

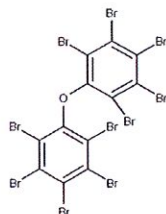
Bis(pentabromophenyl) ether

Substance identity

EC / List no.: 214-604-9

CAS no.: 1163-19-5

Mol. formula: C₁₂Br₁₀O



Hazard classification & labelling

According to the notifications provided by companies to ECHA in REACH registrations no hazards have been classified.

Properties of concern

PBT

Regulatory activities

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

Some uses of this substance are restricted under Annex XVII of REACH.

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 by consumers, in articles, by professional workers (widespread uses), in formulation or re-packing and at industrial sites.

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: 30/01/2018

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Chiuso

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Un'agenzia dell'Unione europea

italiano (it)



L'Agenzia

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REGOLAMENTI

CONSULTAZIONI PUBBLICHE

INFORMAZIONI SULLE
SOSTANZE CHIMICHE

ASSISTENZA

REACH

CLP

BPR

PIC

ECHA > Substance Information

Visualizzazione Contenuto Web

Infocards are automatically generated based on industry data. What is an infocard?

RSS

Bis(pentabromophenyl) ether

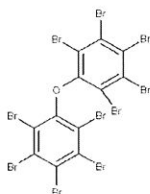
Other names: Regulatory process names [3] Trade names [4] Other names [1] IUPAC names [9]

Substance identity

EC / List no.: 214-604-9

CAS no.: 1163-19-5

Mol. formula: C₁₂Br₁₀O



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 by consumers, in articles, by professional workers (widespread uses), in formulation or re-packing and at industrial sites.

Consumer Uses

This substance **is used in the following products**: adhesives and sealants, coating products, fillers, putties, plasters, modelling clay, inks and toners, leather treatment products, lubricants and greases, polishes and waxes, **polymers**, washing & cleaning products and cosmetics and personal care products. Other release to the environment of this substance is likely to occur from: indoor use, outdoor use resulting in inclusion into or onto a materials (e.g. binding agent in paints and coatings or adhesives), 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

Hazard classification & labelling

According to the notifications provided by companies to ECHA in REACH registrations no hazards have been classified.

Properties of concern

PBT

Important to know

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

Some uses of this substance are restricted under Annex XVII of REACH.

How to use it safely

ECHA has no data from registration dossiers on the precautionary measures for using this substance.

Guidance on the safe use of the substance provided by manufacturers and importers of this substance.

about INFOCARD - Last updated: 12/05/2017

Regulations and regulatory activities

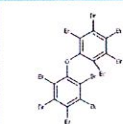
This substance has been found in the following regulatory activities:

Bis(pentabromophenyl) ether

Brief Profile - Last updated: 30/01/2018

Substance Description

Substance Identity



EC / List name: Bis(pentabromophenyl) ether

IUPAC name: 1,2,3,4,5-pentabromo-6-pentabromophenoxybenzene

Other names

SMILES:

BrC1=C(Br)C(Br)=C(OC2=C(Br)C(Br)=C(Br)C(Br)=C2Br)C(Br)=C1Br

InChI:

InChI=1S/C12Br10O/c13-1-3(15)7(19)11(8(20)4(1)16)23-12-9(21)5(17)2(14)6(18)10(12)22
AuxInfo=1/0/N:3,14,2,4,13,15,7,5,18,16,6,17,10,21,9,1,20,22,8,12,19,23,1/E:(1,2)(3,4,5,6)(7,8,9,10)(11,12)(13,14)(15,16,17,18)
(19,20,21,22)/r:A:23OCCCCCBrBrBrBrCCCCCBrBrBrBr/rB:s2,d:3,s4;s1d+5;d-2s6;s7,s2,s3,s4;s5;s13,d-14;s15;s1d+16;d-13s17,s18,s13,s14,s15;s16/rC:6.1383,-5.3792,0;2.2243,-4.0957,0;1.4971,-5.4111,0;2.2671,-6.7478,0;3.8071,-6.6944,0;4.5771,-5.3577,0;3.7856,-4.0423,0;4.5556,-2.7055,0;1.4864,-2.7589,0;0,-5.4432,0;1.5398,-8.106,0;4.6092,-8.0526,0;9.1539,-2.6413,0;8.3735,-1.3474,0;6.8335,-1.3474,0;6.1062,-2.6628,0;6.8762,-3.9995,0;8.4161,-3.9674,0;9.2075,-5.2829,0;10.6833,-2.6307,0;9.1006,0;0,6.0635,-0.534,0;4.8444,-3.0692,0;

EC / List no.: 214-604-9

CAS no.: 1163-19-5

Index number:

Molecular formula: C12Br10O

Type of substance:

Mono constituent substance

Origin:

Organic

Registered compositions: 5

Of which contain:

0 impurities relevant for classification

0 additives relevant for classification

Substance Listed:

EINECS (European Inventory of Existing Commercial chemical Substances) List

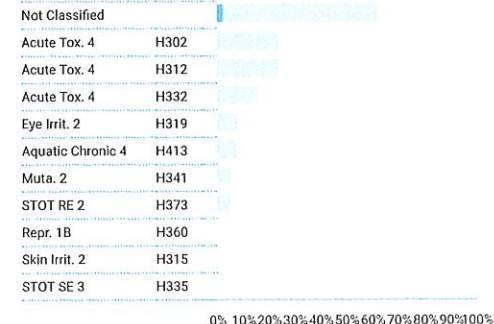
Hazard classification & labelling

According to the notifications provided by companies to ECHA in REACH registrations no hazards have been classified.



Additionally, the classification provided by companies to ECHA in CLP notifications identifies that this substance is harmful if swallowed, is harmful in contact with skin, is harmful if inhaled, causes serious eye irritation, may cause long lasting harmful effects to aquatic life, is suspected of causing genetic defects and may cause damage to organs through prolonged or repeated exposure.

Breakdown of all 273 C&L notifications submitted to ECHA



✓ Harmonised Classification
■ REACH registration dossiers notifications
■ CLP notifications

Properties of concern

PBT

Regulatory activities

Registration, Evaluation, Authorisation & Restriction of Chemicals (REACH)

Registration

Pre-registration: Substance pre-registered under REACH.

Registration: This substance has 4 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): Some uses of this substance are restricted under Annex XVII of REACH.

Classification Labelling & Packaging (CLP)

Harmonised C&L:

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:

Annex V:

About this substance

General

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

This substance is used by consumers, in articles, by professional workers (widespread uses), in formulation or re-packing and at industrial sites.

Consumer Uses

This substance is used in the following products: adhesives and sealants, coating products, fillers, putties, plasters, modelling clay, inks and toners, leather treatment products, lubricants and greases, polishes and waxes, polymers, washing & cleaning products and cosmetics and personal care products.

Other release to the environment of this substance is likely to occur from: indoor use, outdoor use resulting in inclusion into or onto a materials (e.g. binding agent in paints and coatings or adhesives), 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).

Article service life

This substance is used in the following activities or processes at workplace: the low energy manipulation of substances bound in materials or articles, production of mixtures or articles by tableting, compression, extrusion or pelletisation, high energy work-up of substances bound in materials or articles (e.g. hot rolling/forming, grinding, mechanical cutting, drilling or sanding), hot work operations with metals (e.g. welding, soldering, gouging, brazing, flame cutting) and potentially closed industrial processing with minerals/metals at elevated temperature (e.g. smelters, furnaces, refineries, coke ovens).

Release to the environment of this substance can occur from industrial use: in the production of articles, formulation in materials, in processing aids at industrial sites, formulation of mixtures, as processing aid, as processing aid and of substances in closed systems with minimal release. 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), 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), outdoor use, indoor use (e.g. machine wash liquids/detergents, automotive care products, paints and coating or adhesives, fragrances and air fresheners) and outdoor use in long-life materials with high release rate (e.g. tyres, treated wooden products, treated textile and fabric, brake pads in trucks or cars, sanding of buildings (bridges, facades) or vehicles (ships)).

This substance can be found in complex articles, with no release intended: vehicles and machinery, mechanical appliances and electrical/electronic products (e.g. computers, cameras, lamps, refrigerators, washing machines). **This substance can be found in products with material based on: plastic** (e.g. food packaging and storage, toys, mobile phones), fabrics, textiles and apparel (e.g. clothing, mattress, curtains or carpets, textile toys), rubber (e.g. tyres, shoes, toys), leather (e.g. gloves, shoes, purses, furniture), paper (e.g. tissues, feminine hygiene products, nappies, books, magazines, wallpaper), wood (e.g. floors, furniture, toys) and metal (e.g. cutlery, pots, toys, jewellery).

Widespread uses by professional workers

This substance is used in the following products: fillers, putties, plasters, modelling clay, **polymers**, coating products, adhesives and sealants, inks and toners, leather treatment products, lubricants and greases, polishes and waxes, washing & cleaning products and cosmetics and personal care products.

This substance is used in the following areas: building & construction work. **This substance is used for the manufacture of: plastic products**, machinery and vehicles, textile, leather or fur, rubber products, fabricated metal products, electrical, electronic and optical equipment and furniture.

This substance is used in the following activities or processes at workplace: transfer of chemicals, hand mixing with intimate contact only with personal protective equipment available, mixing in open batch processes, transfer of substance into small containers, roller or brushing applications, treatment of articles by dipping and pouring, closed processes with no likelihood of exposure, closed, continuous processes with occasional controlled exposure, closed batch processing in synthesis or formulation, batch processing in synthesis or formulation with opportunity for exposure, non-industrial spraying, laboratory work and industrial spraying.

Other release to the environment of this substance is likely to occur from: indoor use, outdoor use resulting in inclusion into or onto a materials (e.g. binding agent in paints and coatings or adhesives), 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).

Formulation or re-packing

This substance is used in the following products: polymers, adhesives and sealants, coating products, inks and toners, washing & cleaning products, leather treatment products, lubricants and greases, polishes and waxes, fillers, putties, plasters, modelling clay, cosmetics and personal care products, biocides (e.g. disinfectants, pest control products), pH regulators and water treatment products, paper chemicals and dyes and perfumes and fragrances.

This substance is used in the following activities or processes at workplace: transfer of chemicals, mixing in open batch processes, closed batch processing in synthesis or formulation, transfer of substance into small containers, batch processing in synthesis or formulation with opportunity for exposure, closed processes with no likelihood of exposure, laboratory work, roller or brushing applications, industrial spraying, treatment of articles by dipping and pouring, the low energy manipulation of substances bound in materials or articles, production of mixtures or articles by tableting, compression, extrusion or pelletisation, closed, continuous processes with occasional controlled exposure, calendaring operations, non-industrial spraying, hand mixing with intimate contact only with personal protective equipment available, high energy work-up of substances bound in materials or articles (e.g. hot rolling/forming, grinding, mechanical cutting, drilling or sanding), in materials as fuel sources, with limited exposure to unburned product to be expected, potentially closed industrial processing with minerals/metals at elevated temperature (e.g. smelters, furnaces, refineries, coke ovens), hot work operations with metals (e.g. welding, soldering, gouging, brazing, flame cutting) and handling of solid inorganic substances (e.g. ores and raw metal oxides, packaging/mixing/blending and weighing of metal powders).

Release to the environment of this substance can occur from industrial use: formulation of mixtures, formulation in materials, in the production of articles, in processing aids at industrial sites, as processing aid, as processing aid, of substances in closed systems with minimal release and as an intermediate step in further manufacturing of another substance (use of intermediates). Other release to the environment of this substance is likely to occur from: indoor use (e.g. machine wash liquids/detergents, automotive care products, paints and coating or adhesives, fragrances and air fresheners), outdoor use, outdoor use in long-life materials with low release rate (e.g. metal, wooden and plastic construction and building materials), outdoor use in long-life materials with high release rate (e.g. tyres, treated wooden products, treated textile and fabric, brake pads in trucks or cars, sanding of buildings (bridges, facades) or vehicles (ships)) 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).

Uses at industrial sites

This substance is used in the following products: polymers, adhesives and sealants, coating products, inks and toners, washing & cleaning products, fillers, putties, plasters, modelling clay, leather treatment products, lubricants and greases, polishes and waxes, cosmetics and personal care products, textile treatment products and dyes, biocides (e.g. disinfectants, pest control products), pH regulators and water treatment products, paper chemicals and dyes and perfumes and fragrances.

This substance is used in the following areas: **formulation** of mixtures and/or re-packing, building & construction work and agriculture, forestry and fishing. **This substance is used for the manufacture of: plastic products**, rubber products, textile, leather or fur, fabricated metal products, electrical, electronic and optical equipment, machinery and vehicles, metals, pulp, paper and paper products and chemicals.

This substance is used in the following activities or processes at workplace: transfer of chemicals, closed batch processing in synthesis or formulation, the low energy manipulation of substances bound in materials or articles, mixing in open batch processes, roller or brushing applications, production of mixtures or articles by tableting, compression, extrusion or pelletisation, industrial spraying, transfer of substance into small containers, treatment of articles by dipping and pouring, batch processing in synthesis or formulation with opportunity for exposure, closed processes with no likelihood of exposure, laboratory work, calendaring operations, hand mixing with intimate contact only with personal protective equipment available, non-industrial spraying, closed, continuous processes with occasional controlled exposure, high energy work-up of substances bound in materials or articles (e.g. hot rolling/forming, grinding, mechanical cutting, drilling or sanding), hot work operations with metals (e.g. welding, soldering, gouging, brazing, flame cutting), blowing agents in manufacture of foam, in materials as fuel sources, with limited exposure to unburned product to be expected, potentially closed industrial processing with minerals/metals at elevated temperature (e.g. smelters, furnaces, refineries, coke ovens) and handling of solid inorganic substances (e.g. ores and raw metal oxides, packaging/mixing/blending and weighing of metal powders).

Release to the environment of this substance can occur from industrial use: in the production of articles, in processing aids at industrial sites, formulation of mixtures, formulation in materials, as processing aid, as processing aid, of substances in closed systems with minimal release and as an intermediate step in further manufacturing of another substance (use of intermediates). 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), 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), indoor use (e.g. machine wash liquids/detergents, automotive care products, paints and coating or adhesives, fragrances and air fresheners), outdoor use and outdoor use in long-life materials with high release rate (e.g. tyres, treated wooden products, treated textile and fabric, brake pads in trucks or cars, sanding of buildings (bridges, facades) or vehicles (ships)).

Manufacture

ECHA has no public registered data on the use of this substance in activities or processes at the workplace.

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

Precautionary Measures and safe use

ECHA has no data from registration dossiers on the precautionary measures for using this substance. Guidance on the safe use of the substance provided by manufacturers and importers of this substance.

| Registrants/suppliers |
|--|
| Active <ul style="list-style-type: none"> ALBEMARLE EUROPE SPRL, Parc Scientifique (Einstein) Rue du Bosquet 9 1348 LOUVAIN-LA-NEUVE Belgium Chemical Inspection & Regulation Service Limited, Unit 1 Ardee Business Park, Hale Street Co. Louth Ardee Ireland everkem, piazza carbonari, 12 20125 milano Italy ICL Europe Coöperatief U.A. (ORI), Koningin Wilhelminaplein 30 Prinsenhof 1062 KR Amsterdam Netherlands |
| Inactive <ul style="list-style-type: none"> LANXESS SOLUTIONS UK LTD (US03), Tenax Road M17 1WT Manchester United Kingdom |

| Other names |
|--|
| IUPAC names <ul style="list-style-type: none"> - 1,1'-oxybis(pentabromobenzene) 1,2,3,4,5-pentabromo-6-pentabromophenoxybenzene 2,3,4,5,6-Pentabromo-1-(2,3,4,5,6-pentabromophenoxy)benzene Bis(pentabromophenyl) ether Decabromodiphenylether DECABROMODIPHENYL ETHER DECABROMODIPHENYL OXIDE FR-1210 |
| Regulatory processes names <ul style="list-style-type: none"> Bis(pentabromophenyl) ether Bis(pentabromophenyl) ether (decabromodiphenyl ether) (DecaBDE) |
| Trade names <ul style="list-style-type: none"> bromkal82-0de FR-1210 Great Lakes DE-83R SAYTEX 102E Flame Retardant |
| Other names <ul style="list-style-type: none"> DecaBDE |

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 | Summaries | 0 summaries submitted 0 summaries processed |
| <div>C</div> Physical state at 20 °C and 1013 hPa Solid (100%) [1] | | <div>Studies with data</div> <div>Key study</div> <div>1</div> | <div>Data waiving</div> <div>no waivers</div> | <div>⚠ No data available</div> |
| <div>C</div> Form Powder (100%) [1] | | | | |
| <div>C</div> Odour Odourless (100%) [1] | | | | |
| <div>C</div> Substance type Organic (100%) [1] | | | | |

| Melting/freezing point | | | | |
|---|--|--|---|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div>R</div> Melting / freezing point 304 °C [1] | | <div>Studies with data</div> <div>Key study</div> <div>1</div> | <div>Data waiving</div> <div>no waivers</div> | <div>⚠ No data available</div> |

| Boiling point | | | | |
|--|--|---|--|--|
| Study results | 1 study submitted 0 studies processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div>⚠ No automatically processable data submitted</div> | | <div>Studies with data</div> <div>Sci. unjustified</div> <div>1</div> | <div>Data waiving</div> <div>Sci. unjustified</div> <div>1</div> | <div>⚠ No data available</div> |

| Density | | | | |
|---|--|--|---|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div>R</div> Relative density 2.63 @ 20 °C [1] | | <div>Studies with data</div> <div>Key study</div> <div>1</div> | <div>Data waiving</div> <div>no waivers</div> | <div>⚠ No data available</div> |

| Vapour pressure | | | | |
|--|--|--|----------------------------|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div>R</div> Vapour pressure 0 Pa @ 21 °C [1] | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving no waivers | <div></div> No data available |

| Partition coefficient | | | | |
|---|--|--|----------------------------|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div>R</div> Log Pow 6.625 @ 25 °C [1] | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving no waivers | <div></div> No data available |

| Water solubility | | | | |
|---|--|--|----------------------------|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div>R</div> Water solubility (mass/vol.) 100 ng/L @ 25 °C [1] | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving no waivers | <div></div> No data available |

| Solubility in organic solvents / fat solubility | | | | |
|---|--|--|------------------------------------|--|
| Study results | 1 study submitted 0 studies processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div></div> No automatically processable data submitted | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving Sci. unjustified 1 | <div></div> No data available |

| Surface tension | | | | |
|---|--|--|------------------------------------|--|
| Study results | 1 study submitted 0 studies processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div></div> No automatically processable data submitted | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving Sci. unjustified 1 | <div></div> No data available |

| Flash point | | | | |
|---|--|--|------------------------------------|--|
| Study results | 1 study submitted 0 studies processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div></div> No automatically processable data submitted | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving Sci. unjustified 1 | <div></div> No data available |

| Auto flammability | | | | |
|---|--|--|------------------------------------|--|
| Study results | 1 study submitted 0 studies processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div></div> No automatically processable data submitted | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving Sci. unjustified 1 | <div></div> No data available |

| Flammability | | | | |
|---|--|--|------------------------------------|--|
| Study results | 1 study submitted 0 studies processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div></div> No automatically processable data submitted | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving Sci. unjustified 1 | <div></div> No data available |

| Explosiveness | | | | |
|---|--|--|------------------------------------|--|
| Study results | 1 study submitted 0 studies processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div></div> No automatically processable data submitted | | Studies with data <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> Key study 1 | Data waiving Sci. unjustified 1 | <div></div> No data available |

| Oxidising | | | | |
|---|--|------------------------|--|---|
| 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 | | Data waiving Sci. unjustified 1 |
| | | ⚠ No data available | | |

| | | | | |
|-------------------------------|---------------------------------------|--|--|--|
| Oxidation reduction potential | ⚠ Data not provided by the registrant | | | |
|-------------------------------|---------------------------------------|--|--|--|

| pH | | | | |
|---|--|------------------------|--|--|
| Study results | 1 study submitted 0 studies processed | Type of Study provided | | ⚠ No summary e data for this scientific endpoint |
| ⚠ No automatically processable data submitted | | Studies with data | | Data waiving Sci. unjustified 1 |

| 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 | | Data waiving Sci. unjustified 1 |
| | | ⚠ No data available | | |

| Viscosity | | | | |
|---|--|------------------------|--|---|
| 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 | | Data waiving Sci. unjustified 1 |
| | | ⚠ No data available | | |

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 | | | | |
|---|--|------------------------|--|---|
| 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 | | Data waiving Sci. unjustified 1 |
| | | ⚠ No data available | | |

| Hydrolysis | | | | |
|--|--|------------------------|--|---|
| 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 1 |
| | | ⚠ No data available | | |

| Phototransformation in water | | | | |
|---|--|------------------------|--|---|
| 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 | | Data waiving Sci. unjustified 1 |
| | | ⚠ No data available | | |

| Phototransformation in soil | | | | |
|---|--|------------------------|--|---|
| 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 | | Data waiving no waivers 1 |
| | | ⚠ No data available | | |

| Biodegradation in water - screening tests | | | | |
|---|--|------------------------|--------------|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div>C</div> Interpretation of results Under test conditions no biodegradation observed (100%) [1] | | Studies with data | Data waiving | No data available |
| | | Key study | 1 | no waivers |

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

| Biodegradation in soil | | | | |
|--|--|------------------------|--------------|--|
| Study results | 2 studies 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 | No data available |
| | | Key study | 1 | no waivers |
| | | Supporting study | 1 | |

| Bioaccumulation: aquatic / sediment | | | | |
|--|--|------------------------|--------------|--|
| Study results | 7 studies 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 | No data available |
| | | Key study | 6 | no waivers |
| | | Supporting study | 1 | |

| Bioaccumulation: terrestrial | | | | |
|--|--|------------------------|--------------|--|
| Study results | 2 studies 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 | No data available |
| | | Key study | 2 | no waivers |

| Adsorption/desorption | | | | |
|---|--|------------------------|--------------|--|
| Study results | 2 studies submitted 0 studies processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| No automatically processable data submitted | | Studies with data | Data waiving | No data available |
| | | Key study | 2 | no waivers |

| Henry's law constant (H) | | | | |
|---|--|------------------------|--------------|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| <div>R</div> H - (pressure) m ³ /mol 0.002 Pa m ³ /mol @ 25 °C and 101.325 kPa [1] | | Studies with data | Data waiving | No data available |
| | | Key study | 1 | no waivers |

Distribution modelling

Study results

1 study submitted
1 study processed

Type of Study provided

No summary exists for this scientific endpoint

% Distribution in Media:

| | | | |
|----------------------------------|----------------------------------|---|---|
| <div>R</div> <div>Air</div> | <div>0.05 %</div> <div>[1]</div> | <div>Studies with data</div> <div> <div> <div></div> <div></div> <div></div> <div></div> </div> <div>Key study</div> </div> | <div>Data waiving</div> <div>no waivers</div> |
| <div>R</div> <div>Water</div> | <div>0.6 %</div> <div>[1]</div> | | |
| <div>R</div> <div>Soil</div> | <div>50 %</div> <div>[1]</div> | | |
| <div>R</div> <div>Sediment</div> | <div>49.3 %</div> <div>[1]</div> | | |
| <div>R</div> <div>Aerosol</div> | <div>0 %</div> <div>[1]</div> | | |

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 | No data: aquatic toxicity unlikely (1) |
| Intermittent releases (freshwater) | No data: aquatic toxicity unlikely (1) |
| Marine water | No data: aquatic toxicity unlikely (1) |
| Intermittent releases (marine water) | No data: aquatic toxicity unlikely (1) |
| Sewage treatment plant (STP) | 1.5 mg/L (1) |
| Sediment (freshwater) | 384 mg/kg sediment dw (1) |
| Sediment (marine water) | 10 mg/kg sediment dw (1) |

Hazard for Air

| | |
|-----|---|
| Air | - |
|-----|---|

Hazard for Terrestrial Organism

| | |
|------|----------------------|
| Soil | 98 mg/kg soil dw (1) |
|------|----------------------|

Hazard for Predators

| | |
|---------------------|--------------------|
| Secondary poisoning | 222 mg/kg food (1) |
|---------------------|--------------------|

Short-term toxicity to fish

Study results 1 study submitted
1 study processed

Type of Study provided

Summaries 0 summaries submitted
0 summaries processed

P/R Results
LC50 (11.2 months) 500 mg/L [1]

Studies with data 1
Key study 1

Data waiving
no waivers

Long-term toxicity to fish

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 1
Key study 1

Data waiving
no waivers

Short-term toxicity to aquatic invertebrates

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 1
Key study 1

Data waiving
Sci. unjustified 1

Long-term toxicity to aquatic invertebrates

Study results 1 study submitted
1 study processed

Type of Study provided

Summaries 0 summaries submitted
0 summaries processed

P/R Results
NOEC (21 days) 2 µg/L [1]

Studies with data 1
Key study 1

Data waiving
no waivers

Toxicity to aquatic algae and cyanobacteria

Study results 1 study submitted
1 study processed

Type of Study provided

Summaries 0 summaries submitted
0 summaries processed

P/R Results
EC50 (4 days) 1 mg/L [1]
EC50 (72 h) 1 mg/L [1]

Studies with data 1
Key study 1

Data waiving
no waivers

Toxicity to aquatic plants other than algae

⚠ Data not provided by the registrant

Toxicity to microorganisms

Study results 1 study submitted
1 study processed

Type of Study provided

Summaries 0 summaries submitted
0 summaries processed

P/R Results
EC50 (3 h) 15 mg/L [1]

Studies with data 1
Key study 1

Data waiving
no waivers

Sediment toxicity

Study results 2 studies submitted
2 studies processed

Type of Study provided

Summaries 0 summaries submitted
0 summaries processed

P/R Results
NOEC (28 days) 5 000 mg/kg sediment dw [2]

Studies with data 2
Key study 2

Data waiving
no waivers

| Toxicity to terrestrial macroorganisms except arthropods | | | | |
|--|--|---|-----------------------------------|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| P/R Results NOEC (56 days) 4.91 g/kg soil dw [1] EC50 (56 days) 4.91 g/kg soil dw [1] EC50 (28 days) 4.91 g/kg soil dw [1] | | Studies with data Key study 1 | Data waiving no waivers | No data available |

Toxicity to terrestrial arthropods Data not provided by the registrant

| Toxicity to terrestrial plants | | | | |
|--|--|---|-----------------------------------|--|
| Study results | 1 study submitted 1 study processed | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| P/R Results NOEC (21 days) 6.25 g/kg soil dw [6] | | Studies with data Key study 1 | Data waiving no waivers | 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 | Data waiving Sci. unjustified 1 | 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 | Data waiving Sci. unjustified 1 | 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 | INHALATION Exposure | Threshold |
| Long-term: | (DNEL) 6 mg/m ³ | repeated dose toxicity | Long-term: | (DNEL) 70 mg/m ³ |
| Acute /short term: | - | - | Acute /short term: | - |
| Long-term: | - | - | Long-term: | - |
| Acute /short term: | - | - | Acute /short term: | - |
| DERMAL Exposure | Threshold | Most sensitive study | DERMAL Exposure | Threshold |
| Long-term: | - | - | Long-term: | - |
| Acute /short term: | - | - | Acute /short term: | - |
| Long-term: | - | - | Long-term: | - |
| Acute /short term: | - | - | Acute /short term: | - |
| EYE Exposure | | | ORAL Exposure | Threshold |
| - | | | Long-term: | (DNEL) 20 mg/kg bw/day |
| | | | Acute /short term: | (DNEL) 20 mg/kg bw/day |
| | | | EYE Exposure | |
| | | | - | |

Toxicokinetics, metabolism, and distribution

Study results

Type of Study provided

Summaries

0 summaries submitted
0 summaries processed

Study data not processed for brief profile
1 study submitted
0 studies processed

Study data: basic toxicokinetics

⚠ No data available

⚠ Study data not processed for brief profile

| Studies with data | ⚠ | 📄 | 📊 | 📈 | Data waiving |
|-------------------|---|---|---|---|--------------|
| Key study | 9 | | | | no waivers |
| Supporting study | 1 | | | | |
| Other | 4 | | | | |

Study data not processed for brief profile
1 study submitted
0 studies processed

Study data: dermal absorption

⚠ Study data not processed for brief profile

| Studies with data | ⚠ | 📄 | 📊 | 📈 | Data waiving |
|-------------------|---|---|---|---|--------------|
| Key study | 1 | | | | no waivers |

Acute toxicity

Study results

Type of Study provided

Summaries

0 summaries submitted
0 summaries processed

oral 1 study submitted
1 study processed

oral

⚠ No data available

P/R Results

LD50 2 000 mg/kg bw (rat) [1]

M/C Interpretations of results

Practically nontoxic [1]

| Studies with data | ⚠ | 📄 | 📊 | 📈 | Data waiving |
|-------------------|---|---|---|---|--------------|
| Key study | 1 | | | | no waivers |

inhalation 1 study submitted
1 study processed

inhalation

P/R Results

LC50 (60 min) 48.2 mg/L air (rat) [1]

M/C Interpretations of results

Practically nontoxic [1]

| Studies with data | ⚠ | 📄 | 📊 | 📈 | Data waiving |
|-------------------|---|---|---|---|--------------|
| Key study | 1 | | | | no waivers |

dermal 1 study submitted
1 study processed

dermal

P/R Results

LD50 8 000 mg/kg bw (rabbit) [1]

M/C Interpretations of results

Practically nontoxic [1]

| Studies with data | ⚠ | 📄 | 📊 | 📈 | Data waiving |
|-------------------|---|---|---|---|--------------|
| Key study | 1 | | | | no waivers |

other routes 0 studies submitted
0 studies processed

other routes

⚠ No data available

| Studies with data | ⚠ | 📄 | 📊 | 📈 | Data waiving |
|-------------------|---|---|---|---|--------------|
| | | | | | no waivers |

Irritation / corrosion

| Study results | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
|--|---|---------------------------|--|
| Study data: skin 1 study submitted 0 studies processed | Study data: skin | ⚠ No data available | |
| ⚠ Study data not processed for brief profile | <div>Studies with data</div> <div>Key study</div> | <div>⚠</div> <div>1</div> | <div>Data waiving</div> <div>no waivers</div> |
| Study data: eye 1 study submitted 0 studies processed | Study data: eye | | |
| ⚠ Study data not processed for brief profile | <div>Studies with data</div> <div>Key study</div> | <div>⚠</div> <div>1</div> | <div>Data waiving</div> <div>no waivers</div> |

Sensitisation

| Study results | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
|---|---|---------------------------|--|
| Study data: skin 1 study submitted 0 studies processed | Study data: skin | ⚠ No data available | |
| ⚠ Study data not processed for brief profile | <div>Studies with data</div> <div>Key study</div> | <div>⚠</div> <div>1</div> | <div>Data waiving</div> <div>no waivers</div> |
| Study data: respiratory 0 studies submitted 0 studies processed | Study data: respiratory | | |
| ⚠ Study data not processed for brief profile | <div>Studies with data</div> | <div>⚠</div> | <div>Data waiving</div> <div>no waivers</div> |

Repeated dose toxicity

| Study results | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
|--|--|---|--|
| Study data: oral 4 studies submitted 0 studies processed | Study data: oral | ⚠ No data available | |
| ⚠ No automatically processable data submitted | <div>Studies with data</div> <div>Key study</div> <div>Supporting study</div> <div>Other</div> | <div>⚠</div> <div>2</div> <div>1</div> <div>1</div> | <div>Data waiving</div> <div>no waivers</div> |
| Study data: inhalation 0 studies submitted 0 studies processed | Study data: inhalation | | |
| ⚠ No data available | <div>Studies with data</div> | <div>⚠</div> | <div>Data waiving</div> <div>no waivers</div> |
| Study data: dermal 0 studies submitted 0 studies processed | Study data: dermal | | |
| ⚠ No data available | <div>Studies with data</div> | <div>⚠</div> | <div>Data waiving</div> <div>no waivers</div> |

| Genetic toxicity | | | | |
|--|--|------------------------|---------------------|--|
| Study results | | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| Study data: in vitro | 5 studies submitted 0 studies processed | Study data: in vitro | ⚠ No data available | |
| ⚠ Study data not processed for brief profile | | Studies with data | ⚠ | Data waiving no waivers |
| | | Key study | 2 | |
| Study data: in vivo | 1 study submitted 0 studies processed | Study data: in vivo | | |
| ⚠ Study data not processed for brief profile | | Studies with data | ⚠ | Data waiving no waivers |
| | | Key study | 1 | |

| Carcinogenicity | | | | |
|--|--|------------------------|-----------|--|
| Study results | 2 studies 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 no waivers |
| | | Key study | 2 | |
| | | | | ⚠ No data available |

| Toxicity to reproduction | | | | |
|--|--|---------------------------|---------------------|--|
| Study results | | Type of Study provided | Summaries | 0 summaries submitted 0 summaries processed |
| Study data: reproduction | 1 study submitted 0 studies processed | Study data: reproduction | ⚠ No data available | |
| ⚠ Study data not processed for brief profile | | Studies with data | ⚠ | Data waiving Sci. unjustified 1 |
| | | Key study | 1 | |
| Study data: developmental | 1 study submitted 0 studies processed | Study data: developmental | | |
| ⚠ Study data not processed for brief profile | | Studies with data | ⚠ | Data waiving no waivers |
| | | Key study | 3 | |
| | | Other | 1 | |
| Study data: other studies | 0 studies submitted 0 studies processed | Study data: other studies | | |
| ⚠ Study data not processed for brief profile | | Studies with data | ⚠ | Data waiving no waivers |

| | |
|----------------|---------------------------------------|
| Neurotoxicity | ⚠ Data not provided by the registrant |
| Immunotoxicity | ⚠ Data not provided by the registrant |

| Legend | Type of study | Type of aggregation |
|--------|--|--|
| ⚠ | Experimental results | Concatenated distinct values |
| | Read across based on grouping of substance (category approach) or Read-across from supporting substance (structural analogue or surrogate) | Range of values |
| | Estimated by calculation or (Q)SAR | Prioritisation (Eco)Toxicology AND Range of values |
| | Experimental study planned, other or unspecified | Most Conservative of values |

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