

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Borlink™ LS4201H

Version 2.2

Revision Date: 01.08.2023

Former date: 06.03.2023

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

1.1 Product identifier

Trade name : Borlink LS4201H

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

Use of the Substance/Mixture : Raw material for plastics industry

1.3 Details of the supplier of the safety data sheet

Supplier : Borealis AG
Trabrennstrasse 6-8, 1020 Vienna, Austria
Telephone: +43 1 22400 0

E-mail address : sds@borealisgroup.com

1.4 Emergency telephone number

+44 (0) 1235 239 670 (NCEC Carechem 24)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Reproductive toxicity, Category 1B H360D: May damage the unborn child.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H360D May damage the unborn child.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.

Borlink is a trademark of the Borealis group.

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P202 Do not handle until all safety precautions have been read and understood.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

bis(α,α -dimethylbenzyl) peroxide

Additional Labelling

EUH208 Contains 4-methyl-2,4-diphenyl-1-pentene, 6,6'-di-tert-butyl-4,4'-thiodi-m-cresol. May produce an allergic reaction.

2.3 Other hazards

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

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

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

The product burns, but is not classified as flammable.
Dust from the product gives a potential risk for dust explosion.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : The product is a polyethylene polymer.

Components

Chemical name	CAS-No.	Classification	Concentration
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	EC-No. Index-No. Registration number		(% w/w)
bis(α,α -dimethylbenzyl) peroxide	80-43-3 201-279-3 617-006-00-X 01-2119541688-27	Org. Perox. F; H242 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Repr. 1B; H360D Aquatic Chronic 2; H411	$\geq 1 - < 2,5$
4-methyl-2,4-diphenyl-1-pentene	6362-80-7 228-846-8 01-2119965170-42	Acute Tox. 4; H302 Skin Sens. 1; H317 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	$\geq 0,25 - < 1$
6,6'-di-tert-butyl-4,4'-thiodi-m-cresol	96-69-5 202-525-2 01-2119514452-49	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 Skin Sens. 1; H317	$\geq 0,1 - < 0,25$

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- If inhaled : Move to fresh air in case of accidental inhalation of vapours or decomposition products.
Seek medical advice immediately.
- In case of skin contact : Wash off with soap and plenty of water.
Call a physician if irritation develops or persists.
- If molten material comes in contact with the skin, cool with plenty of water. DO NOT remove solidified product, as removal could result in severe tissue damage.
Obtain medical attention.
- In case of eye contact : Rinse thoroughly with plenty of water, also under the eyelids.
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, rinse mouth with water (only if the person is conscious).
Seek medical advice immediately.

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4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Inhalation of dust may irritate the respiratory tract.
Prolonged inhalation of high doses of decomposition products may give headache or irritation of the respiratory tract.
- Skin contact may provoke the following symptoms:
Local irritation
- Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

- Risks : May damage the unborn child.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.
No specific instructions needed.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Water in spread jet, dry chemicals, foam or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

- Specific hazards during firefighting : Principal toxicant in the smoke is carbon monoxide.

5.3 Advice for firefighters

- Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Use personal protective equipment.
Ensure adequate ventilation.

6.2 Environmental precautions

- Should not be released into the environment.

It is recommended to implement systems and practices (such as Operation Clean Sweep®) to

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prevent accidental release of plastics in to the environment.

6.3 Methods and material for containment and cleaning up

Vacuum or sweep up spill.

All spill of material must be removed immediately to prevent slipping accidents.

Recycle or dispose loose material properly.

Do not flush into surface water or sanitary sewer system.

6.4 Reference to other sections

For personal protection see section 8.

For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : During processing and thermal treatment of the product, small amounts of volatile hydrocarbons may be released. Provide adequate ventilation. Local exhaust ventilation may be necessary. Avoid inhalation of dust and decomposition fumes. Avoid contact with skin and eyes.

The product contains small amounts of a substance classified as sensitising, which may produce an allergic reaction to susceptible personnel. Personnel sensitised to this substance should not be allowed to handle the product.

Advice on protection against fire and explosion : Dust from the product gives a potential risk for dust explosion. All equipment shall be grounded. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

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

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store locked up.

Further information on storage stability : Keep in a dry place.

7.3 Specific end use(s)

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Specific use(s) : Raw material for wire and cable applications.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

For national exposure limit (OEL) values, check country specific safety data sheets.

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

Substance name	End Use	Exposure routes	Potential health effects	Value
bis(α,α -dimethylbenzyl) peroxide	Workers	Inhalation	Long-term systemic effects	1,4 mg/m ³
	Workers	Skin contact	Long-term systemic effects	2,0 mg/kg bw/d
6,6'-di-tert-butyl-4,4'-thiodi-m-cresol	Workers	Skin contact	Long-term systemic effects	4,2 mg/kg bw/d

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

Substance name	Environmental Compartment	Value
bis(α,α -dimethylbenzyl) peroxide	Fresh water	0,00234 mg/l
	Marine water	0,00023 mg/l
	Effects on waste water treatment plants	100 mg/l
	Fresh water sediment	2,2 mg/kg dwt
	Soil	2,2 mg/kg dwt
6,6'-di-tert-butyl-4,4'-thiodi-m-cresol	Fresh water	0,00016 mg/l
	Marine water	0,000016 mg/l
	Intermittent use/release	0,0016 mg/l
	Fresh water sediment	6,52 mg/kg
	Marine sediment	0,652 mg/kg
	Soil	1,3 mg/kg

8.2 Exposure controls

Engineering measures

Provide adequate ventilation.
Local exhaust ventilation may be necessary.

Personal protective equipment

Eye protection : Safety glasses

Use eye protection according to EN 166.

Hand protection

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Material	: Neoprene
Material	: Nitrile rubber
Remarks	: Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves complying with EN 374.
Skin and body protection	: Protective clothing
Respiratory protection	: In case of insufficient ventilation: Respirator with ABEK-P3 filter or self-contained breathing apparatus. In case of dust development use dust mask.
Protective measures	: Appropriate personal protective equipment (PPE) shall be worn in accordance with Regulation (EU) 2016/425.

Environmental exposure controls

General advice	: Should not be released into the environment. It is recommended to implement systems and practices (such as Operation Clean Sweep®) to prevent accidental release of plastics in to the environment.
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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: pellets
Colour	: natural colour
Odour	: odourless
Odour Threshold	: No data available
	:
Melting point/range	100 - 140 °C
Boiling range	: Decomposes on heating.
Flammability	: The product is not flammable.
Upper explosion limit / Upper	: Not applicable

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flammability limit

Lower explosion limit / Lower
flammability limit : Not applicable

Flash point : Not applicable, (solid)

Auto-ignition temperature : > 320 °C

pH : Not applicable insoluble

Viscosity

Viscosity, kinematic : No data available

Solubility(ies)

Water solubility : insoluble

Partition coefficient: n-
octanol/water : Not applicable
insoluble

Vapour pressure : Not applicable
(solid)

Density : 0,9 - 1,0 g/cm³

Particle size : 3 - 6 mm

Method: Image analysis (surface-based)

9.2 Other information

Explosives : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Evaporation rate : Not applicable
(solid)

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

The product is a stable thermoplastic with no chemical reactivity below 140°C. Above 140°C the

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intended crosslinking reaction occurs.

10.3 Possibility of hazardous reactions

Hazardous reactions : None known.

10.4 Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Materials to avoid : Strong oxidizing agents
Reducing agents
Strong acids and strong bases

10.6 Hazardous decomposition products

Under fire conditions:

Carbon monoxide

During processing and thermal treatment of the product, small amounts of volatile hydrocarbons may be released.

SECTION 11: Toxicological information

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

Acute toxicity

Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product:

Remarks : Prolonged skin contact may give skin irritation caused by the peroxide content present on the surface of the granules.

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Product:

Remarks : Contact with eyes may cause irritation.

Respiratory or skin sensitisation

Skin sensitisation

Based on available data, the classification criteria are not met.

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Respiratory sensitisation

Based on available data, the classification criteria are not met.

Product:

Remarks : The product contains small amounts of a substance classified as sensitising, which may produce an allergic reaction to susceptible personnel.
Personnel sensitised to this substance should not be allowed to handle the product.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

May damage the unborn child.

STOT - single exposure

Based on available data, the classification criteria are not met.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Aspiration toxicity

Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

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

Further information

Product:

Remarks : Information given is based on data of the components.

Remarks : Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

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SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to daphnia and other aquatic invertebrates : NOEC (Daphnia magna (Water flea)): Exposure time: 48 h
Test Type: Immobilization
Method: OECD Test Guideline 202
GLP: yes
Remarks: No effect up to the limit of solubility.
Read-across (Analogy)

Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (green algae)): End point: Growth rate
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
GLP: yes
Remarks: No effect up to the limit of solubility.
Read-across (Analogy)

Components:

6,6'-di-tert-butyl-4,4'-thiodi-m-cresol:

Toxicity to fish : LC50 (fathead minnow (Pimephales promelas)): 0,36 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,16 mg/l
Exposure time: 48 h

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: Not readily biodegradable.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Does not accumulate in organisms.

Components:

bis(α,α -dimethylbenzyl) peroxide:

Bioaccumulation : Exposure time: 56 d
Temperature: 25 °C
Concentration: 0,01 mg/l

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Bioconcentration factor (BCF): 137 - 1.470

12.4 Mobility in soil

Product:

Mobility : Remarks: Not expected to adsorb on soil.

12.5 Results of PBT and vPvB assessment

Product:

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

12.6 Endocrine disrupting properties

Product:

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

12.7 Other adverse effects

Product:

Additional ecological information : Should not be released into the environment.



Information given is based on tests on mixtures with similar compositions.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of contents/ container to an approved waste disposal plant.
Check with local regulations.

Contaminated packaging : Dispose of as unused product.
Empty containers should be taken to an approved waste

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handling site for recycling or disposal.

SECTION 14: Transport information

14.1 UN number or ID number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Remarks : Not dangerous goods in the meaning of ADR/RID, ADN, IMDG-Code, ICAO/IATA-DGR

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

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

Not applicable

15.2 Chemical safety assessment

no

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SECTION 16: Other information

Full text of H-Statements

H242	:	Heating may cause a fire.
H302	:	Harmful if swallowed.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H319	:	Causes serious eye irritation.
H360D	:	May damage the unborn child.
H373	:	May cause damage to organs through prolonged or repeated exposure if swallowed.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Irrit.	:	Eye irritation
Org. Perox.	:	Organic peroxides
Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure

Further information

Other information : Issued according to Regulation (EC) No 1907/2006, Annex II, and its amendments.
Changes since the last version are highlighted in the margin.
This version replaces all previous versions.

Issuer : Borealis, Group Product Stewardship

Sources of key data used to compile the Safety Data Sheet : The classification information of components is based on raw material supplier data.

Information given is based on tests on mixtures with similar compositions.

Information given is based on data of the components.

Classification of the mixture:

Repr. 1B H360D

Classification procedure:

Calculation method

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Disclaimer

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Borealis makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

No liability can be accepted in respect of the use of Borealis' products in conjunction with other materials. The information contained herein relates exclusively to our products when not used in conjunction with any third party materials.