

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



DIPHYL DT

Version	Revision Date:	SDS Number:	Date of last issue: 07.05.2019
1.1	13.05.2019	103000003595	Country / Language: GB / EN(GB)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	DIPHYL DT
Product code	:	04364147
Substance name	:	Ditolyl ether
EC-No.	:	248-948-6

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

Use of the Sub-stance/Mixture	:	Intermediate, heat transfer fluid
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A tabular overview of all uses for which an exposure scenario is provided can be found at the beginning of the annex to this safety data sheet.

1.3 Details of the supplier of the safety data sheet

Supplier	:	LANXESS Distribution GmbH 51369 Leverkusen, Germany
Telephone	:	+4922188852288
Telefax	:	+492143055787
E-mail address of person responsible for the SDS	:	infosds@lanxess.com

1.4 Emergency telephone number

0870 190 6777. National Chemical Emergency Centre

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

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Hazard pictograms :



Signal word : Warning

Hazard statements : H302 Harmful if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P391 Collect spillage.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Components

Chemical name	CAS-No. EC-No.	Classification	Concentration (% w/w)
ditolyl ether	28299-41-4 248-948-6	Acute Tox. 4; H302 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor Aquatic Acute: 10 M-Factor Aquatic Chronic: 1	>= 90 - <= 100

For explanation of abbreviations see section 16.

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SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Do not leave the victim unattended.
Show this safety data sheet to the doctor in attendance.
- If inhaled : If breathed in, move person into fresh air.
If unconscious, place in recovery position and seek medical advice.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
Keep respiratory tract clear.
Loosen tight clothing such as a collar, tie, belt or waistband.
If symptoms persist, call a physician.
- In case of skin contact : Wash off immediately with soap and plenty of water.
Take off contaminated clothing and shoes immediately.
In the case of skin irritation or allergic reactions see a physician.
- In case of eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.
Keep eye wide open while rinsing.
Continue to rinse for at least 10 minutes.
Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.
- If swallowed : Rinse mouth with water.
Give small amounts of water to drink.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.
If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
Never give anything by mouth to an unconscious person.
If unconscious, place in recovery position and get medical attention immediately.
Keep respiratory tract clear.
Loosen tight clothing such as a collar, tie, belt or waistband.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

- Risks : Harmful if swallowed.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : In a fire or if heated, a pressure increase will occur and the container may burst.
Do not allow run-off from fire fighting to enter drains or water courses.
Very toxic to aquatic life with long lasting effects.

Hazardous combustion products : Carbon dioxide (CO₂)
Carbon monoxide

5.3 Advice for firefighters

Special protective equipment for firefighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Further information : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.
No action shall be taken involving any personal risk or without suitable training.
Use water spray to cool unopened containers.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : No action shall be taken involving any personal risk or without suitable training.
Keep unnecessary and unprotected personnel from entering.
Do not touch or walk through spilt material.
Do not breathe vapours, aerosols.
Provide adequate ventilation.
In case of inadequate ventilation wear respiratory protection.
Use personal protective equipment.

6.2 Environmental precautions

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with

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soil, waterways, drains and sewers.
Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Annex should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Advice on safe handling : For personal protection see section 8.
Do not get in eyes or mouth or on skin.
Avoid release to the environment.
Do not breathe vapours/dust.
Provide sufficient air exchange and/or exhaust in work rooms.
Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : When using do not eat or drink. When using do not smoke.
Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep containers sealed until ready for use. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological

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safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : Intermediate
Heat transfer fluids

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Annex should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
ditolyl ether	Workers	Inhalation	Long-term exposure, Systemic effects	4.65 mg/m ³
	Workers	Inhalation	Short-term exposure, Systemic effects	23.2 mg/m ³
	Workers	Dermal	Long-term exposure, Systemic effects	1.32 mg/kg bw/day
	Workers	Dermal	Short-term exposure, Systemic effects	6.6 mg/kg bw/day
	Consumers	Inhalation	Long-term exposure, Systemic effects	1.14 mg/m ³
	Consumers	Inhalation	Short-term exposure, Systemic effects	5.7 mg/m ³
	Consumers	Dermal	Long-term exposure, Systemic effects	0.66 mg/kg bw/day
	Consumers	Dermal	Short-term exposure, Systemic effects	3.3 mg/kg bw/day
	Consumers	Oral	Long-term exposure, Systemic effects	0.66 mg/kg bw/day
	Consumers	Oral	Short-term exposure, Systemic effects	3.3 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
ditolyl ether	Fresh water	0.0004 mg/l
	Freshwater - intermittent	0.00035 mg/l
	Marine water	0.00004 mg/l
	Fresh water sediment	0.40144 mg/kg dry weight (d.w.)
	Marine sediment	0.04014 mg/kg

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		dry weight (d.w.)
	Soil	0.08 mg/kg dry weight (d.w.)
	Secondary Poisoning	29.33 mg/kg food

8.2 Exposure controls

Engineering measures

If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal protective equipment

Eye protection : Safety glasses with side-shields

Hand protection

Material : Polyvinyl chloride - PVC

Wearing time : < 60 min

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

Filter type : Combined inorganic and acidic gas/vapour, ammonia/amines and organic vapour type (ABEK)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : Liquid

Colour : colourless to light-yellow

Odour : slight

Odour Threshold : No data available

pH : No data available

Melting point/range : -54 °C

Pour point : -54 °C

Boiling point/boiling range : 283 °C
(1,013 hPa)

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Flash point : 136 °C
Method: Regulation (EC) No. 440/2008, Annex, A.9, closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit : No data available

Lower explosion limit : No data available

Vapour pressure : 0.012 hPa (20 °C)

Relative vapour density : No data available

Relative density : No data available

Density : 1.03 g/cm³ (20 °C)

Solubility(ies)
Water solubility : 0.0028 g/l

Partition coefficient: n-octanol/water : No data available

Ignition temperature : No data available

Decomposition temperature : No data available

Viscosity
Viscosity, dynamic : 5.89 mPa.s

Explosive properties : No data available

Oxidizing properties : No data available

9.2 Other information

Self-ignition : 545 °C
Auto-ignition temperature

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

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Hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : No specific data.

10.5 Incompatible materials

Materials to avoid : No specific data.

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Eye contact
Skin contact
Ingestion

Acute toxicity

Harmful if swallowed.

Components:

ditolyl ether:

Acute oral toxicity : LD50 (Rat, male): ca. 3,622 mg/kg

LD50 (Mouse, male): 142 mg/kg
GLP: yes

Acute inhalation toxicity : LC50 (Rat, female): > 521 mg/m³
Exposure time: 7 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
GLP: yes
Remarks: Dosage caused no mortality

Acute dermal toxicity : LD50 (Rat, male and female): > 2,587 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Dosage caused no mortality

Skin corrosion/irritation

Not classified based on available information.

Product:

Remarks: Mild skin irritation

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Components:

ditolyl ether:

Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: Mild skin irritation
GLP: yes
Remarks: Fully reversible in 7 days or less

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Result: No eye irritation

Components:

ditolyl ether:

Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 405
Result: No eye irritation
GLP: yes

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

ditolyl ether:

Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
GLP: yes
Remarks: Not classified due to inconclusive data.

Germ cell mutagenicity

Not classified based on available information.

Components:

ditolyl ether:

Genotoxicity in vitro : Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation

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Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test system: rat hepatocytes
Metabolic activation: with metabolic activation
Result: negative
GLP: yes

Genotoxicity in vivo : Species: Mouse (male and female)
Application Route: Oral
Method: OECD Test Guideline 475
Result: negative

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

Components:

ditolyl ether:

Effects on fertility : Species: Rat, male
Application Route: Oral
Duration of Single Treatment: 91 d
Fertility: NOAEL: > 425 mg/kg body weight
Method: OECD Test Guideline 408
GLP: yes

Species: Rat, female
Application Route: Oral
Duration of Single Treatment: 91 d
Fertility: NOAEL: > 604 mg/kg body weight
Method: OECD Test Guideline 408
GLP: yes

Effects on foetal development : Species: Rat
Application Route: Oral
Duration of Single Treatment: 10 d
General Toxicity Maternal: NOAEL: 300 mg/kg body weight
Developmental Toxicity: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

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Repeated dose toxicity

Components:

ditolyl ether:

Species: Rat, male
NOAEL: 132 mg/kg
Application Route: Oral
Exposure time: 91 d
Number of exposures: daily
Method: OECD Test Guideline 408
GLP: yes
Remarks: Subchronic toxicity

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

ditolyl ether:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 2.62 mg/l Exposure time: 96 h Test Type: static test Analytical monitoring: no Method: OECD Test Guideline 203 GLP: no Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.1564 mg/l Exposure time: 48 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes Remarks: Fresh water
Toxicity to algae	:	EC50 (Desmodesmus subspicatus (green algae)): 0.035 mg/l End point: Growth rate Exposure time: 72 h Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes

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Remarks: Fresh water

EC10 (Desmodesmus subspicatus (green algae)): 0.02 mg/l
End point: Growth rate
Exposure time: 72 h
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes
Remarks: Fresh water

M-Factor (Short-term (acute) aquatic hazard) : 10

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
End point: Respiration inhibition
Exposure time: 3 h
Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: no
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.057 mg/l
End point: mortality
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes
Remarks: Fresh water

M-Factor (Long-term (chronic) aquatic hazard) : 1

12.2 Persistence and degradability

Components:

ditolyl ether:

Biodegradability : Biodegradation: 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes

Biodegradation: 3 %
Exposure time: 28 d
Method: OECD Test Guideline 302C
GLP: yes

Biodegradation: 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

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12.3 Bioaccumulative potential

Components:

ditolyl ether:

Bioaccumulation : Bioconcentration factor (BCF): 982
Remarks: Test results on an analogous product

Partition coefficient: n-octanol/water : log Pow: 4.9 (40 °C)
Method: OECD Test Guideline 117
GLP: yes

12.4 Mobility in soil

Components:

ditolyl ether:

Distribution among environmental compartments : Koc: 10000, log Koc: 3.7
Method: OECD Test Guideline 121

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Annex should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

The generation of waste should be avoided or minimised wherever possible.

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Where possible recycling is preferred to disposal or incineration.

Dispose of as hazardous waste in compliance with local and national regulations.

Waste disposal should be in accordance with existing federal state, provincial and or local environmental controls

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number

ADN : UN 3082
ADR : UN 3082
RID : UN 3082
IMDG : UN 3082
IATA : UN 3082

14.2 UN proper shipping name

ADN : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DITOLYLETHER)
ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DITOLYLETHER)
RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DITOLYLETHER)
IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DITOLYLETHER)
IATA : Environmentally hazardous substance, liquid, n.o.s. (DITOLYLETHER)

14.3 Transport hazard class(es)

ADN : 9
ADR : 9
RID : 9
IMDG : 9
IATA : 9

14.4 Packing group

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ADN

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9



ADR

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9



RID

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9



IMDG

Packing group : III
Labels : 9
:



IATA (Cargo)

Packing instruction (cargo aircraft) : 964: 450.00 L
Packing group : III
Labels : 9
:



IATA (Passenger)

Packing instruction (passen- : 964: 450.00 L

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ger aircraft)
Packing group : III
Labels : 9
:



14.5 Environmental hazards

ADN
Environmentally hazardous : yes



ADR
Environmentally hazardous : yes



RID
Environmentally hazardous : yes



IMDG
Marine pollutant : yes



IATA (Passenger)
Environmentally hazardous : yes



IATA (Cargo)
Environmentally hazardous : yes

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14.6 Special precautions for user

Hazard statements : Environmentally hazardous substance.
Has a slight odour.
Keep dry.
Keep separated from foodstuffs.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Council Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors. : Neither banned nor restricted

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

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

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
E1	ENVIRONMENTAL HAZARDS	100 t	200 t

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15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements

H302	:	Harmful if swallowed.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard

ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

Further information

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet and its Annex [if required according to Regulation (EC) 1907/2006 (REACH)] is to describe the products in terms of their safety requirements. The given details do not imply any guarantee concerning the composition, properties or performance.

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Annex

Exposure Scenario (ES)

Number	Title
ES1	Heat transferring agent, Industrial use (ERC7; PROC1; PROC2; PROC3; PROC4; PROC8b; PC16; SU8; SU9; SU23) <u>Structured Short Title:</u> Use at industrial sites; Heat transfer fluids (PC16); Various sectors (SU8, SU9, SU23).
ES2	Use as intermediate, Industrial (ERC6a; PROC1; PROC2; PROC3; PROC4; PROC8b; PC19; SU8; SU9) <u>Structured Short Title:</u> Use at industrial sites; Intermediate (PC19); Various sectors (SU8, SU9).
ES3	Use as monomer, Manufacture of textiles, leather, fur, Industrial (ERC7; PROC1; PROC2; PROC3; PROC4; PROC8b; PC23; SU5) <u>Structured Short Title:</u> Use at industrial sites; Leather treatment products (PC23); Manufacture of textiles, leather, fur (SU5).
ES4	Processing aid, Industrial use (ERC4; PROC1; PROC2; PROC3; PROC8b; PROC9; PC19; PC27; PC29; SU8; SU9) <u>Structured Short Title:</u> Use at industrial sites; Various products (PC19, PC27, PC29); Various sectors (SU8, SU9).
ES5	Use as laboratory reagent, Industrial (ERC4; PROC15; PC21) <u>Structured Short Title:</u> Use at industrial sites; Laboratory chemicals (PC21).

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ES1: Heat transferring agent, Industrial use

1.1. Title section

Structured Short Title	: Use at industrial sites; Heat transfer fluids (PC16); Various sectors (SU8, SU9, SU23).
Substance	: Ditolyl ether EC-No.: 248-948-6 CAS-No.: 28299-41-4

Environmental release category(ies)	: ERC7: Use of functional fluid at industrial site
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
Product (sub) category(ies)	: PC16: Heat transfer fluids
Sector(s) of use	: SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU23: Electricity, steam, gas water supply and sewage treatment

Contributing Scenario (CS) Environment		
CS1	Use in closed process	ERC7

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure	PROC2, PROC3, PROC4
CS4	Material transfers; Dedicated facility; Indoor use	PROC8b

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CS5	Material transfers; Dedicated facility; Outdoor use	PROC8b
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1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Use in closed process (ERC7)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: 1.67 t
Annual amount per site	: 500 t

Technical and organisational conditions and measures
Dry process (no water used in process) Water - minimum efficiency of 100 %
Negligible air emissions as process operates in a contained system. Air - minimum efficiency of 100 %

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 100 %
STP effluent	: 2,000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Incineration
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18,000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

1.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics

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Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Liquid
Vapour pressure	: 0.0012 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

1.2.3. Control of worker exposure: Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure (PROC2, PROC3, PROC4)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %

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Physical form of product	: Liquid
Vapour pressure	: 0.0012 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration	: Covers exposure up to 8 h
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Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

1.2.4. Control of worker exposure: Material transfers; Dedicated facility; Indoor use (PROC8b)

Product (article) characteristics

Concentration of substance in prod-	: Covers concentrations up to 100 %
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uct	
Physical form of product	: Liquid low viscosity
Vapour pressure	: < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and strictly supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Demonstrable and effective housekeeping practices are in place.	
Local exhaust ventilation Inhalation - minimum efficiency of 50 %	
Activity class	: Transfer of liquid products - falling liquids
Application rate	: < 100 L/min
Level of containment	: Handling that reduces contact between product and adjacent air;
Handling type	: Submerged loading, where the liquid dispenser remains below the fluid level reducing the amount of aerosol formation

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Dermal - minimum efficiency of 95 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 100 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Indoors with good natural ventilation.

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

1.2.5. Control of worker exposure: Material transfers; Dedicated facility; Outdoor use (PROC8b)

Product (article) characteristics

Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Liquid low viscosity
Vapour pressure	: < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration	: Covers exposure up to 1 h
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Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance.
Substance-handling procedures shall be well documented and strictly supervised.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Demonstrable and effective housekeeping practices are in place.

Local exhaust ventilation
Inhalation - minimum efficiency of 50 %

Activity class	: Handling of contaminated objects.
Activity	: Activities with treated/contaminated objects with surface < 1 m ²
Surface contamination	: < 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Dermal - minimum efficiency of 95 %

For further specification, refer to section 8 of the SDS.

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Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoors not close to buildings.
Temperature	: Covers use at ambient temperatures.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Use in closed process (ERC7)

Release route	Release	Release estimation method
All routes	0 %	Expert judgement

Remarks:
Product is handled under closed conditions.

Compartment	Risk Characterisation Ratio (RCR)	Calculation method
All routes	< 1	EUSES 2.1.1

1.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
combined routes	-	systemic	< 1	ECETOC TRA 3.0

1.3.3. Worker exposure: Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure (PROC2, PROC3, PROC4)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
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combined routes	-	systemic	< 1	ECETOC TRA 3.0
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1.3.4. Worker exposure: Material transfers; Dedicated facility; Indoor use (PROC8b)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5
dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

1.3.5. Worker exposure: Material transfers; Dedicated facility; Outdoor use (PROC8b)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5
dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES2: Use as intermediate, Industrial

2.1. Title section

Structured Short Title	: Use at industrial sites; Intermediate (PC19); Various sectors (SU8, SU9).
Substance	: Ditolyl ether EC-No.: 248-948-6 CAS-No.: 28299-41-4

Environmental release category(ies)	: ERC6a: Use of intermediate
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
Product (sub) category(ies)	: PC19: Intermediate
Sector(s) of use	: SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals

Contributing Scenario (CS) Environment		
CS1	Use of intermediate	ERC6a

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure	PROC2, PROC3, PROC4
CS4	Material transfers; Dedicated facility; Indoor use	PROC8b
CS5	Material transfers; Dedicated facility; Outdoor use	PROC8b

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2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Use of intermediate (ERC6a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: 3.33 t
Annual amount per site	: 1000 t

Technical and organisational conditions and measures	
Dry process (no water used in process) Water - minimum efficiency of 100 %	
Negligible air emissions as process operates in a contained system. Air - minimum efficiency of 100 %	

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 100 %
STP effluent	: 2,000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Incineration
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18,000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

2.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %

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Physical form of product	: Liquid
Vapour pressure	: 0.0012 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

2.2.3. Control of worker exposure: Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure (PROC2, PROC3, PROC4)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Liquid

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Vapour pressure : 0.0012 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

2.2.4. Control of worker exposure: Material transfers; Dedicated facility; Indoor use (PROC8b)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

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Physical form of product	: Liquid low viscosity
Vapour pressure	: < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance.
Substance-handling procedures shall be well documented and strictly supervised.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Demonstrable and effective housekeeping practices are in place.

Local exhaust ventilation
Inhalation - minimum efficiency of 50 %

Activity class : Transfer of liquid products - falling liquids

Application rate : < 100 L/min

Level of containment : Handling that reduces contact between product and adjacent air;

Handling type : Submerged loading, where the liquid dispenser remains below the fluid level reducing the amount of aerosol formation

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Dermal - minimum efficiency of 95 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Room size : 100 m³

Temperature : Covers use at ambient temperatures.

Ventilation rate : Indoors with good natural ventilation.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

2.2.5. Control of worker exposure: Material transfers; Dedicated facility; Outdoor use (PROC8b)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Liquid low viscosity
Vapour pressure	: < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 1 h

Technical and organisational conditions and measures	
Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and strictly supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Demonstrable and effective housekeeping practices are in place.	
Local exhaust ventilation Inhalation - minimum efficiency of 50 %	
Activity class	: Handling of contaminated objects.
Activity	: Activities with treated/contaminated objects with surface < 1 m ²
Surface contamination	: < 90 %

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Dermal - minimum efficiency of 95 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
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Indoor or outdoor use	: Outdoors not close to buildings.
Temperature	: Covers use at ambient temperatures.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Use of intermediate (ERC6a)

Release route	Release	Release estimation method
All routes	0 %	Expert judgement

Remarks:
Product is handled under closed conditions.

Compartment	Risk Characterisation Ratio (RCR)	Calculation method
All routes	< 1	EUSES 2.1.1

2.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
combined routes	-	systemic	< 1	ECETOC TRA 3.0

2.3.3. Worker exposure: Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure (PROC2, PROC3, PROC4)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
combined routes	-	systemic	< 1	ECETOC TRA 3.0

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2.3.4. Worker exposure: Material transfers; Dedicated facility; Indoor use (PROC8b)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5
dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

2.3.5. Worker exposure: Material transfers; Dedicated facility; Outdoor use (PROC8b)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5
dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES3: Use as monomer, Manufacture of textiles, leather, fur, Industrial

3.1. Title section

Structured Short Title	: Use at industrial sites; Leather treatment products (PC23); Manufacture of textiles, leather, fur (SU5).
Substance	: Ditolyl ether EC-No.: 248-948-6 CAS-No.: 28299-41-4

Environmental release category(ies)	: ERC7: Use of functional fluid at industrial site
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities
Product (sub) category(ies)	: PC23: Leather treatment products
Sector(s) of use	: SU5: Manufacture of textiles, leather, fur

Contributing Scenario (CS) Environment		
CS1	Use in closed process	ERC7

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure	PROC2, PROC3, PROC4
CS4	Material transfers; Dedicated facility; Indoor use	PROC8b
CS5	Material transfers; Dedicated facility; Outdoor use	PROC8b

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3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Use in closed process (ERC7)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: 1.67 t
Annual amount per site	: 500 t

Technical and organisational conditions and measures
Dry process (no water used in process) Water - minimum efficiency of 100 %
Negligible air emissions as process operates in a contained system. Air - minimum efficiency of 100 %

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 100 %
STP effluent	: 2,000 m ³ /d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Incineration
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18,000 m ³ /d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

3.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Liquid

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Country / Language: GB / EN(GB)

Vapour pressure : 0.0012 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

3.2.3. Control of worker exposure: Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure (PROC2, PROC3, PROC4)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Liquid

Vapour pressure : 0.0012 Pa (20 °C)

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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

3.2.4. Control of worker exposure: Material transfers; Dedicated facility; Indoor use (PROC8b)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Liquid low viscosity

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Vapour pressure : < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and strictly supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Demonstrable and effective housekeeping practices are in place.

Local exhaust ventilation
Inhalation - minimum efficiency of 50 %

Activity class : Transfer of liquid products - falling liquids

Application rate : < 100 L/min

Level of containment : Handling that reduces contact between product and adjacent air;

Handling type : Submerged loading, where the liquid dispenser remains below the fluid level reducing the amount of aerosol formation

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Dermal - minimum efficiency of 95 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Room size : 100 m³

Temperature : Covers use at ambient temperatures.

Ventilation rate : Indoors with good natural ventilation.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

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3.2.5. Control of worker exposure: Material transfers; Dedicated facility; Outdoor use (PROC8b)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Liquid low viscosity
Vapour pressure	: < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 1 h

Technical and organisational conditions and measures	
Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and strictly supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Demonstrable and effective housekeeping practices are in place.	
Local exhaust ventilation Inhalation - minimum efficiency of 50 %	
Activity class	: Handling of contaminated objects.
Activity	: Activities with treated/contaminated objects with surface < 1 m ²
Surface contamination	: < 90 %

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Dermal - minimum efficiency of 95 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoors not close to buildings.
Temperature	: Covers use at ambient temperatures.

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: Use in closed process (ERC7)

Release route	Release	Release estimation method
All routes	0 %	Expert judgement

Remarks:

Product is handled under closed conditions.

Compartment	Risk Characterisation Ratio (RCR)	Calculation method
All routes	< 1	EUSES 2.1.1

3.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
combined routes	-	systemic	< 1	ECETOC TRA 3.0

3.3.3. Worker exposure: Continuous process; Batch process; Closed systems; Use in semi-closed process with opportunity for exposure (PROC2, PROC3, PROC4)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
combined routes	-	systemic	< 1	ECETOC TRA 3.0

3.3.4. Worker exposure: Material transfers; Dedicated facility; Indoor use (PROC8b)

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Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5
dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

3.3.5. Worker exposure: Material transfers; Dedicated facility; Outdoor use (PROC8b)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5
dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES4: Processing aid, Industrial use

4.1. Title section

Structured Short Title	: Use at industrial sites; Various products (PC19, PC27, PC29); Various sectors (SU8, SU9).
Substance	: Ditolyl ether EC-No.: 248-948-6 CAS-No.: 28299-41-4

Environmental release category(ies)	: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
Product (sub) category(ies)	: PC19: Intermediate PC27: Plant protection products PC29: Pharmaceuticals
Sector(s) of use	: SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals

Contributing Scenario (CS) Environment		
CS1	Use in closed process	ERC7

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Batch process; Closed systems	PROC2, PROC3
CS4	Material transfers; Dedicated facility; Indoor use	PROC8b
CS5	Material transfers; Dedicated facility; Outdoor use	PROC8b

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CS6	Small package filling; Small scale weighing	PROC9
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4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: Use in closed process (ERC7)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: 1.67 t
Annual amount per site	: 500 t

Technical and organisational conditions and measures	
Dry process (no water used in process) Water - minimum efficiency of 100 %	
Negligible air emissions as process operates in a contained system. Air - minimum efficiency of 100 %	

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 100 %
STP effluent	: 2,000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Incineration
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18,000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

4.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics

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Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Liquid

Vapour pressure : 0.0012 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

4.2.3. Control of worker exposure: Continuous process; Batch process; Closed systems (PROC2, PROC3)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

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Physical form of product	: Liquid
Vapour pressure	: 0.0012 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration	: Covers exposure up to 8 h
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Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.2.4. Control of worker exposure: Material transfers; Dedicated facility; Indoor use (PROC8b)

Product (article) characteristics

Concentration of substance in prod-	: Covers concentrations up to 100 %
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uct	
Physical form of product	: Liquid low viscosity
Vapour pressure	: < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and strictly supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Demonstrable and effective housekeeping practices are in place.	
Local exhaust ventilation Inhalation - minimum efficiency of 50 %	
Activity class	: Transfer of liquid products - falling liquids
Application rate	: < 100 L/min
Level of containment	: Handling that reduces contact between product and adjacent air;
Handling type	: Submerged loading, where the liquid dispenser remains below the fluid level reducing the amount of aerosol formation

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Dermal - minimum efficiency of 95 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 100 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Indoors with good natural ventilation.

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.2.5. Control of worker exposure: Material transfers; Dedicated facility; Outdoor use (PROC8b)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Liquid
low viscosity

Vapour pressure : < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 1 h

Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance.
Substance-handling procedures shall be well documented and strictly supervised.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Demonstrable and effective housekeeping practices are in place.

Local exhaust ventilation
Inhalation - minimum efficiency of 50 %

Activity class : Handling of contaminated objects.

Activity : Activities with treated/contaminated objects with surface < 1 m²

Surface contamination : < 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Dermal - minimum efficiency of 95 %

For further specification, refer to section 8 of the SDS.

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Other conditions affecting workers exposure

Indoor or outdoor use : Outdoors not close to buildings.
Temperature : Covers use at ambient temperatures.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.2.6. Control of worker exposure: Small package filling; Small scale weighing (PROC9)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %
Physical form of product : Liquid
low viscosity
Vapour pressure : < 0.12 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only properly trained and authorised personnel shall handle the substance.
Substance-handling procedures shall be well documented and supervised.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Demonstrable and effective housekeeping practices are in place.

Local exhaust ventilation
Inhalation - minimum efficiency of 50 %

Activity class : Transfer of liquid products - falling liquids
Application rate : < 1 L/min
Level of containment : Handling that reduces contact between product and adjacent air;
Handling type : Splash loading, where the liquid dispenser remains at the top of the reservoir and the liquid splashes freely

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Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Room size	:	100 m ³
Temperature	:	Covers use at ambient temperatures.
Ventilation rate	:	Indoors with good natural ventilation.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: Use in closed process (ERC7)

Release route	Release	Release estimation method
All routes	0 %	Expert judgement

Remarks:
Product is handled under closed conditions.

Compartment	Risk Characterisation Ratio (RCR)	Calculation method
All routes	< 1	EUSES 2.1.1

4.3.2. Worker exposure: Use in closed process (PROC1)

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Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
combined routes	-	systemic	< 1	ECETOC TRA 3.0

4.3.3. Worker exposure: Continuous process; Batch process; Closed systems (PROC2, PROC3)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
combined routes	-	systemic	< 1	ECETOC TRA 3.0

4.3.4. Worker exposure: Material transfers; Dedicated facility; Indoor use (PROC8b)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5
dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

4.3.5. Worker exposure: Material transfers; Dedicated facility; Outdoor use (PROC8b)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5
dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

4.3.6. Worker exposure: Small package filling; Small scale weighing (PROC9)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
Inhalation	-	systemic	< 1	ART v1.5

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dermal	-	systemic	< 1	ECETOC TRA 3.0
combined routes	-	systemic	< 1	

4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES5: Use as laboratory reagent, Industrial

5.1. Title section

Structured Short Title	: Use at industrial sites; Laboratory chemicals (PC21).
Substance	: Ditolyl ether EC-No.: 248-948-6 CAS-No.: 28299-41-4

Environmental release category(ies)	: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process category(ies)	: PROC15: Use as laboratory reagent
Product (sub) category(ies)	: PC21: Laboratory chemicals

Contributing Scenario (CS) Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	ERC4

Contributing Scenario (CS) Worker		
CS2	Laboratory activities	PROC15

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: 1.67 t
Annual amount per site	: 500 t

Technical and organisational conditions and measures
Dry process (no water used in process) Water - minimum efficiency of 100 %
Negligible air emissions as process operates in a contained system. Air - minimum efficiency of 100 %

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Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 100 %
STP effluent	: 2,000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Incineration
Waste disposal methods	: For general information on waste disposal see section 13.

5.2.2. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Liquid
Vapour pressure	: 0.0012 Pa (20 °C)

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only properly trained and authorised personnel shall handle the substance. Substance-handling procedures shall be well documented and supervised. Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

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Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Release route	Release	Release estimation method
All routes	0 %	Expert judgement

Remarks:
Product is handled under closed conditions.

Compartment	Risk Characterisation Ratio (RCR)	Calculation method
All routes	< 1	EUSES 2.1.1

5.3.2. Worker exposure: Laboratory activities (PROC15)

Exposure route	Exposure indicator	Health effect	Risk Characterisation Ratio (RCR)	Calculation method
combined routes	-	systemic	< 1	ECETOC TRA 3.0

5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.