.
Lower explosion limit	0,8 % vol *Literature*
Upper explosion limit	7,0 % vol *Literature*
Vapor Pressure	0,025 mmHg at 25 °C *Literature*
Relative Vapor Density (air = 1)	>1,0 *Literature*
Relative Density (water = 1)	1,050 - 1,075 at 25 °C / 25 °C *Literature*
Solubility(ies)	
Water solubility	0,0138 g/L at 15,6 °C *Literature*
Partition coefficient: n-octanol/water	not determined
Auto-ignition temperature	599 °C *Literature*
Decomposition temperature	No test data available
Kinematic Viscosity	3,51 mm2/s at 25 °C *Literature*
Particle characteristics	
Particle size	Not applicable, liquid

9.2 Other information

Molecular weight	166,0 g/mol *Literature*
Percent volatility	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Evaporation Rate (Butyl Acetate = 1)	< 0,1 Estimated.

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available

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.

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.. Decomposition products can include trace amounts of:. Benzene.. Phenol..

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data are available.

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure
Ingestion, Inhalation, Skin contact, Eye contact.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute Toxicity Endpoints:

Acute oral toxicity

Information for the Product:

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.

Based on product testing:
LD50, Rat, > 2 000 mg/kg

Information for components:

Diphenyl oxide
LD50, Rat, female, 2 830 mg/kg

Diphenyl
LD50, Rat, 2 180 - 5 040 mg/kg

Acute dermal toxicity

Information for the Product:

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

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, Rabbit, > 5 000 mg/kg Estimated.

Information for components:

Diphenyl oxide
LD50, Rabbit, male and female, > 7 940 mg/kg

Diphenyl
LD50, Rabbit, > 5 010 mg/kg

Acute inhalation toxicity

Information for the Product:

At room temperature, exposure to vapor is minimal due to low volatility. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause headache and nausea due to odor.

The LC50 has not been determined.

Information for components:

Diphenyl oxide
As product: The LC50 has not been determined.

Diphenyl
The LC50 has not been determined.

Skin corrosion/irritation

Causes skin irritation.

Information for the Product:

Based on product testing:
Repeated contact may cause moderate skin irritation with local redness.

Information for components:

Diphenyl oxide
Brief contact may cause slight skin irritation with local redness.
Prolonged contact may cause moderate skin irritation with local redness.
May cause more severe response on covered skin (under clothing, gloves).
Repeated exposure may cause irritation, even a burn.

Diphenyl
Prolonged contact may cause skin irritation with local redness.
Material may be handled at elevated temperatures; contact with heated material may cause thermal burns.

Serious eye damage/eye irritation

Causes serious eye irritation.

Information for the Product:

Based on product testing:
May cause slight temporary eye irritation.

Information for components:

Diphenyl oxide
May cause moderate eye irritation.
May cause slight corneal injury.

Diphenyl
May cause slight eye irritation.
Corneal injury is unlikely.
Vapor may cause eye irritation experienced as mild discomfort and redness.
Material may be handled at elevated temperatures; contact with heated material may cause thermal burns.

Sensitization

Information for the Product:

For skin sensitization:
Based on information for component(s):
Did not cause allergic skin reactions when tested in humans.
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No specific, relevant data available for assessment.

Information for components:

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

For respiratory sensitization:
No relevant data found.

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

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.

Information for the Product:

Product test data not available.

Information for components:

Diphenyl oxide
Available data are inadequate to determine single exposure specific target organ toxicity.

Diphenyl
May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory system

Aspiration Hazard

Information for the Product:

May be harmful if swallowed and enters airways.

Information for components:

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

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

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Information for the Product:

Product test data not available.

Information for components:

Diphenyl oxide
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Diphenyl
In humans, effects have been reported on the following organs:
Central nervous system.
Liver.
Peripheral nervous system.
In animals, effects have been reported on the following organs:
Kidney.
May cause nausea and vomiting.
May cause abdominal discomfort or diarrhea.

Carcinogenicity

Information for the Product:

Product test data not available.

Information for components:

Diphenyl oxide
No relevant data found.

Diphenyl
Has caused cancer in laboratory animals. However, biphenyl is not genotoxic, and the relevance of cancer to humans is unknown.

Teratogenicity

May damage fertility. Suspected of damaging the unborn child.

Information for the Product:

Product test data not available.

Information for components:

Diphenyl oxide
Has been toxic to the fetus in laboratory animal tests.

Diphenyl
Did not cause birth defects in laboratory animals. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive toxicity

May damage fertility. Suspected of damaging the unborn child.

Information for the Product:

Product test data not available.

Information for components:

Diphenyl oxide
In animal studies, has been shown to interfere with fertility in females.

Diphenyl
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

Information for the Product:

Product test data not available.

Information for components:

Diphenyl oxide
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Diphenyl
In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

11.2 Information on other hazards
Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Information for components:

Diphenyl oxide
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Diphenyl
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data are available.

12.1 Toxicity

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

LC50, Pimephales promelas (fathead minnow), 96 Hour, 9,6 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, 0,29 mg/l

12.2 Persistence and degradability

Biodegradability: Material is expected to be readily biodegradable.

12.3 Bioaccumulative potential

Bioaccumulation: For the major component(s): Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

12.4 Mobility in soil

For the major component(s):

Potential for mobility in soil is low (Koc between 500 and 2000).

12.5 Results of PBT and vPvB assessment
This mixture has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Endocrine disrupting properties The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Diphenyl oxide
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Diphenyl
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

12.7 Other adverse effects
No relevant data found.

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 ECDirective 2008/98/EC, provided it fulfils the criteria listed in Annex III of this directive. 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.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1	**UN number or ID number**	UN 3082
14.2	**UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Diphenyl oxide, Biphenyl)
14.3	**Transport hazard class(es)**	9
14.4	**Packing group**	III
14.5	**Environmental hazards**	Diphenyl oxide, Biphenyl

14.6 Special precautions for user

Hazard Identification Number: 90

Classification for INLAND waterways (ADNR/ADN):
Consult your Dow contact before transporting by inland waterway

Classification for SEA transport (IMO-IMDG):

14.1	**UN number or ID number**	UN 3082
14.2	**UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Diphenyl oxide, Biphenyl)
14.3	**Transport hazard class(es)**	9
14.4	**Packing group**	III
14.5	**Environmental hazards**	Diphenyl oxide, Biphenyl
14.6	**Special precautions for user**	EmS: F-A, S-F
14.7	**Maritime transport in bulk according to IMO instruments**	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1	**UN number or ID number**	UN 3082
14.2	**UN proper shipping name**	Environmentally hazardous substance, liquid, n.o.s.(Diphenyl oxide, Biphenyl)
14.3	**Transport hazard class(es)**	9
14.4	**Packing group**	III
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

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

REACh Regulation (EC) No 1907/2006

This product has been registered, according to Regulation (EC) No. 1907/2006 (REACH)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer´s/user´s responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	Conditions of restriction for the following entries should be considered: Number on list 3, 75

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Listed in Regulation: ENVIRONMENTAL HAZARDS
Number in Regulation: E1
100 t
200 t

ABM (Algemene Beoordelingsmethodiek): Please contact our product stewardship specialist via the Customer Information contact details in Section 1 for information on the assessment of substances and preparations within the context of the implementation of the water discharge policy.

Further information
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical safety assessment
No Chemical Safety Assessment has been carried out for this substance/mixture.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008
Skin Irrit. - 2 - H315 - Based on product data or assessment
Eye Irrit. - 2 - H319 - Based on product data or assessment
Repr. - 1B - H360Fd - Calculation method
STOT SE - 3 - H335 - Calculation method
Aquatic Acute - 1 - H400 - Based on product data or assessment
Aquatic Chronic - 1 - H410 - Based on product data or assessment

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Legend

2017/164/EU	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
NL WG	Netherlands. Law on Labour conditions - Occupational Exposure Limits
STEL	Short term exposure limit
TLV-15 min	Short Term Exposure Limit
TLV-8hr	Time Weighted Average
TWA	8-hour, time-weighted average
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Eye Irrit.	Eye irritation
Repr.	Reproductive toxicity
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; 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 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; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA -

Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW BENELUX B.V. 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.
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