According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Borlink™ LH4201R

Version 2.0 Revision Date: 25.02.2024 Date of last issue: 01.12.2022

Date of first issue: 01.12.2022

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

1.1 Product identifier

Trade name : Borlink LH4201R

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

Use of the : Raw material for plastics industry

Substance/Mixture

Recommended restrictions

on use

: Use only according to our recommendations.

1.3 Details of the supplier of the safety data sheet

Supplier : Borealis UK Ltd

One St Peters Square, M2 3DE Manchester, United Kingdom

Telephone: +44 (0) 1625 537390

E-mail address : sds@borealisgroup.com

1.4 Emergency telephone number

In an emergency, call NHS 111 or contact a doctor.

800 680 0425 (3E), Access code: 336296

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

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

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

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Hazard pictograms :

Signal word : Danger

Hazard statements : H360D May damage the unborn child.

Precautionary statements : Prevention:

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.

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.

The product burns, but is not classified as flammable.

Dust from the product gives a potential risk for dust explosion.



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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : The product is a polyethylene compound.

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% 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	>= 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 (Liver) Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 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 ——— M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 0,1 - < 0,25

For explanation of abbreviations see section 16.



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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.

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.



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SECTION 5: Firefighting measures

5.1 Extinguishing media

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

Unsuitable extinguishing

media

: High volume water jet

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

for firefighters

Special protective equipment : 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 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.



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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)

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



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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
6,6'-di-tert-butyl-	96-69-5	TWA	10 mg/m3	GB EH40
4,4'-thiodi-m-cresol				
		STEL	20 mg/m3	GB EH40

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
bis(α,α- dimethylbenzyl) peroxide	Workers	Inhalation	Long-term systemic effects	1,4 mg/m3
	Workers	Skin contact	Long-term systemic effects	2,0 mg/kg bw/d

Predicted No Effect Concentration (PNEC):

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

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

Material : Neoprene
Material : butyl-rubber



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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.

SECTION 9: Physical and chemical properties

9.1 Information on basic 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.



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Flash point : Not applicable, (solid)

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/cm³

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.

9.2 Other information

Particle size : 3 - 6 mm

Method: Image analysis (surface-based)



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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 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 toxicological effects

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.



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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.

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.

Further information

Product:

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



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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.

Remarks Repeated or prolonged skin contact may cause allergic

reactions with susceptible persons.

SECTION 12: Ecological information

12.1 Toxicity

Product:

aquatic invertebrates

Toxicity to daphnia and other : 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:



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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

Bioconcentration factor (BCF): 137 - 1.470

12.4 Mobility in soil

Product:

Mobility : Remarks: Not expected to adsorb on soil.

Remarks: The product is insoluble and floats on water.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered

to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of

0.1% or higher...

12.6 Other adverse effects

Product:

Endocrine disrupting

potential

: 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.

Additional ecological

information

: Should not be released into the environment.



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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

handling site for recycling or disposal.

SECTION 14: Transport information

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

Not applicable for product as supplied.



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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixtureRelevant EU provisions transposed through retained EU law

15.2 Chemical safety assessment

no

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 GB EH40 : UK. EH40 WEL - Workplace Exposure Limits

GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)



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ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials: bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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: 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 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate: NZIoC - New Zealand Inventory of Chemicals: OECD - Organization for Economic Cooperation 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - 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

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.



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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: Classification procedure:

Repr. 1B H360D Calculation method

Disclaimer

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication; however we do not assume any liability whatsoever for the accuracy and completeness of such information.

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.

