Borlink™ LS4201S Borealis						
Version 9.0 Revision Date: 21.10.2024 Date of last issue: 06 Date of first issue: 27						
SECTION 1: Identification of the substance/mixture and of the company/undertaking						
1.1 Product identifier						

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

Use of the Substance/Mixture	: Raw material for plastics industry
Recommended restrictions on use	: Use only according to our recommendations.

: Borlink LS4201S Borealis

1.3 Details of the supplier of the safety data sheet

:	Borealis UK Ltd
	One St Peters Square, M2 3DE Manchester, United Kingdom
	Telephone: +44 (0) 1625 537390

E-mail address

Trade name

: <u>sds@borealisgroup.com</u>

1.4 Emergency telephone number

800 680 0425 (3E), Access code: 336296 In an emergency, call NHS 111 or contact a doctor.

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 instruction P202 Do not handle until all satiread and understood. P280 Wear protective gloves/ pprotection/ face protection/ hearing 	fety precautions have been protective clothing/ eye	
	Response: P308 + P313 IF exposed or co attention.	ncerned: Get medical advice/	
	Storage: P405 Store locked up.		
	Disposal: P501 Dispose of contents/ cont disposal plant.	tainer to an approved waste	

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 polymer.

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

.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	d 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 m	edical 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
E 2 Special borardo aviaina from t	

5.2 Special hazards arising from the substance or mixture

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

5.3 Advice for firefighters

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

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	:	
	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, i	ncl	uding 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.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components CAS-No. Value type (Form of exposure) Control parameters Basis



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6,6'-di-tert-butyl- 4,4'-thiodi-m-cresol	96-69-5	TWA	10 mg/m3	GB EH40
		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	:	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.
	:	Protective clothing



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Protective measures	In case of dust development use dust mask. : Appropriate personal protective equipment (PPE) shall be worn in accordance with Regulation (EU) 2016/425.		
Environmental exposure co	ntrols		
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

information on basic physica		
Appearance Colour Odour pH	:	pellets natural colour odourless Not applicable insoluble
' Melting point/range	:	
Boiling range	:	Decomposes on heating.
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



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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 n	ot classified as oxidizing.
9.2 Other information Particle size	: 3 - 6 mm	
	Method: Image analysis (surfa	ace-based)

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.
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10.5 Incompatible materials

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



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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.

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.



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Germ cell mutageni Based on available d	city ata, the classification criteria are not me	et.		
Carcinogenicity Based on available d	ata, the classification criteria are not me	et.		
Reproductive toxici May damage the unb	-			
STOT - single expo Based on available d	sure ata, the classification criteria are not me	et.		
STOT - repeated ex Based on available d	bosure ata, the classification criteria are not me	et.		
Aspiration toxicity Based on available d	ata, the classification criteria are not me	et.		
Further information				
<u>Product:</u> Remarks	: Information given is based	d on data of the components.		
Remarks		tate the respiratory tract. gh doses of decomposition products tation of the respiratory tract.		
Remarks	: Repeated or prolonged sk reactions with susceptible	kin contact may cause allergic e persons.		

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	:	NOEC (Pseudokirchneriella subcapitata (green algae)): End

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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.
	The product is not classified as hazardous for 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 handling site for recycling or disposal.



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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.

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

REACH - Candidate List of Substances of Very High : $bis(\alpha, \alpha$ -dimethylbenzyl) peroxide Concern for Authorisation (Article 59).

15.2 Chemical safety assessment

no

SECTION 16: Other information

Full text of H-Statements

H242

: Heating may cause a fire.





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H302	: Harmful if swallowed.			
H315	: Causes skin irritation.			
H317	: May cause an allergic skin rea	ction.		
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 lo	ong lasting effects.		
H411	: Toxic to aquatic life with long la			
Full text of other abbreviations				
Acute Tox.	: Acute toxicity			
Aquatic Acute	: Short-term (acute) aquatic haz	ard		
Aquatic Chronic	: Long-term (chronic) aquatic ha	azard		
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 E			
GB EH40 / TWA	: Long-term exposure limit (8-ho			
GB EH40 / STEL	: Short-term exposure limit (15-r			
Waterways; ADR - Agr AIIC - Australian Inver Materials; bw - Body w	ement concerning the International Carrie eement concerning the International Carrie ntory of Industrial Chemicals; ASTM - A veight; CLP - Classification Labelling Pac	riage of Dangerous Goods by Road; American Society for the Testing of Ckaging 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



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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.
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	H3	60D Calculation method



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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.

