

Safety Data Sheet

According to Regulation (EC) No. 1907/2006



Trade name: Pulit P, Pulit F
Revision date: 01.02.2017 Version: 03.58.02
Print date: 20.09.2017

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

1.1 Product identifier: Pulit P, Pulit F

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

Relevant identified uses: Cold-setting adhesive for glueing and sealing cores

Uses advised against: No further relevant information available

1.3 Details of the supplier of the safety data sheet:

Supplier:

Name KBO Kleine-Brockhoff u. Oelschläger GmbH
Address Am Schölsbach 19, DE-46244 Bottrop-Kirchhellen
Information contact +49 / 2045 / 96 19 -0
E-Mail (competent person) dagmar.schmelter@kbo-gmbh.de; labor@kbo-gmbh.de

1.4 EMERGENCY TELEPHONE NUMBER:

As above (during the office hours: Monday –Thursday from 8 - 16 / Friday from von 8 -12 h)
CEO Joachim Kramer +49 / 151 / 64955608

* **SECTION 2: Hazards identification**

2.1. Classification of the substance or mixture:

Classification according to Regulation (EC) No. 1272/2008 (Annex II)

Skin Irrit.2, H315; Eye Irrit.2, H 319

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard pictograms:



GHS07

Signal word: Warning

Hazardous components for labeling: sodium water glass

Hazard statements:

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statements:

P264 Wash with water and soap thoroughly after handling.

P280 Wear protective gloves and eye protection.

P 302+P352 IF ON SKIN: Wash with plenty of water/soap.

P305+P351+P338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention

P362+P364 Take off contaminated clothing and wash it before reuse.

Additional labelling: None

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Information to health hazards

The product with the main constituent of Kaolin (contains respirable quartz) is used as a lumpy solid (plastic material wherein the Kaolin is completely bounded) and therefore provided according to TRGS 559 (mineral dust) Point 3.3 No. 4a, delivered with low dust.

While cleaning/ disposal after using it may be possible to form respirable crystalline silica (quartz dust). Longer-term inhalation of silica dust may cause the black lung disease (silicosis).

Avoid the inhalation during longer-term excess of WEL. See Chapter 8 and 15.

- 2.3 Other hazards:** Fail to comply with the criteria for PBT or vPvB according to Annex XIII
The product is alkaline.

* SECTION 3. Composition/information on ingredients

3.2 Mixture

Description: Aqueous solution based on: silica, sodium salt (soda water glass).

Chemical characterization:

Mixture of Kaolin (Aluminumsilikathydrat , $Al_2Si_2O_5(OH)_4$) in aqueous alkali silicate.

Dangerous components:		
Sodium silicate	Classification according to 1272/2008 / EC	
EG-No: 215-687-4 REACH Reg.No. 01-2119448725-31-XXXX	Skin Irrit.2, H315; Eye Irrit.2, H 319	40-50 %
Kaolin, clay (not subject to registration pursuant to Art. 2, Paragraph 7)		
CAS-No. 1332-58-7 EINECS-No.: 310-194-1	STOT RE1, H372	40-50 %
CAS-No. 1318-74-7 EINECS-No.: 215-286-4	Natural mineral components of Kaolin, clay Kaolinit no classification	
CAS-No. 12001-26-2 EINECS-No.: 310-127-6	Glimmer (Mica) no classification	
CAS-No. 14808-60-7 EINECS-No.: 23878-4	Quartz no classification	

Kaolin contains more than 10% respirable quartz and is therefore classified as STOT RE1.

Declaration for qualifying see chapter 15.

Full text of risk phrases listed in chapter 16

* SECTION 4: First aid measures

4.1 Description of first aid measures

General information:

If symptoms persist or in case of doubt, seek medical advice.

Following inhalation:

Rest, fresh air and consult doctor.

Following skin contact: Immediately remove any clothing contaminated by the product. Wash immediately with plenty of soap and water.

Following eye contact: Rinse opened eye for 10-15 minutes under running water and consult an eye specialist.

Following ingestion: Rinse out mouth and then drink plenty of water. Consult doctor.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Itching and burning in the eye and on the skin until the eye injury and skin irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Symptomatic treatment (decontamination, vital function), no specific antidote known.

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* **SECTION 5: Firefighting measures**

5.1 Extinguishing media:

Suitable extinguishing media:

Product is not flammable. Apply extinguishing agent to the surrounding area.

Unsuitable extinguishing media:

Product is not flammable. Apply extinguishing agent to the surrounding area.

5.2 Special hazards arising from the substance or mixture

Unknown hazards

5.3 Advice for fire-fighters:

Protective equipment: No special measures required.

* **SECTION 6: Accidental release measures**

6.1 Personal precautions, protective equipment and emergency procedures

Danger of slipping due to leaking product.

Protective equipment see chapter 8. Keep unprotected persons away.

Avoid contact with eyes and skin.

6.2 Environmental precautions:

Due to the pH value of the product, a neutralization is usually required before the sewage is introduced into sewage treatment plants. Do not release to sewer/ surface water/ ground water.

6.3 Methods and material for containment and cleaning up

For containment: In case of danger of entry into the drainage system, erect obstacles and/ or cover sewerage.

For cleaning up:

Cleaning methods: Pick up large quantities mechanically.

Wipe **residues** with cloths and some water and dispose of them properly.

Unsuitable restraint methods: Use of absorbent materials (product to pasty).

6.4 Reference to other sections

Additional information: Note protective measures under section 5, 7, 8, 10, 13

* **SECTION 7: Handling and storage**

7.1 Precautions for safe handling

Advice on safe handling

Keep container/ tubes tightly closed. Avoid contact with skin and eyes. Wear suitable protective gloves and eye/face protection. See chapter 8. Pay attention according the minimum standards of TRGS 500.

Information about protection against explosions and fires: No special measures required.

Information for the prevention of dusts and aerosols: No special measures required.

Information about protection the environment: Avoid release to the environment.

Advice on general occupational hygiene: Pay attention according the minimum standards of TRGS 500. Do not smoke, eat or drink. Wash hands after using the material. Use preventive skin protection.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions: Below the stated temperature limit (see below), the product characteristics change. Keep container tightly closed. Store in a frost-resistant place.

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**Requirements for storage rooms and vessels/ Hints on storage assembly:
 How to manage risks associated:**

Incompatible substances and mixtures: Keep away from acids, acidifying substances, heavy metal salts and ammonium salts.

How to control the effect of the following factors:

Temperature: 5-60° C. Protect from: 0° C. The packaged product must be protected during a transport period > 4 days before the indicated temperature. Protect against temperature extremes: 60° C. In order to protect the quality of the product, the specified limit temperature must be observed.

Further Information:

Suitable packaging: Bulk density polyethylene (HDPE), low density polyethylene (LDPE), stainless steel 1.4301 (V2), stainless steel 1.4306 (V2A), stainless steel 1.4361, stainless steel 1.4401 (V4), stainless steel 1.4541, stainless steel 1.4571, stainless steel 1.4439, Stainless steel 1.4539

Unsuitable packaging / containers: zinc, tinned carbon steel (tin - tinplate), aluminum, copper, copper alloys.

Tightly sealed containers: paste reacts (becomes solid) with carbon dioxide from the air to sodium carbonate and silica.

Storage class: LGK 11 Flammable solids (according VCI/ TRGS 510).

7.3 Specific end uses:

Trade and sectoral guidelines

Please refer to our technical data sheet for further information.

* SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits and / or biological limits Workplace exposure limits (WEL)

Germany

Only when dust developments occur during handling or processing (e.g. grinding the dried paste), the following dust limits must be observed.

Components with critical values that require monitoring at the workplace: (CAS) 14808-60-7 Quartz	
Quartz, respirable (A)*	TRGS 906 List of carcinogenic activities or procedures according to Section 3 Subs. 2 No. 3 GefStoffV" (July 2005) Germany 0,05 mg/m ³ (July 2016) International limit values see appendix
WEL (Germany) Dust limit (respirable part A) gen. dust limit (breathable part E)	1,25 mg/m ³ TRGS 900 Oct. 2014 3 mg/m ³ TRGS 900/901 Jan. 2006 (transitional until 2018) 10 mg/m ³ TRGS 900/901 Jan. 2006

(*including Cristobalite and Tridymite)

Additional information: Please find the WEL and handling notes of the EU countries On the homepage www.nepsi.eu "Guideline quartz fine dust".

Silica, sodium salt	
DNEL values	(TRGS 903) Relevant values for human health
Oral	DNEL Long-term exposure- systemic effects 0,8 mg/kg bw/d (Consumer)
Dermal	DNEL Long-term exposure- systemic effects 0,8 mg/kg bw/d (Consumer)
Inhalative	DNEL Long-term exposure- systemic effects 1,59 mg/kg bw/d (Employee) 1,38 mg/m ³ bw/d (Consumer) 5,61 mg/m ³ bw/d (Employee)
PNEC values	Relevant values for the environment
PNEC	Fresh water: 7,5 mg/l Sea water: 1 mg/l Sporadic release: 7,5 mg/l Sewage plant: 348 mg/l

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8.2 Exposure controls

Appropriate engineering controls:

Technical measures and the application of suitable working procedures shall take precedence over the use of personal protective equipment.

Individual protective measures - personal protective equipment

Eye protection: Tightly sealed safety glasses (EN 166); Wear safety goggles or face protection if there is a risk of splashing.

Hand protection: Chemical protective gloves (DIN EN 374).

Suitable protective gloves:

Glove material: Nitrile rubber / Nitrillatex - NBR

Layer thickness (mm): ≥ 0.4 mm

Penetration time (min.): > 480 minutes (permeation level: 6)

Glove material: Chloroprene rubber (Neoprene)

Layer thickness (mm): $\geq 0,5$ mm

Penetration time (min.): > 480 minutes (permeation level: 6)

Glove material: Polyvinyl chloride (PVC)

Layer thickness (mm): ≥ 0.7 mm

Penetration time (min.): > 480 minutes (permeation level: 6)

The data are based on the experience of the manufacturer and information on glove manufacturers. The glove quality depends not only on the material but also on the manufacturer.

Recommendation: Ask your manufacturer.

To avoid skin problems, it is necessary to reduce the wearing of gloves and to wear cotton underwear gloves. Skin protection according to skin protection plan. In case of intended reuse, clean and ventilate gloves before removal. Check the tightness before re-using the glove.

Body protection: Anti-corrosive agents are selected depending on activity and possible exposure, e.g. Protective clothing, apron, protective boots, chemical protective suit.

Respiratory protection:

Respiratory protection when vapors / aerosols are released. Particulate filters with medium holding capacity for solid and liquid particles (eg EN 143 or 149, type P2 or FFP2)

Heat / cold protection:

There is no thermal hazard.

Limiting and monitoring the environmental position:

See Chapter 6, 7 and 15. Do not release to sewer/ surface water/ ground water.

* SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state: pasty

Colour: red

Odour: odourless

Odor threshold: not available

Security-relevant data

	Value	Method
pH	approx. 10	
Melting point/ Initial boiling point/ boiling range	approx. 0°C (contains water)# approx. 103°C (contains water)#	
Flash point	Product is not flammable.	(DIN EN 22719)
Evaporation rate	not determined	
Flammability (solid, gas) Upper/lower flammability or explosive limits	non-flammable	

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Upper explosive limits	not applicable	
Lower explosive limits	not applicable	
Ignition temperature	non-flammable because of the water content	
Vapour pressure at 20°C	approx. 20mbar (20°C/ contains water)#	calculated
Vapour density at 20°C	not determined	
Relative density at 20°C	approx. 1,8 g/cm ³	
Solubility with water at 20°C	soluble	
Partition coefficient: n-octanol/water	not available	
Auto-ignition temperature	not self-igniting.	
Decomposition temperature	> 2000°C (Value of the active substance)#	
Change of state	not known	
Viscosity	not applicable	
Viscosity, dynamic at 20°C	43-61 Pa*s (during production)	internal measurement method
Viscosity, cinematic	not applicable	
Explosive properties	The product is not explosive.	
Oxidising properties	not oxidizing	

Values are based on sodium silicate.

9.2 Other information:

Physical hazards: Solidifies by carbon dioxide in the air.

* SECTION 10: Stability and reactivity

10.1 Reactivity: Responding under intense heat e.g. with acids and acid-forming substances, see chapter 7.2.

10.2 Chemical stability: The product is stable if the instructions/ instructions for storage and handling are observed.

10.3 Possibility of hazardous reactions: Reaction with acids: development of heat

10.4 Conditions to avoid: See chapter 7.2: e.g. storage temperature

10.5 Incompatible materials: Attacking the following materials: base metals. Reactions with acids and acid-forming substances.

10.6 Hazardous decomposition products: No hazardous decomposition products if the instructions for storage and handling are observed.

* SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification in accordance with Regulation (EC) No. 1272/2008 [GHS/CLP]

There are no toxicological values to the mixture.

1344-09-8 Silica, sodium salt

Acute toxicity:

Due to the available data, the classification criteria are not fulfilled and practically non-toxic after single exposure.

Classification-relevant LD/LC50 values:

Experimental/ calculated data:

LD50 rat (oral): > 5000 mg/ kg # (OECD guideline)

LC50 rat (Inhalation/ 4h): no data available

LD50 rat (dermal): > 5000 mg/ kg # (OECD guideline)

#

Information: silica, sodium salt

Experimental/ calculated data:

LD50 rat (oral): 3,400 mg / kg (OECD guideline 401)

Citation.

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Information: silica, sodium salt
Experimental/ calculated data:
LD50 Rat (dermal):> 5,000 mg / kg (comparable to OECD guideline 402)
The product has not been tested. The statement was derived from substances/ products of similar structure or composition.

Skin corrosion/ irritation:

Causes skin irritation.

Information: silica, sodium salt
Assessment of irritation:
Irritating to skin contact.

Serious eye damage / eye irritation:

Causes eye irritation.

Information: silica acid, sodium salt
Assessment irritation:
irritating to eye contact.

Respiratory or skin sensitization:

Due to the available data, the classification criteria are not fulfilled.

Information: silica, sodium salt
Assessment Sensitization:
Does not have a skin sensitizing effect in animal tests. The product has not been tested. The statement was derived from substances/ products of similar structure or composition.

Germ cell mutagenicity:

Due to the available data, the classification criteria are not fulfilled.

Experimental / calculated data: negative (OECD guideline 475)
Information: silica, sodium salt
Assessment Mutagenicity:
The mutagenicity tests do not indicate any genotoxic potential. The product has not been fully tested. The statements were partly derived from products of similar structure or composition.

Carcinogenicity:

Due to the available data, the classification criteria are not fulfilled.

Information: silica, sodium salt
Assessment Carcinogenicity:
Due to the ingredients there is no suspicion of a carcinogenic effect in humans.

Reproductive toxicity:

The product is to evaluate on the basis of this information as not toxic for reproduction.

Information: silica, sodium salt
Assessment Reproductive toxicity:
In animal tests, there was no evidence of adverse effects on fertility.

Developmental toxicity:

Due to the available data, the classification criteria are not fulfilled.

Information: silica, sodium salt
Assessment Teratogenicity:
The substance did not lead to malformations in animal tests. The product has not been tested. The statement was derived from substances / products of similar structure or composition.

Specific target organ toxicity - single exposure:

Due to the available data, the classification criteria are not fulfilled.

Specific target organ toxicity on repeated exposure:

Due to the available data, the classification criteria are not fulfilled.

Aspiration hazard:

No aspiration hazard to assume.

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Symptoms and effects (delayed and chronic) with information on the exposure route also: information on toxicokinetics, metabolism and distribution

Inhalation during casting etc:
Not known.

* SECTION 12: Ecological information

12.1 Toxicity

1344-09-8 Silica, sodium salt

Acute aquatic toxicity

With high probability acute not harmful to aquatic organisms. With proper introduction of low concentrations into biological sewage treatment plants, disturbances of the degradation activity of activated sludge are not to be expected.

Toxicity to fish:

LC50 (96h) > 100 mg / l, fishes (method ISO 7346/2/

Aquatic invertebrates (invertebrate):

EC50 (48h) > 100 mg / l, Daphnia magna (OECD guideline 202, part 1)

Water plants:

EC50 (72h) > 100 mg / l, Scenedesmus subspicatus (OECD guideline 201)

Microorganisms / Effect on activated sludge:

EC0 (18 h)> 100 mg / l, Pseudomonas putida (DIN 38412 part 27 (Draft)

Assessment of terrestrial toxicity:

No data are available for terrestrial toxicity.

Chronic Aquatic Toxicity

Chronic Fish toxicity: NOEC > 1 mg/ l

Aquatic invertebrates (invertebrate): NOEC > 1 mg/ l

12.2 Persistence and degradability

Biodegradability

Not applicable to inorganic substances.

Persistence

Not applicable to inorganic substances.

12.3 Bioaccumulative potential

An accumulation in organisms is not expected.

12.4 Mobility in soil

Volatility: The substance does not evaporate from the water surface into the atmosphere. Adsorption on soils: When entering soil, binding to solid soil particles is to be expected. An entry into the ground water is not to be expected.

12.5 Results of PBT and vPvB assessment

Does not meet the criteria for PBT or vPvB according to Annex XIII.

12.6 Other adverse effects

The product does not contain substances listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

Potential for endocrine disruption: No data is available.

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Additional ecotoxicological information:

Water hazard class (Annex 4 of VwVwS (Germany)): (1) Slightly hazardous to water

Remarks Distribution & Whereabouts: When handling or discharging the effluents into biological sewage treatment plants, local and official regulations and regulations must be complied with.

Other ecotoxicological information: Due to the pH value of the product, a neutralization is usually required before the sewage is introduced into sewage treatment plants. In higher pH ranges, the substance can react more toxically with increasing basicity. The product has not been tested. The statements on ecotoxicology were derived from the properties of the individual components.

* SECTION 13: Disposal considerations

13.1 Waste treatment methods

Treatment of contaminated packaging

Uncleaned packaging:

Recommendation

Packaging which can not be cleaned must be disposed of as the substance: Dispose of according to official regulations. Residual emptied, non-dried containers must be disposed of as a container with harmful residual adhesions.

15 01 10 * (packaging containing residues of or contaminated by dangerous substances)

Cleaned packaging:

Not contaminated and cleaned packaging may be reused.

Waste code in accordance with the Directive on the List of Waste Materials (AVV)

Hazardous waste according to Ordinance on Waste Disposal (AVV). If recycling is not possible, waste must be disposed of in accordance with local regulations.

06 02 99 (Wastes from the preparation of bases / other not classified)

Special precautions:

Must not be disposed together with household garbage. Do not empty into drains. Must be given special treatment in accordance with the competent authority: neutralization Dispose of in accordance with local regulations.

Relevant EU or other provisions

European waste catalog

The assignment of waste code numbers to the EAV is to be carried out in accordance with the sector and process.

* SECTION 14: Transport information

14.1 UN No.

- ADR, IMDG, IATA No dangerous good in the sense of transport regulations

14.2 UN Proper shipping name

- ADR No dangerous good in the sense of transport regulations
- IMDG No dangerous good in the sense of transport regulations
- IATA No dangerous good in the sense of transport regulations

14.3 Transport hazard class(es)

- ADR	Class	Not applicable
	Hazard label	Not applicable
	More information:	
	Limited quantities (LQ)	Not applicable
	Transport category	Not applicable
	Tunnel restriction code	Not applicable
	UN "Model Regulation":	Not applicable
- IMDG, IATA	Class	Not applicable
	Label	Not applicable

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14.4 Packing group
- ADR, IMDG, IATA Not applicable

14.5 Environmental hazards
Indication of environmentally hazardous substances
ADR/RID / IMDG-Code / ICAO-TI / IATA-DGR: yes / no
Marine Pollutant: yes / no

14.6 Special precautions for User not known

-number to identify the hazard
Kemler number: Not applicable
-EMS-No .: Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
The release occurs only in legally approved and appropriate packaging for the transport.

* **SECTION 15: Regulatory information**

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

Additional information on classification:

This product may contain more than 10% quartz (alveolar).
Products with $\geq 10\%$ quartz (alveolar) are classified as STOT RE1.
Products between 1% and 10% quartz (alveolar) are classified as STOT RE2.
Products with less than 1% quartz (alveolar) do **not** get a classification.

Exceptions:

Regulation 1272/2008 (GHS/CLP) takes into account the aggregate condition (article 6.1) of the quartz sand for the classification, since only the quiescent dust is a health hazard.
In the case of quartz sand in the wet aggregate state, a low dust behavior is given according to TRGS 559 item 3.3 No. 4a, and thus **no** classification is necessary.

EU legislation reference

Regulation (EC) No 689/2008 (Export and import of dangerous chemicals):

Restrictions according to REACH Annex XVII: For industrial use only. List of substances subject to authorization according to REACH Annex XIV: not listed.

Regulation (EC) No 648/2004 (Dangerous Substances Regulation):

Directive 2000/60 / EC establishing a regulatory framework for Community action in the field of water policy (WFD): not listed. Regulation 166/2006 / EC on the establishment of a European Pollutant Release and (PRTR): The threshold values for the release shall be complied with when polluting substances are found in Annex II (eg CO, CO₂, fine dust). While casting, observe Annex VIII (see section 12.6 and 3.2 above)

Regulation (EU) No. 98/2013 (Marketing and use of starting materials for explosives):

not listed.

National regulations (Germany)

Water hazard class: 1 low hazard to waters (VwVwS list Classification Appendix 4)

Reference to Technical Rules for Hazardous Substances

TRGS 500 protection measures according to TRGS 500

Other relevant regulations

BGR 195 "Rules for the use of protective gloves" (previous ZH 1/706)
BGR 197 "Use of skin protection" (previous ZH 1/708)
BGR 192 "Use of eye and face protection" (previous ZH 1/703)
BGR 189 "Rules for the use of protective clothing" (previous ZH 1/105)
DGUV Regulation 112-190 "Use of respiratory protective devices" (previous BGR 190)

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BG data sheet:

BGI 546 "Handling of hazardous substances"

BGI 595 "irritating substances / corrosive substances" (formerly M 004)

BGI 660 & "Occupational safety and health measures for the handling of hazardous substances"
(previous M 053)

15.2 Chemical Safety Assessment: The mixture was not subjected to a safety assessment.

* SECTION 16: Other information

This information is based on our present state of knowledge, but does not constitute a guarantee of product properties and do not constitute a contractual legal relationship.

16.1 Indication of changes:

* This version of the MSDS supersedes all palpably versions. Revised regulation EU/830/2015

16.2 Abbreviations and acronyms:

Respirable Quarz:	Siliziumdioxid (crystalline), Cristobalite and Tridymite
ADN	European Convention on the transport of dangerous goods on inland waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AOX	Adsorbable organic halogens
CAS	Chemical Abstracts Service
DMEL	Derived Minimal Effect Level (genotoxic agents)
DMSO	Dimethylsulfoxid
DNEL	Derived Zero Effect Level
EC50	Mean effective concentration
EINECS	European Inventory of Existing Commercial Chemical Substances
GHS/CLP	Globally Harmonized System
IATA	International Air Transport Association
IATA-DGR	Dangerous Goods Regulations by the „International Air Transport Association“ (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical Instructions by the „International Civil Aviation Organization“ (ICAO)
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50%
LD50	Lethal dosis, 50%
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
NOAEC	No observed adverse effect level (concentration).
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
OEL	Exposure limit
PBT	Persistent, Bioakkumulativ, Toxic
PEC	Predicted environmental concentration
PNEC	Predicted concentration without effect on the environment
REACH	Registration, Evaluation, Authorisation of Chemicals
RCR	Risk Characterisation Ratio (RCR= PEC/PNEC und RCR= Expositiongrad/ DNEL)
RPE	Respiratory Protective Equipment
RID	International rules on the transport of dangerous goods by rail
SVHC	Substances of Very High Concern
TRGS	Technical Regulations for Hazardous Substances
VOC	Volatile organic compound(s)
vPvB	Very persistent and very bioakkumulativ

16.3 Key literature references and sources for data

Regulations

REACH Regulation EC / 1907/2006, as last amended by EU / 830/2015

CLP Regulation EC / 1272/2008, as last amended by Regulation EU / 491/2015

Internet

<http://www.echa.europa.eu>

<http://www.baua.de>

Literature

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16.4 Methods according to Article 9 of Regulation (EC) No 1272/2008 on the evaluation of the information for the purpose of classification

Health and environmental hazards: Calculation procedures

16.5 Relevant R-, H- and EUH-phrases (number and full text) from Chapter 2 and 3:

Eye Irrit.2- Eye irritant category 2
Skin Irrit.2- Skin irritant category 2
H319 Causes serious eye irritation
H315 Causes skin irritation

16.6 Training advice:

Instructions on dangers and protective measures on the basis of the operating instructions (TRGS 555). The Instructions must be given before the start of employment and afterwards at least once a year.

16.7 Further information:

Department issuing MSDS

Person responsible for hazardous materials
Mrs. Schmelter, +49 (0) 2045 / 9619-14
E-Mail: dagmar.schmelter@kbo-gmbh.de

Hazardous substances administrator
Mrs. Budnik, +49 (0) 2045/ 402949
E-Mail: labor@kbo-gmbh.de

Internationale Grenzwerte für kristallines SiO ₂ (C = Cristobalit T = Tridymit)					
Land	Grenzwert		Staub- fraktion	Mittelungs- dauer	Bemerkungen
	Quarz	C/T			
D	0,05 *	0,05 (C) *	./.	./.	BMAS
F	0,1	0,05	A	8 h	Ministère du travail
GB	0,1	0,1	A	8 h	HSE
I	0,05	0,05	A	8 h	(ACGIH)
NL	0,075	0,075	A	8 h	SZW
DK	0,1	0,05	A	8 h	DA
CH	0,1	0,1	A	8 h	Gov. Dir.
USA	0,05	0,05	A	8 h	NIOSH
	10/%Q+2	15/%C+2	A	8 h	OSHA
		5/%T+2	A	8 h	OSHA
S	0,1	0,05	A	8 h	NBOSH

* In Deutschland gilt für Quarz und Cristobalit seit 2016 ein Wert von 50 µg/m³ als Beurteilungsmaßstab für die Exposition