Visico™ LE4438

Version 1.0	Revision Date: 2024/04/26	Date of last issue: - Date of first issue: 2024/04/26
1. PRODUCT AND COMPANY	Y IDENTIFICATION	
Product name	: Visico LE4438	
Recommended use of th	ne chemical and restrictions	s on use
Recommended use Restrictions on use	: Raw material for pla : Use only according	astics industry to our recommendations.
Manufacturer or supplie	r's details	
Supplier	: Borealis AG Trabrennstrasse 6-8 Telephone: +43 1 2	3, 1020 Vienna, Austria 2400 0
Emergency telephone nur	mber : 080-880-0455 (3E),	Access code: 336296
E-mail address	: <u>sds@borealisgroup</u> .	.com

2. HAZARDS IDENTIFICATION

GHS Classification Skin sensitisation	:	Category 1
Reproductive toxicity	:	Category 1B
Specific target organ toxicity - repeated exposure	:	Category 2 (Immune system)
Long-term (chronic) aquatic hazard	:	Category 3
GHS label elements Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H317 May cause an allergic skin reaction. H360 May damage fertility or the unborn child. H373 May cause damage to organs (Immune system) through prolonged or repeated exposure.

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	H412 Harmful to aquati	c life with long lasting effects.
Precautionary statements	and understood. P260 Do not breathe du P272 Contaminated wo the workplace. P273 Avoid release to t	til all safety precautions have been read ust. ork clothing should not be allowed out of the environment. gloves/ protective clothing/ eye
	P308 + P313 IF expose attention. P333 + P313 If skin irrit advice/ attention.	CIN: Wash with plenty of water. ed or concerned: Get medical advice/ tation or rash occurs: Get medical contaminated clothing and wash it before
	Storage: P405 Store locked up.	
	Disposal: P501 Dispose of conter laws	nts/ container according to waste-related

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. During crosslinking reaction in combination with base resin: methanol (Flam. Liq. 2; H225, Acute Tox. 3; H301, Acute Tox. 3; H311, Acute Tox. 3; H331, STOT SE 1; H370) is released. In contact with water or moisture methanol will be released.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture	:	Mixture
Chemical nature	:	The product is a polyethylene copolymer.
		It contains stabilisers.

Components

Chemical name	Common	CAS-No.	Concentration (%
	Name		w/w)
dioctyltin dilaurate	dioctyltin	3648-18-8	>= 1 - < 5
	dilaurate		
6,6'-di-tert-butyl-4,4'-thiodi-m-cresol	6,6'-di-tert-	96-69-5	>= 1 - < 2.5



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		butyl-4,4'- thiodi-m- cresol			
fatty acids, C16-18	, zinc salts	fatty acids, C16-18, zinc salts	91051-01-3	>= 1 - < 5	
dioctyltin dilaurate		dioctyltin dilaurate	3648-18-8	>= 1 - < 5	
6,6'-di-tert-butyl-4,	4'-thiodi-m-cresol	6,6'-di-tert- butyl-4,4'- thiodi-m- cresol	96-69-5	>= 1 - < 2.5	
zinc dioctadecanoa	ate	zinc dioctadecano ate	557-05-1	>= 1 - < 5	
fatty acids, C16-18	, zinc salts	fatty acids, C16-18, zinc salts	91051-01-3	>= 1 - < 5	
poly[ethene-co-(etl propenoate)](0.85:		poly[ethene- co-(ethyl 2- propenoate)](0.85:0.15 w)	9010-86-0	>= 90 - < 95	
bis(3-(3,5-di(1,1-di hydroxyphenyl)-1-c propandiyl benzen	oxypropoxy methyl) 1,3- epropanoate	3,5-bis(1,1- dimethylethyl) -4-hydroxy- 2,2-bis(3-(3,5- di(1,1- dimethyleth yl)-4- hydroxypheny I)-1- oxypropoxy methyl) 1,3- propandiyl benzeneprop anoate	6683-19-8	>= 1 - < 5	
N,N'-bis(3,5-di(1,1 hydroxyphenyl) pro		N,N'-bis(3,5- di(1,1- dimethylethyl) -4- hydroxypheny I) propioneamin e	32687-78-8	>= 1 - < 5	
hexadecyltrimetho	xysilane	hexadecyltrim ethoxysilane	16415-12-6	>= 1 - < 5	



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4. FIRST AID MEASURES		
In case of eye contact	: Rinse thoroughly with plenty of Get medical attention if irritation	of water, also under the eyelids.
In case of skin contact	 If molten material comes in co plenty of water. DO NOT removed could result in severe Obtain medical attention. Wash off with soap and plenty Call a physician if irritation de 	ontact with the skin, cool with ove solidified product, as e tissue damage. y of water.
If inhaled		ccidental inhalation of vapours or
If swallowed	: If swallowed, rinse mouth with conscious). Seek medical advice immedia	、 - ·
Most important symptoms and effects, both acute and delayed	 Inhalation of dust may irritate Prolonged inhalation of high of may give headache or irritatio Symptoms of poisoning (meth Daze Dizziness Nausea Abdominal pain Respiratory disorders Symptoms of poisoning, prolo Blindness May cause an allergic skin rea May damage fertility or the un 	the respiratory tract. doses of decomposition products on of the respiratory tract. hanol):
Notes to physician	 Treat symptomatically. No specific instructions needed 	ed.

5. FIREFIGHTING MEASURES

for firefighters

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

6. ACCIDENTAL RELEASE MEASURES



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Personal precautions, protective equipment and emergency procedures	: Use personal protective e Ensure adequate ventilat	
Environmental precautions		blement systems and practices (such ep®) to prevent accidental release of ment.
	Should not be released in	nto the environment.
Methods and materials for containment and cleaning up	slipping accidents. Recycle or dispose loose	be removed immediately to prevent

7. HANDLING AND STORAGE

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.
Conditions for safe storage Further information on storage stability	:	Store locked up. 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	
dioctyltin dilaurate	3648-18-8	TWA	0.1 mg/m3 (Tin)	KR OEL	
	Further information: Substances designated by 'Skin' may be absorbed into the bloodstream through the skin, mucous membrane and eye and contribute to the overall effect. (Skin notation does not apply to the skin irritant)				



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		TWA	0.1 mg/m3 (Tin)	ACGIH
		STEL	0.2 mg/m3 (Tin)	ACGIH
6,6'-di-tert-butyl-4,4'-thiodi-m- cresol	96-69-5	TWA (Inhalable particulate matter)	1 mg/m3	ACGIH
zinc dioctadecanoate	557-05-1	TWA (Inhalable fraction)	10 mg/m3	KR OEL
		TWA (Inhalable particulate matter)	10 mg/m3	ACGIH
Other is gradiente, which are li		TWA (Respirable particulate matter)	3 mg/m3	ACGIH

Other ingredients, which are listed in section 3 but not listed in this section, do not have established occupational exposure limit values.

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type	Control	Basis
Componente	0/10/110.	(Form of	parameters /	Baolo
		exposure)	Permissible	
			concentration	
methanol	67-56-1	TWA	200 ppm	KR OEL
	Further infor	mation: Substance	es designated by 'Ski	n' may be
	absorbed int	o the bloodstream	through the skin, mu	icous
	membrane a	nd eye and contri	bute to the overall eff	ect. (Skin
	notation doe	s not apply to the	skin irritant)	
		STEL	250 ppm	KR OEL
	Further infor	mation: Substance	es designated by 'Ski	n' may be
	absorbed inte	o the bloodstream	through the skin, mu	icous
	membrane a	nd eye and contri	bute to the overall eff	ect. (Skin
	notation doe	s not apply to the	skin irritant)	
		TWA	200 ppm	KR PEL
		STEL	250 ppm	KR PEL
		TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH

Engineering measures

: Provide adequate ventilation. Local exhaust ventilation may be necessary.

Personal protective equipment. Among the following personal protective equipment, the PPEs which require safety certification need to be certified by KOSHA.

Respiratory protection

: In case of dust development use dust mask. In the case of vapour formation use a respirator with an



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Eye protection Hand protection Material Break through time Glove thickness	limit they must use ap The filter class for the maximum expected or (gas/vapour/aerosol/p handling the product.	cing concentrations above the exposure opropriate certified respirators. respirator must be suitable for the ontaminant concentration particulates) that may arise when If this concentration is exceeded, self- opparatus must be used.
Material Break through time	: Fluorinated rubber : >= 480 min	
Glove thickness	: 0.4 mm	
Remarks	breakthrough time wh gloves. Also take into	structions regarding permeability and ich are provided by the supplier of the consideration the specific local th the product is used, such as the
Skin and body protection Hygiene measures	: Protective clothing : When using do not ea	ion, and the contact time. at, drink or smoke. reaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	pellets
Colour	:	natural colour
Odour	:	odourless
Odour Threshold	:	Methanol: Do NOT rely on the odour: olfactory level is above the exposure limit.
рН	:	Not applicable insoluble
Melting range	:	100 - 140 °C
Boiling range	:	Decomposes on heating.
Flash point	:	Not applicable (solid)
Evaporation rate	:	Not applicable (solid)



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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)	
Bulk density	:	500 - 600 kg/m³	
Solubility(ies) Water solubility	:	insoluble	
Relative vapour density	:	Not applicable	
Density	:	0.9 - 1.0 g/cm³	
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 no	ot classified as oxidizing.
Particle size	:	3 - 10 mm Method: Image analysis (surfa	ice-based)

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	:	Stable under recommended storage conditions. The product is a stable thermoplastic, with no chemical reactivity., The intended crosslinking reaction occurs in combination with the base resin and moisture: at ambient conditions, in sauna or hot water bath. In contact with water or moisture methanol will be released.
Conditions to avoid	:	Exposure to moisture Extremes of temperature and direct sunlight.
Incompatible materials Hazardous decomposition products	-	None known. Under fire conditions: Carbon monoxide During processing and thermal treatment of the product, small



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		nydrocarbons may be released. reaction in combination with base resin:
1. TOXICOLOGICAL INI	FORMATION	
Information on likely i exposure	outes of : No data available	
Health hazard inform	nation	
Acute toxicity No data available Skin corrosion/irrita No data available	tion	
Serious eye damage No data available	e/eye irritation	
Respiratory or skin	sensitisation	
Respiratory sensitis No data available	ation	
Skin sensitisation May cause an allergio	skin reaction.	
Carcinogenicity No data available		
Germ cell mutageni No data available	city	
Reproductive toxici May damage fertility	•	
STOT - single expose No data available	ure	
STOT - repeated exp May cause damage to		n prolonged or repeated exposure.
Repeated dose toxi No data available	bity	
Aspiration toxicity No data available		
Experience with hur	nan exposure	



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Toxicology, Metabolis No data available	m, Distribution	
Neurological effects No data available		
Further information		
Product:		
Remarks	methanol (Flam. Liq. 3; H311, Acute Tox. 3	eaction in combination with base resin: 2; H225, Acute Tox. 3; H301, Acute Tox. 3; H331, STOT SE 1; H370) is released. halation, in contact with skin and if rgans.
Remarks	Prolonged inhalation	y irritate the respiratory tract. of high doses of decomposition products or irritation of the respiratory tract.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

6,6'-di-tert-butyl-4,4'-thiodi-r	n-c	resol:
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
M-Factor (Chronic aquatic toxicity)	:	1
6,6'-di-tert-butyl-4,4'-thiodi-r	n-c	resol:
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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M-Factor (Chronic aquatic toxicity)	: 1	
Persistence and degradabil	ity	
<u>Product:</u> Biodegradability	: Remarks: Not readily biodegra	dable.
Bioaccumulative potential		
Product: Bioaccumulation	: Remarks: Does not accumulate	e in organisms.
Mobility in soil		
Product:		
Mobility	: Remarks: Not expected to ads	orb on soil.
	Remarks: The product is insolu	uble and floats on water.
Other adverse effects		
Product: Additional ecological information	: Should not be released into the	e environment.

13. DISPOSAL CONSIDERATIONS

Disposal methods		
Waste from residues	:	Dispose of contents/ container to an approved waste disposal plant.
Contaminated packaging	:	Check with local regulations. Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Disposal precautions

Dispose of contents and container according to wastes control act.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG



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UN number Proper shipping name Class Subsidiary risk Packing group Labels	 Not applicable 	
IATA-DGR UN/ID No. Proper shipping name Class Subsidiary risk Packing group Labels Packing instruction (cargo aircraft) Packing instruction (passenger aircraft)	 Not applicable 	
IMDG-Code UN number Proper shipping name Class Subsidiary risk Packing group Labels EmS Code 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

Refer to section 15 for specific national regulation.

Special precautions for user

Remarks

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

15. REGULATORY INFORMATION

National regulatory information

Regulation under the Occupational Safety and Health Act

Harmful Substances Prohibited from Manufacturing

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable



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Harmful Agents to b	e kept below Occupati	onal Exposure	l imits	
Chemical name				
Tin (Organic compou	nds)		3-18-8	
Zinc stearate		557-	05-1	
Harmful Agents Req Not applicable	uired to be kept below	Permission Le	vels	
Hazardous substand	es requiring managem	nent		
Chemical name		CAS		Threshold limits (
			3-18-8	>= 1 %
		557-		>= 1 %
Special Managemon	t Matariala	9105	51-01-3	>= 1 %
Special Managemen	เพลเยาสเร			
Not applicable				
	es Subject to Environ		<u> </u>	These last to the start
Chemical name		CAS		Threshold limits (
Tin and its compound	IS	3648	8-18-8	>= 1 %
Controlled Substand	es Subject to Health E	ixamination		
Chemical name		CAS	-No.	Threshold limits (
Tin and its compound	ds	3648	8-18-8	>= 1 %
Toxic Chemicals		ct		
Not applicable Restricted Chemical Not applicable Prohibited Chemical	-			
Not applicable Restricted Chemical Not applicable Prohibited Chemical Not applicable	S			
Not applicable Restricted Chemical Not applicable Prohibited Chemical Not applicable Toxic Release Inven	S			1
Not applicable Restricted Chemical Not applicable Prohibited Chemical Not applicable	S	CAS-No.	Group	
Not applicable Restricted Chemical Not applicable Prohibited Chemical Not applicable Toxic Release Inven	s tory		Group Group II	limits (
Not applicable Restricted Chemical Not applicable Prohibited Chemical Not applicable Toxic Release Inven Chemical name	s tory ds	CAS-No.	•	limits (>= 1 %
Not applicable Restricted Chemical Not applicable Prohibited Chemical Not applicable Toxic Release Inven Chemical name Tin and its compound	s tory ds nds	CAS-No. 3648-18-8	Group II	limits (* >= 1 %
Not applicable Restricted Chemical Not applicable Prohibited Chemical Not applicable Toxic Release Inven Chemical name Tin and its compound Zinc and its compound	s tory ds nds	CAS-No. 3648-18-8 557-05-1	Group II Group II	limits (* >= 1 %
Not applicable Restricted Chemical Not applicable Prohibited Chemical Not applicable Toxic Release Inven Chemical name Tin and its compound Zinc and its compour Zinc and its compour Accident Precaution	s tory ds nds	CAS-No. 3648-18-8 557-05-1	Group II Group II	Threshol limits (' >= 1 % >= 1 % >= 1 %



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Follow article 13 of the act to	dispose the product waste	
OTHER INFORMATION		
Further information		
Sources of key data used to compile the Safety Data Sheet	: The classification info material supplier data	rmation of components is based on ra
Issuing date	: 2024/04/26	
Revision number and date		
Number of Revision Revision Date Other information	of chemical substance	Standards for classification and labelin as and material safety data sheet ant and labor public notice No. 2016-19
lssuer	: Borealis, Group Produ	
Date format	: yyyy/mm/dd	
NFPA:		
Flammability		
Health 2 0	Instability	
~		
Special hazard		
Full text of other abbreviation	one	
ACGIH	: USA. ACGIH Thresho	ld Limit Values (TLV)
KR OEL		kept below Occupational Exposure



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KR PEL	: Harmful Agents Required to be	kept below Permission Levels
ACGIH / TWA ACGIH / STEL KR OEL / TWA KR OEL / STEL KR PEL / TWA KR PEL / STEL	 8-hour, time-weighted average Short-term exposure limit Time Weighted Average Short Term Exposure Limit TWA STEL 	

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 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; 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: WHMIS - Workplace Hazardous Materials Information System



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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.

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