

2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate

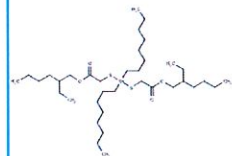
Substance identity

EC / List no.: 239-622-4

CAS no.: 15571-58-1

Mol. formula:

C₃₆H₇₂O₄S₂Sn



Hazard classification & labelling



Danger! According to the **harmonised classification and labelling** (ATP05) approved by the European Union, this substance may damage the unborn child.



Additionally, the classification provided by companies to ECHA in **REACH registrations** identifies that this substance may damage fertility or the unborn child, causes damage to organs through prolonged or repeated exposure, is harmful if swallowed and is harmful to aquatic life with long lasting effects.

Properties of concern

R

Regulatory activities

Substance of very high concern (SVHC) and included in the candidate list for authorisation.

About this substance

This substance is manufactured and/or imported in the European Economic Area in 1 000 - 10 000 tonnes per year.

This substance is used in articles, in formulation or re-packing, at industrial sites and in manufacturing.

Consumer Uses

ECHA has no public registered data indicating whether or in which chemical products the substance might be used. ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.

Article service life

ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment. ECHA has no public registered data indicating whether or into which articles the substance might have been processed.

Widespread uses by professional workers

ECHA has no public registered data indicating whether or in which chemical products the substance might be used. ECHA has no public registered data on the types of manufacture using this substance. ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.

Formulation or re-packing

ECHA has no public registered data indicating whether or in which chemical products the substance might be used. ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.

Uses at industrial sites

ECHA has no public registered data indicating whether or in which chemical products the substance might be used. ECHA has no public registered data on the types of manufacture using this substance. ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.

Manufacture

ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.

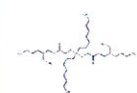
The InfoCard summarises the non-confidential data on substances as held in the databases of the European Chemicals Agency (ECHA), including data provided by third parties. The InfoCard is automatically generated. Information requirements under different legislative frameworks may therefore not be up-to-date or complete. Substance manufacturers and importers are responsible for consulting official publications. This InfoCard is covered by the ECHA Legal Disclaimer.



about INFOCARD - Last updated: 07/07/2017

2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate

Substance identity



Other names

SMILES:

CCCCCCCC[Sn](CCCCCCCC)(SCC(=O)OCC(CC)CCCC)SCC(=O)OCC(CC)CCCC

InChI:

InChI=1/2C10H20O2S.2C8H17.Sn(c2*1-3-5-6-9(4-2-7-12-10)(11)18-13-21-5-7-8-6-4-2)/n2*9,13H,3-
BH2,1-2H3,2-3-BH2,2H3;q42/p-2
AuxInfo=1//N,41,49,40,42,39,38,36,2,37,1,15,16,3,1,
18,17,12,11,9,6,10,7,35,8,5,19,26,20,25,1,21,22,23,
27,34,28,33,29,32,30,31,4/CRV-2*1,3,4/A4CCSNCSS
CC
C10:17:2:3:4:5:56:57:8:9:10:11:12:13:21:28:1
5:18:19:20:21:22:23:24:25:26:27:34:35:42:51:52:5
29:30:31:32:33:37:16:36:37:38:39:39:40:37:3
42/r:3-5,3459,-8,4492,0,6048,-1,737,0,9734,-8,42
66,0,9,322,-1,1511,0,10,713,-8,4038,0,11,9601,-1
285,0,13,1226,-8,3812,0,14,497,-9,1285,0,15,8559,-8
4038,0,17,228,-8,1511,0,18,488,-8,4266,0,19,7525,-
1,737,0,21,1114,-8,4492,0,22,3796,-9,1965,0,5,849
9,-8,633,0,4,0775,-9,11,10,17,4871,-1,7599,0,13,16
1,-11,4847,0,9,4455,-10,7599,0,8,0868,-11,4847,0,8
068,-13,0245,0,6,7953,-13,7496,0,6,7954,-15,2896,0
4,364,-16,0145,0,5,527,-17,555,0,4,168,-18,2798,0,9
455,-7,5656,0,10,7373,-6,8407,0,10,7373,-5,3005,0,12
0055,-4,5531,0,12,0055,-3,120,0,12,0,13,3645,-2,2877,0
13,3645,-7472,0,14,6329,0,13,4551,-8,8633,0,7,278
8,-2,4492,0,2,6276,-9,9087,0,13,588,-6,1838,0,3,318
4,6437,0,0,-3,919,0,0,-2,3782,0,0,0549,-6,0253,0,0,054
9,-4,5531,0,

Type of substance:

Mono constituent substance

Origin:

Organometallic

Registered compositions: 7

5: 7

Of which contain:

0 impurities relevant for classification

0 additives relevant for classification

Substance Listed:

EINECS (European INventory of Existing Commercial chemical Substances) List

Hazard classification & labelling



Danger! According to the harmonised classification and labelling (ATP05) approved by the European Union, this substance may damage the unborn child.



Additionally, the classification provided by companies to ECHA in REACH registrations identifies that this substance may damage fertility or the unborn child, causes damage to organs through prolonged or repeated exposure, is harmful if swallowed and is harmful to aquatic life with long lasting effects.



Additionally, the classification provided by companies to ECHA in CLP notifications identifies that this substance is very toxic to aquatic life with long lasting effects, is very toxic to aquatic life, is suspected of damaging fertility or the unborn child, may cause an allergic skin reaction and causes skin irritation.

Breakdown of all 166 C&L notifications submitted to ECHA

Test	Chemical	Result
Acute Tox. 4	H302	100%
Repr. 1B	H360D	100%
Skin Sens. 1	H317	100%
STOT RE 1	H372	100%
STOT RE 2	H373	100%
Aquatic Chronic 4	H413	100%
Repr. 2	H361	100%
Skin Irrit. 2	H315	100%
Aquatic Chronic 1	H410	100%
Aquatic Acute 1	H400	100%
Skin Sens. 1A	H317	100%
Aquatic Chronic 3	H412	100%



Harmonised Classification

REACH registration dossiers notifications

CLP notifications

Properties of concern

R

Regulatory activities	
Registration, Evaluation, Authorisation & Restriction of Chemicals (REACH)	
Registration	
Pre-registration:	Substance pre-registered under REACH.
Registration:	This substance has 5 active registrations under REACH, 1 Joint Submission(s) and 0 Individual Submission(s).
Evaluation	
Dossier Evaluation:	
Substance Evaluation:	
Authorisation	
Candidate List:	Substance of very high concern (SVHC) and included in the candidate list for authorisation.
Annex XIV (Authorisation List):	
Restriction	
Annex XVII (Restriction List):	
Classification Labelling & Packaging (CLP)	
Harmonised C&L:	A European Union Harmonised Classification & Labelling has been assigned to this substance.
Notification:	Classification & Labelling has been notified by industry to ECHA for this substance.
Biocidal Products Regulation (BPR)	
Active Substance:	
Biocidal Products:	
Prior Informed Consent (PIC)	
Annex I:	This substance is subject to the Prior Informed Consent regulation and to export notification procedure from 03-Dec-2015
Annex V:	

About this substance
<p>General</p> <p>This substance is manufactured and/or imported in the European Economic Area in 1 000 - 10 000 tonnes per year.</p> <p>This substance is used in articles, in formulation or re-packing, at industrial sites and in manufacturing.</p> <p>Consumer Uses</p> <p>ECHA has no public registered data indicating whether or in which chemical products the substance might be used.</p> <p>ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.</p> <p>Article service life</p> <p>ECHA has no public registered data on the use of this substance in activities or processes at the workplace.</p> <p>Other release to the environment of this substance is likely to occur from: outdoor use in long-life materials with low release rate (e.g. metal, wooden and plastic construction and building materials) and indoor use in long-life materials with low release rate (e.g. flooring, furniture, toys, construction materials, curtains, foot-wear, leather products, paper and cardboard products, electronic equipment).</p> <p>This substance can be found in products with material based on: plastic (e.g. food packaging and storage, toys, mobile phones).</p> <p>Widespread uses by professional workers</p> <p>ECHA has no public registered data indicating whether or in which chemical products the substance might be used.</p> <p>ECHA has no public registered data on the types of manufacture using this substance.</p> <p>ECHA has no public registered data on the use of this substance in activities or processes at the workplace.</p> <p>ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.</p> <p>Formulation or re-packing</p> <p>This substance is used in the following products: polymers.</p> <p>This substance is used in the following activities or processes at workplace: closed batch processing in synthesis or formulation, transfer of chemicals at dedicated facilities, closed processes with no likelihood of exposure, closed, continuous processes with occasional controlled exposure, batch processing in synthesis or formulation with opportunity for exposure, mixing in open batch processes and transfer of substance into small containers.</p> <p>Release to the environment of this substance can occur from industrial use: formulation in materials and formulation of mixtures.</p> <p>Uses at industrial sites</p> <p>This substance is used in the following products: polymers.</p> <p>This substance is used for the manufacture of: plastic products.</p> <p>This substance is used in the following activities or processes at workplace: transfer of chemicals at dedicated facilities, calendaring operations, production of mixtures or articles by tableting, compression, extrusion or pelletisation and the low energy manipulation of substances bound in materials or articles.</p> <p>Release to the environment of this substance can occur from industrial use: in the production of articles, as an intermediate step in further manufacturing of another substance (use of intermediates), as processing aid and for thermoplastic manufacture.</p> <p>Manufacture</p> <p>This substance is used in the following activities or processes at workplace: closed, continuous processes with occasional controlled exposure, closed batch processing in synthesis or formulation and transfer of chemicals at dedicated facilities.</p> <p>Release to the environment of this substance can occur from industrial use: manufacturing of the substance.</p> <p>Precautionary Measures and safe use</p> <p>Precautions for using this substance have been recommended by its registrants under REACH, as follows:</p> <p>Prevention statements</p> <p>When handling this substance: do not handle until all safety precautions have been read and understood; do not breathe the dust, fume, gas, mist, vapours or spray; avoid release to the environment; wear protective gloves and/or clothing, and eye and/or face protection as specified by manufacturer/supplier.</p> <p>Response statements</p> <p>In case of incident: If skin irritation or a rash occurs: get medical advice/attention. If exposed or concerned: get medical advice/attention.</p> <p>Disposal statements</p> <p>The substance must be disposed in accordance with local/regional/national/international regulation.</p> <p>Guidance on the safe use of the substance provided by manufacturers and importers of this substance.</p>

Registrants/suppliers
<p>Active</p> <ul style="list-style-type: none"> Baerlocher Italia SPA, Via San Colombano, 62/A 26900 Lodi Italy BNT Chemicals GmbH, Parsevalstrasse 29 OT Bitterfeld 06749 Bitterfeld-Wolfen Germany Galata Chemicals GmbH, Chemiestrasse 22 68623 Lampertheim 06 Germany pmcvlissingenbv, ENGELANDWEG 33 4389 PC VLISSINGEN OOST Netherlands REAGENS SPA, VIA CODRONCHI, 4 40016 SAN GIORGIO DI PIANO (BO) Italy <p>Inactive</p> <ul style="list-style-type: none"> ARKEMA B.V., headquarters Postbus 6030 3196 XH Vondelingenplaat Rotterdam Netherlands

Other names

IUPAC names

- 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecan-1-oate
- 2-Ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate
- 2-ethylhexyl 2-(((2-ethylhexyl)oxy)-2-oxoethyl)sulfanyl)diocetylstanny)sulfanyl)acetate
- 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 10-ethyl-4,4-dioctyl-7-oxo-, 2-ethylhexyl ester
- Di-n-octylzinn-bis-(2-ethylhexylthioglykolat)
- Diocetylzinnbis(2-ethylhexyl mercaptoacetate)
- DOTe, DOT(EHMA)2, Diocetylzin bis(2-ethylhexyl mercaptoacetate)

Regulatory processes names

- 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate
- 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)
- 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 10-ethyl-4,4-dioctyl-7-oxo-, 2-ethylhexyl ester

Trade names

- 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate de 2-ethylhexyle
- 2-Ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate
- 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 10-ethyl-4,4-dioctyl-7-oxo-, 2-ethylhexyl ester
- Thermolite 890

Other names

- DOTE

Scientific properties

Physical and chemical properties

This section provides physicochemical information compiled from all automatically processable data from REACH registration dossiers that is available to ECHA at the time of generation. The quality and correctness of the information remains the responsibility of the data submitter. The Agency thus cannot guarantee the correctness of the information displayed.

Appearance/physical state / colour

Study results	1 study submitted 1 study processed	Type of Study provided	C Summaries	1 summary submitted 1 summary processed
C Physical state at 20°C and 1013 hPa Liquid (100%) [1]		Studies with data		Physical state at 20°C and 1013 hPa Liquid (100%)
C Form Not specified (100%) [1]		Key study		
C Odour Other (100%) [1]		Supporting study		
C Substance type Organometallic (100%) [1]		Weight of evidence		
		Other		
		Data waiving		no waivers

Melting/freezing point

Study results	3 studies submitted 0 studies processed	Type of Study provided	R Summaries	1 summary submitted 1 summary processed
A No automatically processable data submitted		Studies with data		Melting / freezing point at 101 325 Pa -39 °C
		Key study		
		Supporting study		
		Weight of evidence		
		Other		
		Data waiving		Not feasible Sci. unjustified Exposure cons. Other 1

Boiling point

Study results	2 studies submitted 0 studies processed	Type of Study provided	R Summaries	1 summary submitted 1 summary processed
A No automatically processable data submitted		Studies with data		Boiling point at 101 325 Pa 275 °C
		Key study		
		Supporting study		
		Weight of evidence		
		Other		
		Data waiving		no waivers

Density

Study results	4 studies submitted 0 studies processed	Type of Study provided	R Summaries	1 summary submitted 1 summary processed
A No automatically processable data submitted		Studies with data		Relative density at 20°C 1.07
		Key study		
		Supporting study		
		Weight of evidence		
		Other		
		Data waiving		no waivers

Vapour pressure		Type of Study provided		R Summaries	
Study results	1 study submitted 1 study processed			1 summary submitted 1 summary processed	
<div>R</div> Vapour pressure 0 - 0 Pa @ 20 °C [2]		Studies with data <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Key study 1 Supporting study Weight of evidence Other		Data waiving no waivers Vapour pressure 0 Pa @ 20 °C	

Partition coefficient		Type of Study provided		R Summaries	
Study results	2 studies submitted 0 studies processed			1 summary submitted 1 summary processed	
<div>⚠</div> No automatically processable data submitted		Studies with data <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Key study Supporting study 1 Weight of evidence Other		Data waiving Not feasible 1 Sci. unjustified Exposure cons. Other Log Kow (Log Pow) 15.354 @ 20 °C	

Water solubility		Type of Study provided		R Summaries	
Study results	2 studies submitted 0 studies processed			1 summary submitted 1 summary processed	
<div>⚠</div> No automatically processable data submitted		Studies with data <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Key study Supporting study 1 Weight of evidence Other		Data waiving Not feasible 1 Sci. unjustified Exposure cons. Other Water solubility 0 ng/L @ 25 °C	

Solubility in organic solvents / fat solubility		Type of Study provided		Summaries	
Study results	1 study submitted 0 studies processed			0 summaries submitted 0 summaries processed	
<div>⚠</div> No automatically processable data submitted		Studies with data <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Key study Supporting study Weight of evidence Other 1		Data waiving no waivers <div>⚠</div> No data available	

Surface tension		Type of Study provided		Summaries	
Study results	1 study submitted 0 studies processed			0 summaries submitted 0 summaries processed	
<div>⚠</div> No automatically processable data submitted		Studies with data <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Key study Supporting study Weight of evidence Other		Data waiving Not feasible 1 Sci. unjustified Exposure cons. Other <div>⚠</div> No data available	

Flash point		Type of Study provided		R Summaries	
Study results	1 study submitted 1 study processed			1 summary submitted 1 summary processed	
<div>R</div> Flash point 182 °C @ 101.3 kPa [1]		Studies with data <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Key study 1 Supporting study Weight of evidence Other		Data waiving no waivers Flash point at 101 325 Pa 182 °C	

Auto flammability

Study results 1 study submitted
1 study processed

Type of Study provided

R Summaries 1 summary submitted
1 summary processed

R Autoflammability / self-ignition
390 °C @ 98.96 - 99.92 kPa [1]

Studies with data ☐ ☐ ☐ ☐ ☐

Key study 1

Supporting study

Weight of evidence

Other

Data waiving
no waivers

Autoflammability / self-ignition at 101 325 Pa
390 °C

Flammability

Study results 1 study submitted
0 studies processed

Type of Study provided

C Summaries 1 summary submitted
1 summary processed

☐ No automatically processable data submitted

Studies with data ☐ ☐ ☐ ☐ ☐

Key study

Supporting study

Weight of evidence

Other

Data waiving
Not feasible
Sci. unjustified
Exposure cons.
Other 1

Flammability
Non flammable (100%)

Explosiveness

Study results 1 study submitted
0 studies processed

Type of Study provided

C Summaries 1 summary submitted
1 summary processed

☐ No automatically processable data submitted

Studies with data ☐ ☐ ☐ ☐ ☐

Key study

Supporting study

Weight of evidence

Other

Data waiving
Not feasible
Sci. unjustified 1
Exposure cons.
Other

Explosiveness
Non-explosive (100%)

Oxidising

Study results 1 study submitted
0 studies processed

Type of Study provided

C Summaries 1 summary submitted
1 summary processed

☐ No automatically processable data submitted

Studies with data ☐ ☐ ☐ ☐ ☐

Key study

Supporting study

Weight of evidence

Other

Data waiving
Not feasible
Sci. unjustified 1
Exposure cons.
Other

Oxidising
No (100%)

Oxidation reduction potential

☐ Data not provided by the registrant

pH

☐ Data not provided by the registrant

Dissociation constant

Study results 1 study submitted
0 studies processed

Type of Study provided

Summaries 0 summaries submitted
0 summaries processed

☐ No automatically processable data submitted

Studies with data ☐ ☐ ☐ ☐ ☐

Key study

Supporting study

Weight of evidence

Other

Data waiving
Not feasible 1
Sci. unjustified
Exposure cons.
Other

☐ No data available

Viscosity			
Study results	1 study submitted 1 study processed	Type of Study provided	R Summaries 1 summary submitted 1 summary processed
R kinematic viscosity (in mm ² /s) 24 - 59.7 [2]		Studies with data Data waiving no waivers	Static viscosity at 20 °C 57.9 mm ² /s
		Key study 1	
		Supporting study	
		Weight of evidence	
		Other	

Environmental fate and pathways

This section provides environmental fate and pathways information compiled from all automatically processable data from REACH registration dossiers that is available to ECHA at the time of generation. The quality and correctness of the information remains the responsibility of the data submitter. The Agency thus cannot guarantee the correctness of the information displayed.

Phototransformation in air	
Data not provided by the registrant	

Hydrolysis			
Study results	2 studies submitted 0 studies processed	Type of Study provided	R Summaries 1 summary submitted 1 summary processed
Study data not processed for brief profile		Studies with data Data waiving no waivers	Half-life for hydrolysis 1 years @ 25 °C
		Key study 1	
		Supporting study	
		Weight of evidence	
		Other 1	

Phototransformation in water	
Data not provided by the registrant	

Phototransformation in soil	
Data not provided by the registrant	

Biodegradation in water - screening tests			
Study results	3 studies submitted 1 study processed	Type of Study provided	C Summaries 1 summary submitted 1 summary processed
C Interpretation of results Under test conditions no biodegradation observed (100%) [1]		Studies with data Data waiving no waivers	Biodegradation in water Under test conditions no biodegradation observed (100%)
		Key study 1	
		Supporting study 2	
		Weight of evidence	
		Other	

Biodegradation in water & sediment - simulation tests	
Data not provided by the registrant	

Biodegradation in soil			
Study results	1 study submitted 0 studies processed	Type of Study provided	Summaries 0 summaries submitted 0 summaries processed
Study data not processed for brief profile		Studies with data Data waiving Not feasible Sci. unjustified Exposure cons. 1 Other	No data available
		Key study	
		Supporting study	
		Weight of evidence	
		Other	

Bioaccumulation: aquatic / sediment

Study results

1 study submitted
0 studies processed

Type of Study provided

R Summaries

1 summary submitted
1 summary processed

⚠ Study data not processed for brief profile

Studies with data	⚠	📄	📊	📈
Key study	1			
Supporting study				
Weight of evidence				
Other				

Data waiving
no waivers

Bioaccumulation Factor (BCF) - dimensionless
99

Bioaccumulation: terrestrial

⚠ Data not provided by the registrant

Adsorption/desorption

Study results

1 study submitted
0 studies processed

Type of Study provided

Summaries

0 summaries submitted
0 summaries processed

⚠ No automatically processable data submitted

Studies with data	⚠	📄	📊	📈
Key study				
Supporting study				
Weight of evidence				
Other				

Data waiving
Not feasible 1
Sci. unjustified
Exposure cons.
Other

⚠ No data available

Henry's law constant (H)

⚠ Data not provided by the registrant

Distribution modelling

⚠ Data not provided by the registrant

Ecotoxicological information

This section provides ecotoxicological information compiled from all automatically processable data from REACH registration dossiers that is available to ECHA at the time of generation. The quality and correctness of the information remains the responsibility of the data submitter. The Agency thus cannot guarantee the correctness of the information displayed.

Predicted No-Effect Concentration (PNEC)

R Summaries

1 summary submitted
1 summary processed

The Predicted No-Effect Concentration (PNEC) value is the concentration of a substance below which adverse effects in the environment are not expected to occur. Please note that when more than one summary is provided, PNEC values may refer to constituents of the substance and not to the substance as a whole. More detailed information is available in the dossiers.

Hazard for Aquatic Organisms

Freshwater	28.6 µg/L (1)
Intermittent releases (freshwater)	1.7 µg/L (1)
Marine water	2.86 µg/L (1)
Intermittent releases (marine water)	-
Sewage treatment plant (STP)	100 mg/L (1)
Sediment (freshwater)	No or insufficient data available at present (1)
Sediment (marine water)	No or insufficient data available at present (1)

Hazard for Air

Air No hazard identified (1)

Hazard for Terrestrial Organism

Soil No data available: testing technically not feasible (1)

Hazard for Predators

Secondary poisoning No potential for bioaccumulation (1)

Short-term toxicity to fish

Study results

2 studies submitted
1 study processed

Type of Study provided

R Summaries

1 summary submitted
1 summary processed

P/R Results

LC0 (4 days) 24.8 mg/L [1]
LC100 (4 days) 24.8 mg/L [1]
NOEC (4 days) 24.8 mg/L [1]

Studies with data	⚠	📄	📊	📈
Key study	1			
Supporting study				
Weight of evidence				
Other	1			

Data waiving
no waivers

LC50 for freshwater fish
24.8 mg/L

Long-term toxicity to fish																																						
Study results	1 study submitted 0 studies processed	Type of Study provided	Summaries 1 summary submitted 0 summaries processed																																			
<p>⚠ No automatically processable data submitted</p>		<table border="1"> <thead> <tr> <th>Studies with data</th> <th>⚠</th> <th>📄</th> <th>📊</th> <th>⚠</th> </tr> </thead> <tbody> <tr> <td>Key study</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Supporting study</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Studies with data	⚠	📄	📊	⚠	Key study					Supporting study					Weight of evidence					Other					<p>⚠ No automatically processable data submitted</p> <table border="1"> <thead> <tr> <th>Data waiving</th> <th></th> </tr> </thead> <tbody> <tr> <td>Not feasible</td> <td></td> </tr> <tr> <td>Sci. unjustified</td> <td>1</td> </tr> <tr> <td>Exposure cons.</td> <td></td> </tr> <tr> <td>Other</td> <td></td> </tr> </tbody> </table>	Data waiving		Not feasible		Sci. unjustified	1	Exposure cons.		Other	
Studies with data	⚠	📄	📊	⚠																																		
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Data waiving																																						
Not feasible																																						
Sci. unjustified	1																																					
Exposure cons.																																						
Other																																						

Short-term toxicity to aquatic invertebrates																												
Study results	3 studies submitted 1 study processed	Type of Study provided	R Summaries 1 summary submitted 1 summary processed																									
<p>P/R Results EC50 (48 h) 24.12 mg/L [1]</p>		<table border="1"> <thead> <tr> <th>Studies with data</th> <th>⚠</th> <th>📄</th> <th>📊</th> <th>⚠</th> </tr> </thead> <tbody> <tr> <td>Key study</td> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Supporting study</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td>2</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Studies with data	⚠	📄	📊	⚠	Key study	1				Supporting study					Weight of evidence					Other	2				<p>EC50 / LC50 for freshwater invertebrates 24.12 mg/L</p> <p>Data waiving no waivers</p>
Studies with data	⚠	📄	📊	⚠																								
Key study	1																											
Supporting study																												
Weight of evidence																												
Other	2																											

Long-term toxicity to aquatic invertebrates																												
Study results	1 study submitted 1 study processed	Type of Study provided	R Summaries 1 summary submitted 1 summary processed																									
<p>P/R Results NOEC (21 days) 286 - 1 448 µg/L [4] LOEC (21 days) 1.448 - 3.213 mg/L [4] EC50 (21 days) 617 - 3 213 µg/L [2] LC50 (21 days) 3.213 mg/L [1]</p>		<table border="1"> <thead> <tr> <th>Studies with data</th> <th>⚠</th> <th>📄</th> <th>📊</th> <th>⚠</th> </tr> </thead> <tbody> <tr> <td>Key study</td> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Supporting study</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Studies with data	⚠	📄	📊	⚠	Key study	1				Supporting study					Weight of evidence					Other					<p>EC10 / LC10 or NOEC for freshwater invertebrates 286 µg/L</p> <p>Data waiving no waivers</p>
Studies with data	⚠	📄	📊	⚠																								
Key study	1																											
Supporting study																												
Weight of evidence																												
Other																												

Toxicity to aquatic algae and cyanobacteria																												
Study results	3 studies submitted 1 study processed	Type of Study provided	R Summaries 1 summary submitted 1 summary processed																									
<p>P/R Results EC50 (72 h) 100 mg/L [1]</p>		<table border="1"> <thead> <tr> <th>Studies with data</th> <th>⚠</th> <th>📄</th> <th>📊</th> <th>⚠</th> </tr> </thead> <tbody> <tr> <td>Key study</td> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Supporting study</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Studies with data	⚠	📄	📊	⚠	Key study	2				Supporting study					Weight of evidence					Other	1				<p>EC50 / LC50 for freshwater algae 100 mg/L</p> <p>Data waiving no waivers</p>
Studies with data	⚠	📄	📊	⚠																								
Key study	2																											
Supporting study																												
Weight of evidence																												
Other	1																											

Toxicity to aquatic plants other than algae			
<p>⚠ Data not provided by the registrant</p>			

Toxicity to microorganisms																												
Study results	1 study submitted 1 study processed	Type of Study provided	R Summaries 1 summary submitted 1 summary processed																									
<p>P/R Results EC50 (3 h) 100 mg/L [1]</p>		<table border="1"> <thead> <tr> <th>Studies with data</th> <th>⚠</th> <th>📄</th> <th>📊</th> <th>⚠</th> </tr> </thead> <tbody> <tr> <td>Key study</td> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Supporting study</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Studies with data	⚠	📄	📊	⚠	Key study	1				Supporting study					Weight of evidence					Other					<p>EC50 / LC50 100 mg/L</p> <p>Data waiving no waivers</p>
Studies with data	⚠	📄	📊	⚠																								
Key study	1																											
Supporting study																												
Weight of evidence																												
Other																												

Sediment toxicity																																						
Study results	1 study submitted 0 studies processed	Type of Study provided	Summaries 0 summaries submitted 0 summaries processed																																			
<p>⚠ No automatically processable data submitted</p>		<table border="1"> <thead> <tr> <th>Studies with data</th> <th>⚠</th> <th>📄</th> <th>📊</th> <th>⚠</th> </tr> </thead> <tbody> <tr> <td>Key study</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Supporting study</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Studies with data	⚠	📄	📊	⚠	Key study					Supporting study					Weight of evidence					Other					<p>⚠ No data available</p> <table border="1"> <thead> <tr> <th>Data waiving</th> <th></th> </tr> </thead> <tbody> <tr> <td>Not feasible</td> <td>1</td> </tr> <tr> <td>Sci. unjustified</td> <td></td> </tr> <tr> <td>Exposure cons.</td> <td></td> </tr> <tr> <td>Other</td> <td></td> </tr> </tbody> </table>	Data waiving		Not feasible	1	Sci. unjustified		Exposure cons.		Other	
Studies with data	⚠	📄	📊	⚠																																		
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Other																																						

Toxicity to terrestrial macroorganisms except arthropods

Study results

1 study submitted

0 studies processed

Type of Study provided

Studies with data				
Key study				
Supporting study				
Weight of evidence				
Other				

Summaries

0 summaries submitted

0 summaries processed

⚠ No automatically processable data submitted

Data waiving

Not feasible	
Sci. unjustified	
Exposure cons.	1
Other	

⚠ No data available

Toxicity to terrestrial arthropods

Study results

1 study submitted
0 studies processed

Type of Study provided

Studies with data					Data waiving
Key study					Not feasible
Supporting study					Sci. unjustified
Weight of evidence					Exposure cons. 1
Other					Other

Summaries

0 summaries submitted
0 summaries processed

No automatically processable data submitted

No data available

Toxicity to terrestrial plants

Study results





1 study submitted
0 studies processed

Type of Study provided

Summaries

0 summaries submitted
0 summaries processed

No automatically processable data submitted

Studies with data				
Key study				
Supporting study				
Weight of evidence				
Other				

Data waiving	
Not feasible	
Sci. unjustified	
Exposure cons.	1
Other	

No data available

Toxicity to soil microorganisms

Study results





1 study submitted
0 studies processed

Type of Study provided

Summaries

0 summaries submitted
0 summaries processed

No automatically processable data submitted

Studies with data				
Key study				
Supporting study				
Weight of evidence				
Other				

Data waiving	
Not feasible	
Sci. unjustified	
Exposure cons.	1
Other	

No data available

Toxicity to birds

Study results





1 study submitted
0 studies processed

Type of Study provided

Summaries

0 summaries submitted
0 summaries processed

No automatically processable data submitted

Studies with data				
Key study				
Supporting study				
Weight of evidence				
Other				

Data waiving	
Not feasible	
Sci. unjustified	
Exposure cons.	1
Other	

No data available

Toxicity to mammals

⚠ Data not provided by the registrant

Toxicological information

This section provides toxicological information compiled from all automatically processable data from REACH registration dossiers that is available to ECHA at the time of generation. The quality and correctness of the information remains the responsibility of the data submitter. The Agency thus cannot guarantee the correctness of the information displayed.

Derived No- or Minimal Effect Level (DN(M)EL)

M/C Summaries

1 summary submitted
1 summary processed

The derived no- or minimum effect level (DN(M)EL) is the level of exposure above which a human should not be exposed to a substance. Please note that when more than one summary is provided, DN(M)EL values may refer to constituents of the substance and not to the substance as a whole. More detailed information is available in the dossiers.

Data for WORKERS

INHALATION Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	(DNEL) 62 µg/m³	repeated dose toxicity
Acute /short term:	No hazard identified	
Local Effects		
Long-term:	No hazard identified	
Acute /short term:	No hazard identified	
DERMAL Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	No hazard identified	
Acute /short term:	No hazard identified	
Local Effects		
Long-term:	High hazard (no threshold derived)	
Acute /short term:	High hazard (no threshold derived)	
EYE Exposure		
No hazard identified		

Data for the GENERAL POPULATION

INHALATION Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	No hazard identified	
Acute /short term:	No hazard identified	
Local Effects		
Long-term:	No hazard identified	
Acute /short term:	No hazard identified	
DERMAL Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	No hazard identified	
Acute /short term:	No hazard identified	
Local Effects		
Long-term:	No hazard identified	
Acute /short term:	No hazard identified	
ORAL Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	(DNEL) 1.25 µg/kg bw/day	repeated dose toxicity
Acute /short term:	No hazard identified	
EYE Exposure		
No hazard identified		

Toxicokinetics, metabolism, and distribution

M/C Summaries

1 summary submitted
1 summary processed

Study results

Study data: basic toxicokinetics 4 studies submitted
0 studies processed

⚠ Study data not processed for brief profile

Studies with data	Key study	Supporting study	Weight of evidence	Other
2	1			
2				1

Data waiving
no waivers

Bioaccumulation potential:
Low bioaccumulation potential

Absorption values
Oral: 100 %
Dermal: 0.004 %
Inhalation: 100 %

Study data: dermal absorption 1 study submitted
0 studies processed

⚠ Study data not processed for brief profile

Studies with data	Key study	Supporting study	Weight of evidence	Other
1				

Data waiving
no waivers

Acute toxicity

Study results

oral

8 studies submitted
1 study processed

P/R

Results

LD50 2 000 mg/kg bw (rat) [3]

M/C

Interpretations of results

Toxicity Category IV [1]

Type of Study provided

oral

Studies with data					Data waiving
Key study	1				no waivers
Supporting study	1			1	
Weight of evidence					
Other	4			1	

Summaries

1 summary submitted
0 summaries processed

⚠ No automatically processable data submitted

inhalation

1 study submitted
0 studies processed

⚠ No automatically processable data submitted

Type of Study provided

inhalation

Studies with data					Data waiving
Key study					Not feasible
Supporting study					Sci. unjustified
Weight of evidence					Exposure cons.
Other					Other 1

dermal

1 study submitted
1 study processed

P/R

Results

LD0 2 000 mg/kg bw (rat) [1]

M/C

Interpretations of results

Not classified [1]

Type of Study provided

dermal

Studies with data					Data waiving
Key study	1				no waivers
Supporting study					
Weight of evidence					
Other					

other routes

0 studies submitted
0 studies processed

⚠ No data available

Type of Study provided

other routes

Studies with data					Data waiving
Key study					no waivers
Supporting study					
Weight of evidence					
Other					

Irritation / corrosion

Study results

Study data: skin

3 studies submitted
0 studies processed

⚠ Study data not processed for brief profile

Type of Study provided

Study data: skin

Studies with data					Data waiving
Key study	2				no waivers
Supporting study					
Weight of evidence					
Other				1	

Study data: eye

3 studies submitted
6 studies processed

⚠ Study data not processed for brief profile

Type of Study provided

Study data: eye

Studies with data					Data waiving
Key study	1				no waivers
Supporting study					
Weight of evidence					
Other	1			1	

M/C

Summaries

1 summary submitted
1 summary processed

Skin

Adverse effect observed (irritating)

Eye

No adverse effect observed (not irritating)

Genetic toxicity

Study results

Study data: *in vitro* 6 studies submitted
0 studies processed

Study data: *in vivo* 5 studies submitted
0 studies processed

Summaries 1 summary submitted
0 summaries processed

⚠ No automatically processable data submitted

⚠ Study data not processed for brief profile

Studies with data	⚠	📄	📊	⚠	Data waiving
Key study	2				no waivers
Supporting study	3				
Weight of evidence					
Other	1				

⚠ Study data not processed for brief profile

Studies with data	⚠	📄	📊	⚠	Data waiving
Key study				2	no waivers
Supporting study					
Weight of evidence					
Other				3	

Carcinogenicity

Study results

Study data: *in vitro* 1 study submitted
0 studies processed

Study data: *in vivo* 0 studies submitted
0 studies processed

Summaries 0 summaries submitted
0 summaries processed

⚠ No data available

⚠ Study data not processed for brief profile

Studies with data	⚠	📄	📊	⚠	Data waiving
Key study					Not feasible
Supporting study					Sci. unjustified
Weight of evidence					Exposure cons.
Other					Other 1

Toxicity to reproduction

Study results

Study data: reproduction 1 study submitted
0 studies processed

Study data: developmental 5 studies submitted
0 studies processed

Study data: other studies 2 studies submitted
0 studies processed

M/C Summaries 1 summary submitted
1 summary processed

Effect on fertility

Oral route:
Adverse effect observed NOAEL 1.5 mg/kg bw/day (chronic, rat)

Effect on developmental toxicity

Oral route:
No adverse effect observed NOAEL 15 mg/kg bw/day (subacute, mouse)

⚠ Study data not processed for brief profile

Studies with data	⚠	📄	📊	⚠	Data waiving
Key study				1	no waivers
Supporting study					
Weight of evidence					
Other					

⚠ Study data not processed for brief profile

Studies with data	⚠	📄	📊	⚠	Data waiving
Key study	2				no waivers
Supporting study				1	
Weight of evidence					
Other				2	

⚠ Study data not processed for brief profile

Studies with data	⚠	📄	📊	⚠	Data waiving
Key study					Not feasible
Supporting study					Sci. unjustified
Weight of evidence					Exposure cons.
Other				1	Other 1

Neurotoxicity

☞ Data not provided by the registrant

Immunotoxicity

☞ Data not provided by the registrant

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