

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519

## Borlink™ LS4201S Borealis

Version 3.0

Revision Date:  
2024/10/21

Date of last issue: 2023/10/27  
Date of first issue: 2018/10/30

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Borlink LS4201S Borealis  
Chemical nature : The product is a polyethylene polymer.

#### Manufacturer or supplier's details

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

Emergency telephone number : 0532 8388 9090 (NRCC)  
+86 4001 2001 74 (3E), Access code: 336296

E-mail address : [sds@borealisgroup.com](mailto:sds@borealisgroup.com)

#### Recommended use of the chemical and restrictions on use

Recommended use : Raw material for plastics industry  
Restrictions on use : Use only according to our recommendations.

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

<b>Appearance</b>	: pellets
<b>Colour</b>	: natural colour
<b>Odour</b>	: odourless

Causes mild skin irritation. May damage the unborn child.

#### GHS Classification

Skin corrosion/irritation : Category 3  
Reproductive toxicity : Category 1B

#### GHS label elements

Hazard pictograms :



Signal word : Danger

Borlink is a trademark of the Borealis group.

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Hazard statements	:	H316 Causes mild skin irritation. H360D May damage the unborn child.
Precautionary statements	:	<b>Prevention:</b> P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. <b>Response:</b> P308 + P313 IF exposed or concerned: Get medical advice/ attention. P332 + P313 If skin irritation occurs: Get medical advice/ attention. <b>Storage:</b> P405 Store locked up. <b>Disposal:</b> P501 Dispose of contents/ container to an approved waste disposal plant.

### Physical and chemical hazards

Not classified based on available information.

### Health hazards

Causes mild skin irritation. May damage the unborn child.

### Environmental hazards

Not classified based on available information.

### Other hazards which do not result in classification

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

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Components

Chemical name	CAS-No.	Concentration (% w/w)
bis( $\alpha,\alpha$ -dimethylbenzyl) peroxide	80-43-3	$\geq 1$ -< 2.5
4-methyl-2,4-diphenyl-1-pentene	6362-80-7	$\geq 0.25$ -< 1
6,6'-di-tert-butyl-4,4'-thiodi-m-cresol	96-69-5	$\geq 0.1$ -< 0.25

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### 4. FIRST AID MEASURES

- |   |   |  |
|---|---|--|
| If inhaled  | : | Move to fresh air in case of accidental inhalation of vapours or decomposition products.<br>Seek medical advice immediately.   |
| In case of skin contact                                     | : | Wash off with soap and plenty of water.<br>Call a physician if irritation develops or persists.<br>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.<br>Obtain medical attention. |
| In case of eye contact                                      | : | Rinse thoroughly with plenty of water, also under the eyelids.<br>Get medical attention if irritation develops and persists.   |
| If swallowed  | : | If swallowed, rinse mouth with water (only if the person is conscious).<br>Seek medical advice immediately.  |
| Most important symptoms and effects, both acute and delayed | : | Inhalation of dust may irritate the respiratory tract.<br>Prolonged inhalation of high doses of decomposition products may give headache or irritation of the respiratory tract.<br>Causes mild skin irritation.<br>May damage the unborn child.   |
| Notes to physician  | : | Treat symptomatically.<br>No specific instructions needed.   |

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### 5. FIREFIGHTING MEASURES

- |   |   |  |
|---|---|--|
| Suitable extinguishing media                  | : | Water in spread jet, dry chemicals, foam or carbon dioxide.  |
| Unsuitable extinguishing media                | : | High volume water jet  |
| Specific hazards during firefighting          | : | Principal toxicant in the smoke is carbon monoxide.          |
| Special protective equipment for firefighters | : | Wear self-contained breathing apparatus and protective suit. |

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### 6. ACCIDENTAL RELEASE MEASURES

- |   |   |  |
|---|---|--|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.<br>Ensure adequate ventilation.   |
| Environmental precautions   | : | Should not be released into the environment.<br><br>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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Methods and materials 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.

### 7. HANDLING AND STORAGE

#### Handling

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.

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.

Avoidance of contact : Strong oxidizing agents  
Reducing agents  
Strong acids and strong bases

#### Storage

Conditions for safe storage : Store locked up.  
Further information on storage stability : Keep in a dry place.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
6,6'-di-tert-butyl-4,4'-thiodi-m-cresol	96-69-5	TWA (Inhalable particulate)	1 mg/m <sup>3</sup>	ACGIH

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**Engineering measures** : Provide adequate ventilation.  
Local exhaust ventilation may be necessary.

### Personal protective equipment

**Respiratory protection** : In case of dust development use dust mask.  
In the case of vapour formation use a respirator with an approved filter.  
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

**Eye/face protection** : Safety glasses

**Skin and body protection** : Protective clothing

**Hand protection**

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.

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** : pellets

**Colour** : natural colour

**Odour** : odourless

**pH** : Not applicable insoluble

**Melting point/range** : 100 - 140 °C

**Boiling range** : Decomposes on heating.

**Flash point** : Not applicable (solid)

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Evaporation rate	:	Not applicable (solid)
Flammability (solid, gas)	:	The product is not flammable.
Upper explosion limit / Upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Vapour pressure	:	Not applicable (solid)
Density	:	0.9 - 1.0 g/cm <sup>3</sup>
Solubility(ies) Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	Not applicable insoluble
Auto-ignition temperature	:	> 320 °C
Viscosity Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	3 - 6 mm

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### 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under recommended storage conditions.
Chemical stability	:	The product is a stable thermoplastic with no chemical reactivity below 140°C. Above 140°C the intended crosslinking reaction occurs.
Possibility of hazardous reactions	:	None known.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Strong oxidizing agents Reducing agents Strong acids and strong bases
Hazardous decomposition products	:	Under fire conditions: Carbon monoxide During processing and thermal treatment of the product, small

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amounts of volatile hydrocarbons may be released.

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### 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

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

#### Skin corrosion/irritation

Causes mild skin irritation.

#### 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.

##### Respiratory sensitisation

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

##### 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.

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### Further information

#### Product:

Remarks : 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.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### 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:

##### **4-methyl-2,4-diphenyl-1-pentene:**

M-Factor (Acute aquatic toxicity) : 10

M-Factor (Chronic aquatic toxicity) : 10

##### **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

M-Factor (Acute aquatic toxicity) : 1



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toxicity)  
M-Factor (Chronic aquatic : 1  
toxicity)

### Persistence and degradability

#### Product:

Biodegradability : Remarks: Not readily biodegradable.

### Bioaccumulative potential

#### Product:

Bioaccumulation : Remarks: Does not accumulate in organisms.

### Components:

#### **bis( $\alpha,\alpha$ -dimethylbenzyl) peroxide:**

Bioaccumulation : Bioconcentration factor (BCF): 137 - 1,470  
Exposure time: 56 d  
Temperature: 25 °C  
Concentration: 0.01 mg/l

### Mobility in soil

#### Product:

Mobility : Remarks: Not expected to adsorb on soil.  
Remarks: The product is insoluble and floats on water.

### Other adverse effects

#### Product:

Additional ecological : Should not be released into the environment.  
information  
The product is not classified as hazardous for the environment.  
Information given is based on tests on mixtures with similar compositions.

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## 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Dispose of contents/ container to an approved waste disposal

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Contaminated packaging : plant.  
Check with local regulations.  
Dispose of as unused product.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. TRANSPORT INFORMATION

#### International Regulations

##### UNRTDG

UN number : Not applicable  
Proper shipping name : Not applicable  
Class : Not applicable  
Subsidiary risk : Not applicable  
Packing group : Not applicable  
Labels : Not applicable

##### IATA-DGR

UN/ID No. : Not applicable  
Proper shipping name : Not applicable  
Class : Not applicable  
Subsidiary risk : Not applicable  
Packing group : Not applicable  
Labels : Not applicable  
Packing instruction (cargo aircraft) : Not applicable  
Packing instruction (passenger aircraft) : Not applicable

##### IMDG-Code

UN number : Not applicable  
Proper shipping name : Not applicable  
Class : Not applicable  
Subsidiary risk : Not applicable  
Packing group : Not applicable  
Labels : Not applicable  
EmS Code : Not applicable  
Marine pollutant : Not applicable

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

#### National Regulations

##### GB 6944/12268

Not regulated as a dangerous good

#### Special precautions for user

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

### 15. REGULATORY INFORMATION

#### National regulatory information

Law on the Prevention and Control of Occupational Diseases

### 16. OTHER INFORMATION

#### Further information

Other information : SDS according to GB/T 16483 and GB/T 17519.  
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.

Sources of key data used to compile the Safety Data Sheet : Information given is based on tests on mixtures with similar compositions.  
Information given is based on data of the components.

Date format : yyyy/mm/dd

#### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing

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Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECl - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

### Disclaimer

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**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.

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