Delftclay®

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Delftse Gietmethode

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

1.1 Product identifier: Delftclay®

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

Relevant identified uses: Industrial use as moulding sand

Uses advised against: No further relevant information available

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

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

This product is not classified as a hazardous substance or a hazardous mixture. See chapter 15,

Other hazards

The product with the main component quartz (contains quiescent quartz) is bound with oil and thus delivered with low dusting behavior. After use of the sand, formation of alveolar crystalline silica (quartz fine dust) may be possible during processing (e.g., mixing sand, separation and grinding of castings). Prolonged inhalation of quartz fine dust can cause the blistering disease (silicosis). Avoid inhalation of long-term exposure to AGW. See sections 8, 11 and 15.

2.2 Label elements

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

Hazard pictograms: none
Signal word: none
Hazard statements: none
Precautionary statements: none
Additional labelling: EUH 210 Safety data sheet available on request.

2.3 Other hazards: Fail to comply with the criteria for PBT or vPvB according to Annex XIII

SECTION 3. Composition/information on ingredients

3.2 Mixture

Chemical characterization: Mixture consisting of quartz sand,-flour, organophilic bentonite and mineral oil.

Dangerous components:		
Quartz (not to be registered in accordance with Annex V)		
	Classification (Declaration for qualifying see chapter 15)	
CAS-No. 014808-60-7 EINECS-No.: 238-878-4	STOT RE2, H373 1 % ≤ C ≤ 10 % alveolar quartz	11-34 %

Additional information: Mineral oil
1272-2008-EC Annex VI, section 1.1.3.1 Note L: Classification as carcinogen is not mandatory if it can be demonstrated that the substance contains less than 3% DMSO extract, measured according to the procedure IP 346 ("Determination of polycyclic aromatics In non-used lubricating oils, and asphaltene-free petroleum fractions-dimethylsulfoxide-extract ion-refractive-index method ", Institute of London). This note applies only to certain complex oil derivatives in Part 3.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:
When working in iron works, foundries, etc. carbon monoxide (CO) and carbon dioxide (CO2) can be produced in the case of incompletely burned carbon-containing compounds (mineral oil). For the first symptoms (see 4.2) always bring the affected person to a doctor or to a hospital. The quantitative CO detection in the blood can be particularly important. For this reason, as soon as possible after the exposure, the physician must take a blood test (see 4.3) and add oxygen if necessary.

Following inhalation:
From quartz sand: Fresh air, consult doctor in case of complaints. If breathing is difficult, inhale oxygen.
While casting: *In case of symptoms (see section 4.2) due to the inhalation of fumes and exposure hazards* during casting: Under self-protection (respiratory protection) bring the affected person to a quiet and well-ventilated place, if this is safe. Get medical attention immediately (show this safety data sheet).
If breathing is unconscious: Ensure that breathing is not interfered with and artificial respiration and, if necessary, cardiac massage are carried out and immediately consult a doctor.
In case of unconsciousness **without** respiratory rest: Stable lateral position. Consult a physician immediately.

Following skin contact: Wash immediately with plenty of soap and water. If irritation, swelling or redness occur, consult a physician.
While casting: Cool the burns, keep the burned area under flowing cold water for at least five minutes.
Subcooling the body must be prevented.
Always consult a doctor if severe burns occur.

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. Do not induce vomiting. In case of *persistent symptoms consult doctor.*
In case of vomiting, keep your head low so that the vomit does not penetrate the lungs (aspiration). Then place the person in stable position with elevated legs. Always assume that an aspiration has taken place and even without symptoms to a doctor or to the hospital.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation of: Quartz dust can cause health problems such as coughing, respiratory problems and ejection.
Smoke gases (e.g., carbon monoxide, dioxide) can lead to oxygen depletion in the organism and ultimately to internal suffocation.
Symptoms of chronic/ low exposure: Fatigue, headache, dizziness, sleep disorders, irritability, and the like.
Symptoms at high exposure: headache, dizziness, vomiting, drowsiness, earache, palpitations, muscle failure, fainting to heart failure and respiratory paralysis.
Smoke or filter dust can irritate the airways and lead to lung load.
Ingestion: Nausea and vomiting.

4.3 Indication of any immediate medical attention and special treatment needed

Inhalation of: Quartz dust: Symptomatic treatment (decontamination, vital functions), no specific antidote known.
Carbon monoxide, carbon dioxide can lead to oxygen depletion in the organism, if necessary give oxygen. The quantitative CO detection in the blood can be particularly important. For this reason, as soon as possible after the exposure, a blood sampling by means of a venule containing a anticoagulant additive is to be carried out. Repeated ECG examination and neurological findings, etc., since some organic changes also manifest themselves only after a certain latency period. For more detailed treatment, see section 8, http //: gestis.itrust.de.

SECTION 5: Firefighting measures

5.1 Extinguishing media:

Suitable extinguishing media: CO_2, dry powder or water spray (fog). Fight larger fires with water spray/ fog or alcohol-resistant foam.

Unsuitable extinguishing media: Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Incomplete combustion probably leads to a complex mixture of solid and liquid particles, gases including carbon monoxide (CO), carbon dioxide (CO2), sulfur and nitrogen oxides in the air. Additional, non-specific organic compounds of the same elements. Unknown organic and inorganic compounds.

5.3 Advice for fire-fighters:

Protective equipment: In the case of large fires or in closed or poorly ventilated areas, wear self-contained breathing apparatus with full face mask in pressure mode and fire-resistant protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation, otherwise wear protective equipment. See Chapters 7 and 8. Keep unprotected persons away.

6.2 Environmental precautions: 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: Pick up mechanically and dispose of properly.

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

Avoid dust formation. Provide appropriate exhaust ventilation were dust formation is generated. Do not breathe gas/ fumes/ vapour/ spray. In case of inadequate ventilation wear respiratory protection. Avoid longer intensive skin contact. Avoid contact with eyes. Thoroughly clean the skin after breaks and after work. Pay attention according the minimum standards of TRGS 500. Make sure that all applicable workplace limits or other limit values (Chapter 8) are observed.

Safety measures while casting and the like

When working in iron works, foundries, etc. carbon monoxide (CO), carbon dioxide (CO2) and/ or sulfur/ nitrogen oxides may be formed in incompletely combusted carbonaceous compounds (e.g., mineral oil). This toxic flue gases and dust particles have to be ensured within the limits (section 8) with appropriate exhaust ventilation at the exit point (observe emission limit values, if necessary, provide for exhaust air purification) and appropriate ventilation (ASR A3.6).

The following safety measures should be taken to protect against the inhalation of fumes and exposure hazards:

- Compliance with limit values A and E Dust as well as gases (TRGS 900) and measurement, control and assurance of the limits of carbon monoxide (TRGS 903), see section 8.
- If the limit values are exceeded, precautionary examinations have to be caused.
- Point suction with filter system for reducing the particles with proof of sufficient effectiveness (GefStoffV §9).
- The exhaust ventilation must be checked by a competent person for its operability and the test results documented.
- To clean the work area, place the wet or vacuum cleaner with filter.
- Observe workplace ventilation (BGR121 / ASR A3.6 - ventilation).

- In case of danger of exceeding the limit value. CO-monitoring by means of technical means and provision (GefStoffV §9 (6)) of respiratory protection (BGR190/ use).
- Co delimit danger zone, warning/ safety signs and signs attaching (Ordinance on §9(6))
- Operating instructions/ toxicological annual staff training; Carbon monoxide, quartz fine dust (GefStoffV §14)
- While working alone (Ordinance on §9(7)) there has to be a supervisor or monitoring by technical means.

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

Information for the prevention of dusts and aerosols: Keep the height of the discharge, filling and *pouring points as low as possible..*

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

Advice on general occupational hygiene: Avoid inhalation of dusts. Avoid contact with eyes, skin and clothing. 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. Road and work clothing separately. Do not* shake or blow dusty work clothes, but clean frequently.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions: No special measures required.

Requirements for storage rooms and vessels/ Hints on storage assembly:
How to manage risks associated:
Incompatible substances and mixtures: Avoid strong oxidizing agents.
How to control the effect of the following factors:
Temperature: Protect against frost and heat.
Sunlight: Do not expose to direct sunlight.
Moisture: Keep away from water and moisture.
How the properties of the mixture can be obtained:
Packaging: Keep tightly closed.
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

Components with critical values that require monitoring at the workplace:	
(CAS) 14808-60-7 Quartz	
Quartz, respirable (A) (including Cristobalite and Tridymite)	TRGS 906 List of carcinogenic activities or procedures according to Section 3 Subs. 2 No. 3 GefStoffV" (July 2005) Germany 0,05 mg/m³ (July 2016) International limit values see appendix
WEL (Germany) Dust limit (respirable part A) *gen. dust limit* (breathable part E)	1,25 mg/m3 TRGS 900 Oct. 2014 3 mg/m³ TRGS 900/901 Jan. 2006 (transitional until 2018) *10 mg/m³ TRGS 900/901 Jan. 2006*

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

Mineral oil	
Oil dust	5 mg/m³ TWA TLV (ACGIH) USA
DNEL	
Inhalation	DNEL Long-term exposure-systemic effects 5,4 mg/m³ (employe)

Casting with incomplete combustion of the mineral oil could result: workplace-related, monitoring limits:	
630-08-0 (CAS)	**Carbon monoxide (CO)**
WEL (Germany)	35 mg / m³; Top excess factor 2 (II); Z (TRGS 900 Revision 2015)
124-38-9 (CAS)	**Carbon dioxide (CO2)**
WEL (EU)	9100 mg/m³; Top excess factor 2 (II); (TRGS 900 Revision 2015)
7446-09-5 (CAS)	**Sulfur dioxide (SO2)**
WEL (Germany)	2,5 mg/m³; Top exess factor 1 (I); Y (TRGS 900 Revision 2015)

Biological limit value (TRGS 903) Relevant values for human health	
630-08-0 Carbon monoxide (CO)	
BLV (Germany)	5 % (Revision May 2013) Examination material: whole blood Sampling time: exposure end or shift end Parameter: CO-Hb

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. Ensure good ventilation. This can be achieved by local exhaust or general exhaust air. See also section 7.

Individual protective measures - personal protective equipment

Eye protection: Tightly sealed safety glasses (EN 166)

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)
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.
When working with **hot** material: Use heat-resistant gloves with long cuffs or gauntlets.
Unsuitable protective gloves:
Gloves made of fabric or leather.

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, see BGR 189.

Respiratory protection:
Quartz dusts in dry product after casting: Particle filter FFP2/P3 (TRGS 559, chapter 3).
When handling hot product (including oil), use approved respiratory protection in closed rooms: closed face mask with filter insert/ filter "A" or ambient-independent respiratory protection. If the exposure level cannot be determined or can be estimated with sufficient certainty, or an oxygen deficiency is possible, only respiratory protection devices which are independent of the surrounding air should be used.
Rules for the use of respiratory protection devices as well as wearing time limitation according to DGUV Rule 112-190.

Heat / cold protection:
When working with hot material, place appropriate heat-resistant protective equipment.

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: hard
Colour: red
Odour: smell of mineral oil
Odor threshold: not available

Security-relevant data

	Value	Method
pH	not available	
Melting point/	< 3-12°C #	ISO 3016
Initial boiling point/ boiling range	not applicable	
Flash point	> 220-230°C #	DIN ISO 2592
Evaporation rate	not available	
Flammability (solid, gas)	non-flammable	
Upper/lower flammability or explosive limits		
Upper explosive limits	not explosive	
Lower explosive limits	not explosive	
Ignition temperature	not applicable	
Vapour pressure at 20°C	< 0,1 hPa #	calculated
Vapour density at 20°C	not determined	
Relative density at 20°C	0,92-0,94 g/cm³ #	DIN 51757
Solubility with wate rat 20°C	insoluble	
Partition coefficient: n-octanol/water	*not available*	
Auto-ignition temperature	The product is not self-igniting.	
Decomposition temperature	not available	
Change of state	not known	
Viscosity: flowability	approx. 10-50%	Moldability Test
Viscosity, dynamic	not applicable	
Viscosity, cinematic	not applicable	
Explosive properties	The product is not explosive.	
Oxidising properties	not determined	

Values are based on mineral oil.

9.2 *Other information:*

Physical hazards: Further physicochemical properties were not determined. Since the product contains natural products, slight color differences can occur which do not imply a reduction in quality.

SECTION 10: Stability and reactivity

10.1 Reactivity: None if used according to specifications, 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: Unknown

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

10.5 Incompatible materials: Quartz reacts under intense heat with fluorine.
Substances to be avoided: Keep away from oxidizing agents.

10.6 Hazardous decomposition products: Under normal conditions at room temperature: none.
While casting see chapters 7 and 8.

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.

Acute toxicity:

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

Mineral oil: Oral LD50:> 5000 mg / kg (rat)
Dermal LD50:> 2000 mg / kg (rabbit)
Inhalation (dust/ mist) LC50:> 5.53 mg / l (4h, rat)
(ECHA Dossier)

Skin corrosion/ irritation: Due to the available data, the classification criteria are not fulfilled.

Mineral oil:
Skin corrosion/: non-irritant. (Rabbit)

Serious eye damage / eye irritation: Due to the available data, the classification criteria are not fulfilled.

Mineral oil:
Eye damage / irritation: non-irritant. (Rabbit)
The solid content can lead to the sensation of foreign bodies, burning/ stinging and possible weakness of the stimulus.

Respiratory or skin sensitization: Due to the available data, the classification criteria are not fulfilled.
If it overheats (vapours/ mist) irritation of the lung that is possible.

Germ cell mutagenicity: Due to the available data, the classification criteria are not fulfilled.

Mineral oil:
In vitro mutagenicity / genotoxicity:
-OECD Guideline 471 (Bacterial Reverse Mutation Assay)
-OECD Guideline 476 (In Vitro Mammalian Cell Gene Mutation Test)
-OECD Guideline 473 (In Vitro Mammalian Chromosome Aberration Test)
Result: negative.
Literature reference: ECHA Dossier

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

Mineral oil:
CMR effects (carcinogenic, mutagenic and toxic for reproduction): none/ none
Literature reference: ECHA Dossier

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

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

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.

Mineral oil:
Subacute inhalation toxicity:
Method: -
Exposure time: 28d
Species: rat
Result:> 980 mg / m3
Literature References: J Appl Toxicol, Vol 11 (4), pp 297-302
Subacute dermal toxicity:
Method: OECD Guideline 410 (Repeated Dose Dermal Toxicity: 21/28-Day Study)
Exposure time: 28d
Species: rabbit
Result: 1000 mg / kg
Literature reference: ECHA Dossier

Respirable quartz: Inhalation of quartz fine dust may cause drowsiness (silicosis). There is ample evidence that the risk of developing lung cancer is increased in people who are suffering from silicosis.

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

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

Long-term inhalation of quartz fine dust can cause health problems such as coughing, respiratory problems and ejection. Permanent health damage such as dust aggravation (silicosis), pulmonary fibrosis and chronic obstructive pulmonary disease are possible. May lead to pulmonary tuberculosis as sequelae. Can lead to lung cancer in diseases of the bladder (silicosis and silicotuberculosis).

Inhalation during casting etc:

Smoke gases (e.g., carbon monoxide, dioxide) can cause oxygen depletion in the organism to internal asphyxiation.

Symptoms of chronic/ low exposure: Fatigue, headache, dizziness, sleep disorders, irritability, and the like.

Symptoms at high exposure: headache, dizziness, vomiting, drowsiness, earache, palpitations, muscle failure, fainting to heart failure and respiratory paralysis.

Particularly affected areas: tissues, such as the brain, heart, liver, adrenal glands. In addition, severe circulatory disorders such as increased permeability of the vessels, vascular paralysis and slowing of the blood circulation occur. (See "Leaflet for BK No.1201" - diseases caused by carbon monoxide)

Smoke or filter dust can irritate the airways and lead to lung load.

Ingestion of the cords: Nausea and diarrhea caused by the mineral oil.

SECTION 12: Ecological information

12.1 Toxicity

Acute aquatic toxicity

There are no ecotoxicological values to the mixture.

Mineral oil:

Acute (short-term) fish toxicity (LL50)> 100 mg / l (96 h) Pimephales promelas (thick-headed dandelion)

Acute (short-term) toxicity to crustaceans (EL50)> 10000 mg / l (48 h) Daphnia magna

Acute (short-term) toxicity to algae and cyanobacteria (NOEL)> 100 mg / l (3 d) Pseudokirchneriella subcapitata

(ECHA Dossier)

Chronic Aquatic Toxicity

There are no ecotoxicological values to the mixture.

Mineral oil:

Chronic (long-term) toxicity to cretaceous (NOEL)> 10 mg / l (21 d) Daphnia magna

(ECHA Dossier)

12.2 Persistence and degradability

Biodegradability

The product and the ingredients were not tested. Quartz sand and flour are natural products. The oil is not easily degradable.

Persistence

The oil is hardly soluble in water. It can be largely eliminated from the water by abiotic processes (e.g., mechanical deposition).

12.3 Bioaccumulative potential

The product and the ingredients were not tested. Quartz do not accumulate in the environment (No bioaccumulation potential).

12.4 Mobility in soil

The product and the ingredients were not tested.

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

Do not allow product to get uncontrolled into the ground.
The product does not contain substances listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.
While casting, etc. with incomplete combustion of the mineral oil, the threshold values for the release of pollutants shall be complied with (Regulation 166/2006 / EC): e.g. Carbon monoxide, carbon dioxide, nitrogen oxides, sulfur oxides, fine dust.
Substances subject to the restrictions on release (Regulation 850/2004): Polycyclic aromatic hydrocarbons (PAH) (see section 3.2, further details)

Potential for endocrine disruption: No data is available.

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Treatment of contaminated packaging

Uncleaned packaging:
Recommendation
Packaging which cannot be cleaned must be disposed of as the substance: Dispose of according to official regulations.
Cleaned packaging: 15 01 01 (Packaging of paper and paperboard.)

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.
Recommendation: Discard the exact waste key with the disposal company
10 09 06 (Casting mold and sand before casting)
10 09 08 (Casting mold and sand after casting)

Special precautions: Do not empty into drains. 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

14.4 Packing group
- ADR, IMDG, IATA Not applicable

14.5 Enviromental 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 ≥ 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.

Regulation (EC) No 850/2004 (Persistent organic pollutants):
While casting, comply with Article 6 and Annex III - List of substances subject to provisions for the reduction of release (see section 12.6 above).

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
TRGS 559 Mineral dust
TRGS 910 Risk-based action plan for activities with carcinogenic hazardous substances
TRGS 402-Determination and assessment of hazards in activities involving hazardous substances: Inhalation exposure

Technical instructions air (TA air):
- Other organic substances (Chapter 5.2.5) Substances in the flue gas, except dusty organic substances, must not exceed the mass flow of 0.50 kg / h or the mass concentration of 50 mg / m³, expressed as total carbon. Share: ≤ 5%
- Emissions of particulate matter in the exhaust gas (Chapter No.5.2.1)
Mass flow ≤0.2 kg / h or mass concentration ≤20 mg / m³
When the mass flow is maintained, the mass concentration of 150 mg / m³ must not be exceeded in the exhaust gas.

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)
BG data sheet:
BGI 546 "Handling of hazardous substances"
BGI 660 & quot; Occupational safety and health measures for the handling of hazardous substances "(previous M 053)
Leaflet for BK No.1201 Diseases by carbon monoxide

Youth employment law (JArbSchG)
Employment restrictions for the development of quartz dusts
Adolescents aged 15 years or older may only be employed if the latter is below the workplace limit value in order to reach the training objective, and the supervision is ensured by a specialist as well as by the company's medical or safety services.

Ordinance on Hazardous Substances (GefStoffV)
Occupational health care for the development of quartz dusts
In the case of activities with quartz dust (alveololen), work-related precautions (supply provision) are provided, as long as there is an explosion.
If the general dust limit value for alveolar or inhalable dust is not observed, workplace medical care is to be ordered regularly (compulsory insurance).
G 1.1 Mineral dust, Part 1: Silicogenic dust
G 1.4 Dust loading
If, according to the hazard assessment, the wearer of respiratory protection is necessary, occupational medical precautions should be performed according to the DGUV principle G 26 respiratory protective devices.

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 Regultaions 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 Equuipment
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
Material Safety Data Sheet

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
Physical hazards: Assessment based on physical properties.

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

EUH 210 Safety data sheet available on request.
STOT RE1- Specific target organ toxicity (repeated exposure) Category 1
H373 May cause damage to organs through prolonged or repeated exposure..

16.6 Training advice:

Employees must be informed about the presence of crystalline silica and trained in the use and handling of this product in accordance with the applicable regulations.
Information and training materials are available in the guide "Quarzfeinstaub" of the "Federal Association of

Internationale Grenzwerte für kristallines SiO_2 *(C = Cristobalit T = Tridymit)*

Land	Grenzwert Quarz	Grenzwert C/T	Staub-fraktion	Mittelungs-dauer	Bemerkungen
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