

## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Version 3.0 GB / EN	Revision Date: 25.02.2020	SDS Number: 100000018779	Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020
GB / EN			Print Date: 11.03.2020

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

#### **1.1 Product identifier**

Trade name	:	LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg
Product code	:	00000002515005600

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

Use of the Sub-	:	Thermoplastic high-performance	material, High-performance
stance/Mixture		polymer for 3D printing	

#### 1.3 Details of the supplier of the safety data sheet

Company	: Lehmann & Voss & Co. KG Alsterufer 19 20354 Hamburg Germany
Telephone	: 49(0)40/44197-0
Responsible/issuing person	: EHuS@lehvoss.de

#### 1.4 Emergency telephone number

Telephone
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 (DE): GIZ Giftinformationszentrum-Nord (all msds available) 49(0)551/19240

: (GB): Nat. Poisons Inform. Serv. 44 121 507 4123

#### **SECTION 2: Hazards identification**

#### 2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

#### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

#### 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.



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Version Revisi 3.0 25.02 GB / EN

Revision Date: 25.02.2020

SDS Number: 100000018779 Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020

#### **SECTION 3: Composition/information on ingredients**

#### 3.2 Mixtures

Chemical nature

: Ceramic-filled, flame-retardant polyamide

#### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
hexaboron dizinc undecaoxide	12767-90-7 235-804-2 01-2119691658-19- 0001	Aquatic Acute 1; H400 Repr. 2; H361d Eye Irrit. 2; H319 Aquatic Chronic 2; H411	>= 1 - < 2,5

For explanation of abbreviations see section 16.

#### **SECTION 4: First aid measures**

#### 4.1 Description of first aid measures

General advice	Move out of dangerous area. Never give anything by mouth to an unconscio If unconscious, place in recovery position and advice. Give oxygen or artificial respiration if needed.	•
If inhaled	Move to fresh air. If symptoms persist, call a physician.	
In case of skin contact	Do NOT use solvents or thinners. Wash off with soap and water. If symptoms persist, call a physician. Cool melted product on skin with plenty of wate move solidified product. In case of burns apply cold water until pain sub seek medical advice.	
In case of eye contact	Rinse thoroughly with plenty of water for at lea and consult a physician. Keep eye wide open while rinsing.	st 15 minutes
If swallowed	If symptoms persist, call a physician.	

#### $\ensuremath{\textbf{4.2}}\xspace$ Most important symptoms and effects, both acute and delayed

Symptoms

: No information available.

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according to Regulation (EC) No. 1907/2006



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Vers 3.0 GB	sion / EN	Revision Date: 25.02.2020		S Number: 0000018779	Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020
4.3	Indicatio Treatme	-	meo :	<b>dical attention an</b> No information av	<b>d special treatment needed</b> ailable.
SE	CTION	5: Firefighting mea	sure	es	
5.1	Extingui	ishing media			
	Suitable	e extinguishing media	:	cumstances and	measures that are appropriate to local cir- he surrounding environment. alcohol-resistant foam, dry chemical or car-
	Unsuita media	ble extinguishing	:	High volume wate	er jet
5.2	Special	hazards arising from	n the	substance or mi	xture
	•	hazards during fire-	:	Avoid generating concentrations, a potential dust exp Do not use a solid fire.	dust; fine dust dispersed in air in sufficient nd in the presence of an ignition source is a
	Hazardo ucts	ous combustion prod-	:	bons (smoke). Nitrogen oxides (I Sulphur oxides Metal oxides	e (hydrocyanic acid)
5.3	Advice	for firefighters			
	Special for firefig	protective equipment ghters	:		mposition products may be a hazard to nt of fire, wear self-contained breathing ap-
	Further	information	:	cumstances and t Use water spray t In the event of fire	measures that are appropriate to local cir- the surrounding environment. o cool unopened containers. and/or explosion do not breathe fumes. guishing water from contaminating surface and water system.





## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Version Rev 3.0 25.0 GB / EN

Revision Date: 25.02.2020

SDS Number: Da 100000018779 Da

Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020

#### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

Contaminated surfaces will be extremely slippery. Treat recovered material as described in the section "Disposal considerations".	Personal precautions	Treat recovered material as described in the section "Disposal
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#### 6.2 Environmental precautions

Environmental precautions	:	Should not be released into the environment.
		Do not allow contact with soil, surface or ground water. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

#### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Sweep up or vacuum up spillage and collect in suitable con- tainer for disposal. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Avoid dust formation.
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#### 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	:	Provide for appropriate exhaust ventilation and dust collection at machinery. The material can accumulate static charge and can therefore cause electrical ignition. Minimize dust generation and accumulation. Dust must be collected and disposed of carefully. Wear personal protective equipment. Do not breathe vapours/dust.
Advice on protection against fire and explosion	:	Take measures to prevent the build up of electrostatic charge. During processing, dust may form explosive mixture in air. Keep away from heat and sources of ignition. Normal measures for preventive fire protection.





# LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg $\,$

Version 3.0 GB / EN	Revision Date: 25.02.2020		DS Number: 0000018779	Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020	
Hygiene measures		:	Handle in accordance with good industrial hygiene and safe practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling product. Regular cleaning of equipment, work area and clothing. Keep away from food and drink. General industrial hygiene practice. When using do not eat, drink or smoke.		
7 2 Cond	itions for safe storage,	inc	luding any incom	natibilities	
Requ	uirements for storage s and containers		••••	ightly closed in a dry, cool and well-	
	ner information on stor- conditions	:	Keep away from I Keep away from o Avoid moisture.	neat and sources of ignition. direct sunlight.	
Advi	ce on common storage	:	Keep away from t	ood, drink and animal feedingstuffs.	
Stor	age class (TRGS 510)	:	11, Combustible	Solids	
7.3 Spec	ific end use(s)				
Spec	cific use(s)	:	For further information sheet.	ation, refer to the product technical data	

#### **SECTION 8: Exposure controls/personal protection**

#### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
barium sulfate	7727-43-7	TWA (inhalable dust)	10 mg/m3	GB EH40
Further information	fractions of air in accordance sampling and sols, The COS of any kind wh mg.m-3 8-hou dust. This me posed to dust WELs and ex industrial dust	ses of these limits, re- rborne dust which wi with the methods de gravimetric analysis SHH definition of a s nen present at a com- r TWA of inhalable of ans that any dust wil above these levels. posure to these mus is contain particles o	espirable dust and inhalable Il be collected when sampling escribed in MDHS14/4 Gener or respirable, thoracic and ir ubstance hazardous to health centration in air equal to or g dust or 4 mg.m-3 8-hour TWA I be subject to COSHH if peo Some dusts have been assig t comply with the appropriate f a wide range of sizes. The h ar particle after entry into the	g is undertaken ral methods for halable aero- n includes dust reater than 10 of respirable ple are ex- gned specific limits., Most pehaviour,



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Version 3.0 GB / EN	Revision Date: 25.02.2020	SDS Number: 100000018779	Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020
GB / EN			Print Date: 11.03.2020

	piratory system, and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'., Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breath- ing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/4., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short- term exposure limit is listed, a figure three times the long-term exposure limit should be used.				
		TWA (Respirable dust)	4 mg/m3	GB EH40	
Further information	fractions of air in accordance sampling and sols, The COS of any kind wh mg.m-3 8-hou dust. This mea posed to dust WELs and exp industrial dust deposition and piratory system and size of the purposes term the fraction of ing and is ther dust approxim of the lung. Fu MDHS14/4., V WEL, all the m term exposure should be use	borne dust which wi with the methods de gravimetric analysis SHH definition of a s en present at a com- r TWA of inhalable of ans that any dust wil above these levels. bosure to these mus s contain particles of d fate of any particula m, and the body resp e particle. HSE distin- ned 'inhalable' and 're airborne material that refore available for d ates to the fraction t uller definitions and e Vhere dusts contain elevant limits should a limit is listed, a figured.	espirable dust and inhalable of ll be collected when sampling escribed in MDHS14/4 Gener or respirable, thoracic and ir ubstance hazardous to health centration in air equal to or gr dust or 4 mg.m-3 8-hour TWA I be subject to COSHH if peo Some dusts have been assig t comply with the appropriate f a wide range of sizes. The b ar particle after entry into the bonse that it elicits, depend o nguishes two size fractions fo espirable'., Inhalable dust app at enters the nose and mouth eposition in the respiratory tr hat penetrates to the gas exc explanatory material are giver components that have their of be complied with., Where no re three times the long-term	g is undertaken ral methods for halable aero- n includes dust reater than 10 of respirable ple are ex- gned specific limits., Most behaviour, human res- n the nature r limit-setting proximates to n during breath- act. Respirable change region n in own assigned o specific short-	
Carbon black	1333-86-4	TWA	3,5 mg/m3	GB EH40	
		STEL	7 mg/m3	GB EH40	

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

Substance name	End Use	Exposure routes	Potential health ef- fects	Value
Carbon black	Workers	Inhalation		2 mg/m3
Remarks:	DNEL (long-term	rep.)		

#### 8.2 Exposure controls

#### Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Apply measures to prevent dust explosions.



# LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg $\,$

Eye protection	:	Safety glasses with side-shields
Hand protection Material	:	Protective gloves
Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. As the product is a mixture of several substances, the dura- bility of the glove materials cannot be calculated in advance and has to be tested before use. The exact break through time can be obtained from the pro- tective glove producer and this has to be observed. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Request information on glove permeation properties from the glove supplier. Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous sub- stance and specific to place of work.
Skin and body protection	:	Safety shoes Wear suitable protective clothing.
Respiratory protection	:	Effective dust mask In the case of vapour formation use a respirator with an ap- proved filter.
Protective measures	:	Follow the skin protection plan.

#### **SECTION 9: Physical and chemical properties**

#### 9.1 Information on basic physical and chemical properties

Appearance	:	granular
Colour	:	black
Odour	:	characteristic
Odour Threshold	:	not determined
рН	:	not determined
Melting point/range	:	No data available

### SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Version 3.0 GB / EN	Revision Date: 25.02.2020	SDS Number: 100000018779	Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020	

Boiling point/boiling range	:	not determined
Flash point	:	not determined
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	The product is not explosive at itself, but it may form explosive dust
Vapour pressure	:	not determined
Relative density	:	No data available
Density	:	not determined
Solubility(ies) Water solubility	:	not determined
Solubility in other solvents	:	not determined
Partition coefficient: n- octanol/water	:	No data available
Ignition temperature	:	not determined
Decomposition temperature	:	No data available
Viscosity Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
9.2 Other information Conductivity	:	not determined

#### **SECTION 10: Stability and reactivity**

#### **10.1 Reactivity**

No decomposition if stored and applied as directed.

#### 10.2 Chemical stability

The product is chemically stable.

#### 10.3 Possibility of hazardous reactions

Hazardous reactions : Finely dispersed particles form explosive mixtures with air.



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg $\,$

Version 3.0 GB / EN	Revision Date: 25.02.2020	SDS Number: 100000018779				
		Burning	produces noxious and toxic fumes.			
10.4 Condi	tions to avoid					
	ons to avoid	Avoid du	: Keep away from heat and sources of ignition. Avoid dust formation. Avoid moisture.			
10.5 Incom	patible materials					
Materials to avoid		: No data available				
10.6 Hazar	10.6 Hazardous decomposition products					
Nitrogen oxides (NOx) Hydrogen cyanide (hydrocyanic acid) Sulphur oxides Metal oxides Oxides of phosphorus Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).						
SECTION 11: Toxicological information						

#### 11.1 Information on toxicological effects

#### Acute toxicity

Product:

Acute oral toxicity	:	No data available
Acute inhalation toxicity	:	No data available
Acute dermal toxicity	:	No data available

#### Components:

#### hexaboron dizinc undecaoxide:

Acute oral toxicity	:	LD50 Oral (Rat): > 3.500 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 2 mg/l
Acute dermal toxicity	:	LD50 (Rat): > 2.000 mg/kg

#### Skin corrosion/irritation

#### Product:

No skin irritation May cause irritation of respiratory tract.



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Version 3.0 GB / EN Revision Date: 25.02.2020

SDS Number: 100000018779

Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020

#### Components:

hexaboron dizinc undecaoxide: May cause irritation of respiratory tract.

### Serious eye damage/eye irritation

#### Product:

Dust contact with the eyes can lead to mechanical irritation.

#### Components:

#### hexaboron dizinc undecaoxide:

Dust contact with the eyes can lead to mechanical irritation.

#### Respiratory or skin sensitisation

#### Product:

No known sensitising effect.

#### Components:

## hexaboron dizinc undecaoxide:

No known sensitising effect.

#### Germ cell mutagenicity

#### Product:

Genotoxicity in vitro	:	No data available
Genotoxicity in vivo	:	No data available

#### Components:

hexaboron dizinc undecaox	ide	:
Genotoxicity in vitro	:	No data available

#### Carcinogenicity

#### Product: This information is not available.

#### Components:

#### **hexaboron dizinc undecaoxide:** This information is not available.



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg $\,$

Version Rev 3.0 25.0 GB / EN

Revision Date: 25.02.2020

SDS Number: 100000018779 Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020

#### Reproductive toxicity

#### Product:

Effects on fertility

: No data available

#### STOT - single exposure

#### Product:

No data available

#### STOT - repeated exposure

### Product:

No data available

#### Aspiration toxicity

#### Product:

No data available

#### **SECTION 12: Ecological information**

#### 12.1 Toxicity

Product:			
Toxicity to fish	:	No data available	
Toxicity to daphnia and other aquatic invertebrates	:	No data available	
Toxicity to algae	:	No data available	
Toxicity to microorganisms	:	No data available	
Components:			
hexaboron dizinc undecaoxide:			
Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 2,4 mg/l Exposure time: 96 h	
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 76 mg/l Exposure time: 48 h	



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg $\,$

Version 3.0 GB / EN	Revision Date: 25.02.2020	SDS Number:Date of last issue: 06.02.2019100000018779Date of first issue: 30.01.2019Print Date: 11.03.2020		
	oxicology Assessment e aquatic toxicity	: Toxic to fish., Very toxic to aquatic life.		
12.2 Pers	sistence and degradabi	ty		
<u>Proc</u> Biod	<b>luct:</b> egradability	: No data available		
Com	ponents:			
hexa	aboron dizinc undecao>	de:		
Biod	egradability	: The methods for determining biodegradability are not a ble to inorganic substances.	applica-	
12.3 Bioa	accumulative potential			
Proc	luct:			
Bioa	ccumulation	: No data available		
Com	ponents:			
hexa	aboron dizinc undecao»	de:		
Bioa	ccumulation	: Does not bioaccumulate.		
	tion coefficient: n- nol/water	: No data available		
12.4 Mob	ility in soil			
Proc	luct:			
Mobi	ility	: No data available		
Com	ponents:			
hexaboron dizinc undecaoxide:				
Mobi	lity	: Predicted distribution to environmental compartments		
12.5 Results of PBT and vPvB assessment				
Proc	luct:			
	essment	: This substance/mixture contains no components consi to be either persistent, bioaccumulative and toxic (PBT very persistent and very bioaccumulative (vPvB) at lev 0.1% or higher	Г), or	



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Version 3.0 GB / EN	Revision Date: 25.02.2020	SDS Number: 100000018779	Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020
Comp	oonents:		
hexal	boron dizinc undecao	xide:	
Asses	sment	: This substanc lating and tox	e is not considered to be persistent, bioaccumu- ic (PBT)
12.6 Other	adverse effects		
Produ Addition mation	onal ecological infor-	: Should not be	released into the environment.
<u>Comp</u>	onents:		
hexal	boron dizinc undecao	xide:	
Addition mation	-	: Should not be	released into the environment.
SECTION	N 13: Disposal consi	derations	

#### 13.1 Waste treatment methods

Product	:	Dispose of in accordance with the European Directives on waste and hazardous waste. In accordance with local and national regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Contaminated packaging	:	Dispose of in accordance with local regulations. Dispose of as unused product.

#### **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



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Version 30 GB / EN

Revision Date: 25.02.2020

SDS Number: 10000018779 Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020

#### 14.6 Special precautions for user

Not applicable

#### 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

#### Other regulations:

The product does not need to be labelled in accordance with EC directives or respective national laws.

#### 15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance.

#### **SECTION 16: Other information**

#### Full text of H-Statements

	Causes serious eye irritation.		
H361d :	Suspected of damaging the unborn child.		
H400 :	Very toxic to aquatic life.		
H411 :	Toxic to aquatic life with long lasting effects.		
Full text of other abbreviations			

Aquatic Acute		Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Irrit.	:	Eye irritation
Repr.	:	Reproductive toxicity
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)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; 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 concentra-



## LUVOCOM® 3F PAHT® KK 50056 BK FR à 20 kg

Version	Re
3.0	25
GB / EN	

evision Date: 5.02.2020 SDS Number: 100000018779

Date of last issue: 06.02.2019 Date of first issue: 30.01.2019 Print Date: 11.03.2020

tion; 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 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; 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; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

#### Further information

Contact Point

Business Unit CUSTOMIZED POLYMER MATERIALS

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.