



P260	Do not breathe dust.
<b>Response</b>	
P314	Get medical advice/attention if you feel unwell.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

**Supplemental label information** None.

**2.3. Other hazards** This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Mullite	20 - 50	1302-93-8 215-113-2	-	-	
<b>Classification:</b>	-				
Amorphous Silica (glass)	15 - 25	7631-86-9 231-545-4	-	-	
<b>Classification:</b>	-				
Aluminium oxide	0 - 25	1344-28-1 215-691-6	01-2119529248-35-xxxx	-	
<b>Classification:</b>	-				
Cristobalite	1 - < 10	14464-46-1 238-455-4	-	-	#
<b>Classification:</b>	STOT RE 1;H372				
Quartz	1 - < 10	14808-60-7 238-878-4	-	-	#
<b>Classification:</b>	STOT RE 1;H372				
Silicon Dioxide powder	0 - 10	69012-64-2 231-545-4	-	-	
<b>Classification:</b>	-				
Calcium Aluminate	1 - 5	65997-16-2 266-045-5	-	-	
<b>Classification:</b>	Eye Irrit. 2;H319				

#### List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The full text for all H-statements is displayed in section 16.

## SECTION 4: First aid measures

**General information** Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 4.1. Description of first aid measures

<b>Inhalation</b>	Move to fresh air. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Wash off with soap and water. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. Get medical attention if symptoms occur.

**4.2. Most important symptoms and effects, both acute and delayed** Dusts may irritate the respiratory tract, skin and eyes. Coughing. Prolonged exposure may cause chronic effects.

**4.3. Indication of any immediate medical attention and special treatment needed** Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

## SECTION 5: Firefighting measures

**General fire hazards** No unusual fire or explosion hazards noted.

### 5.1. Extinguishing media

**Suitable extinguishing media** Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media** Do not use water jet as an extinguisher, as this will spread the fire.

**5.2. Special hazards arising from the substance or mixture** None known.

### 5.3. Advice for firefighters

**Special protective equipment for firefighters** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Special fire fighting procedures** Use standard firefighting procedures and consider the hazards of other involved materials.

## SECTION 6: Accidental release measures

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

**For non-emergency personnel** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

**For emergency responders** Use personal protection recommended in Section 8 of the SDS.

**6.2. Environmental precautions** Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

**6.3. Methods and material for containment and cleaning up** Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect dust using a vacuum cleaner equipped with HEPA filter. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Never return spills to original containers for re-use.

**6.4. Reference to other sections** For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling** Minimise dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

**7.2. Conditions for safe storage, including any incompatibilities** Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see section 10 of the SDS).

**7.3. Specific end use(s)** Industrial use.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Inhalable dust.
Amorphous Silica (glass) (CAS 7631-86-9)	TWA	6 mg/m <sup>3</sup>	Inhalable dust.
		2.4 mg/m <sup>3</sup>	Respirable dust.
Cristobalite (CAS 14464-46-1)	TWA	1 fibers/ml	Fiber.
		5 mg/m <sup>3</sup>	Fiber.
Dust	TWA	0.1 mg/m <sup>3</sup>	Respirable.
		4 mg/m <sup>3</sup>	Respirable dust.
Mullite (CAS 1302-93-8)	TWA	10 mg/m <sup>3</sup>	Inhalable dust.
		4 mg/m <sup>3</sup>	Respirable dust.
		10 mg/m <sup>3</sup>	Inhalable dust.

**UK. EH40 Workplace Exposure Limits (WELs)**

Components	Type	Value	Form
Quartz (CAS 14808-60-7)	TWA	0.1 mg/m <sup>3</sup>	Respirable.
Silicon Dioxide powder (CAS 69012-64-2)	TWA	6 mg/m <sup>3</sup>	Inhalable dust.
		2.4 mg/m <sup>3</sup>	Respirable dust.

**EU. OELs, Directive 2004/37/EC on carcinogen and mutagens from Annex III, Part A**

Components	Type	Value	Form
Cristobalite (CAS 14464-46-1)	TWA	0.1 mg/m <sup>3</sup>	Respirable fraction and dust
Quartz (CAS 14808-60-7)	TWA	0.1 mg/m <sup>3</sup>	Respirable fraction and dust

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)****General Population**

Components	Value	Assessment factor	Notes
Aluminium oxide (CAS 1344-28-1) Long-term, Systemic, Oral	6.58 mg/kg bw/day	20	Repeated dose toxicity

**Workers**

Components	Value	Assessment factor	Notes
Aluminium oxide (CAS 1344-28-1) Long-term, Local, Inhalation	15.63 mg/m <sup>3</sup>	3	Repeated dose toxicity
Long-term, Systemic, Inhalation	15.63 mg/m <sup>3</sup>	3	Repeated dose toxicity

**Predicted no effect concentrations (PNECs)** Not available.

**Exposure guidelines** Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

**8.2. Exposure controls**

**Appropriate engineering controls** Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

**Individual protection measures, such as personal protective equipment**

**General information** Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

**Eye/face protection** Wear safety glasses with side shields (or goggles). Eye protection should meet standard EN 166.

**Skin protection**

**- Hand protection** Wear appropriate chemical resistant gloves. Wear suitable gloves tested to EN374.

**- Other** Wear suitable protective clothing.

**Respiratory protection** In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2). Particle filter with medium efficiency for solid and liquid particles (eg. As EN 143 or 149, Type P2 or FFP2).

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Environmental exposure controls** Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties****Appearance**

<b>Physical state</b>	Solid.
<b>Form</b>	Powder.
<b>Colour</b>	Grey.
<b>Odour</b>	Odourless.
<b>Odour threshold</b>	Not applicable.
<b>pH</b>	Not applicable.
<b>Melting point/freezing point</b>	> 1000 °C (> 1832 °F)
<b>Initial boiling point and boiling range</b>	Not applicable.
<b>Flash point</b>	Not applicable.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not applicable.
<b>Flammability limit - upper (%)</b>	Not applicable.
<b>Vapour pressure</b>	Not applicable.
<b>Vapour density</b>	Not applicable.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	No data available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not applicable.
<b>Explosive properties</b>	Not explosive.
<b>Oxidising properties</b>	Not oxidising.
<b>9.2. Other information</b>	
<b>Density</b>	0.20 - 3.00 g/cm <sup>3</sup>

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>10.2. Chemical stability</b>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Strong oxidising agents.
<b>10.6. Hazardous decomposition products</b>	Carbon oxides. Aluminum oxides. Silicon oxides.

## SECTION 11: Toxicological information

<b>General information</b>	Occupational exposure to the substance or mixture may cause adverse effects.
<b>Information on likely routes of exposure</b>	
<b>Inhalation</b>	Dust may irritate respiratory system.
<b>Skin contact</b>	Dust or powder may irritate the skin.
<b>Eye contact</b>	Dust may irritate the eyes.
<b>Ingestion</b>	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
<b>Symptoms</b>	Dusts may irritate the respiratory tract, skin and eyes. Coughing.
<b>11.1. Information on toxicological effects</b>	
<b>Acute toxicity</b>	Not known.

Components	Species	Test Results
Amorphous Silica (glass) (CAS 7631-86-9)		
<b>Acute</b>		
<b>Dermal</b>		
LD50	Rabbit	> 5000 mg/kg, 24 Hours
<b>Inhalation</b>		
<i>Dust</i>		
LC50	Rat	> 0.14 mg/l, 4 Hours
<b>Oral</b>		
LD50	Rat	> 3300 mg/kg
<b>Skin corrosion/irritation</b>	Dust or powder may irritate the skin.	
<b>Serious eye damage/eye irritation</b>	Dust may irritate the eyes.	
<b>Respiratory sensitisation</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Skin sensitisation</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Germ cell mutagenicity</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Carcinogenicity</b>	<p>In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled. Risk of cancer cannot be excluded with prolonged exposure.</p>	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
Amorphous Silica (glass) (CAS 7631-86-9)	3 Not classifiable as to carcinogenicity to humans.	
Cristobalite (CAS 14464-46-1)	1 Carcinogenic to humans.	
Quartz (CAS 14808-60-7)	1 Carcinogenic to humans.	
Silicon Dioxide powder (CAS 69012-64-2)	3 Not classifiable as to carcinogenicity to humans.	
<b>Reproductive toxicity</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Specific target organ toxicity - single exposure</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Specific target organ toxicity - repeated exposure</b>	May cause damage to organs (Lung) through prolonged or repeated exposure.	
<b>Aspiration hazard</b>	Due to partial or complete lack of data the classification is not possible.	
<b>Mixture versus substance information</b>	No data available.	
<b>Other information</b>	Crystalline silica: Overexposure to the respirable dust of crystalline silica (quartz or cristobalite, less than or equal to 5 microns in size) may lead to silicosis in humans, which is a progressive and irreversible lung disease.	

## SECTION 12: Ecological information

<b>12.1. Toxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
<b>12.2. Persistence and degradability</b>	Not applicable to inorganic substances.
<b>12.3. Bioaccumulative potential</b>	The product is not expected to bioaccumulate.
<b>Partition coefficient n-octanol/water (log Kow)</b>	Not available.
<b>Bioconcentration factor (BCF)</b>	Not available.
<b>12.4. Mobility in soil</b>	No data available.
<b>12.5. Results of PBT and vPvB assessment</b>	This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

**12.6. Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Residual waste** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**EU waste code** The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Disposal methods/information** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

## SECTION 14: Transport information

### ADR

14.1. - 14.6.: Not regulated as dangerous goods.

### RID

14.1. - 14.6.: Not regulated as dangerous goods.

### ADN

14.1. - 14.6.: Not regulated as dangerous goods.

### IATA

14.1. - 14.6.: Not regulated as dangerous goods.

### IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

## SECTION 15: Regulatory information

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

#### EU regulations

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**

Not listed.

**Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**

Aluminium oxide (CAS 1344-28-1)

Mullite (CAS 1302-93-8)

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

#### Authorisations

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended**

Not listed.

#### Restrictions on use

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.**

Not listed.

## Other EU regulations

### Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

## Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

## National regulations

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended. Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended.

## 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

## SECTION 16: Other information

### List of abbreviations

LD50: Lethal Dose, 50%.

LC50: Lethal Concentration, 50%.

### References

HSDB® - Hazardous Substances Data Bank  
Registry of Toxic Effects of Chemical Substances (RTECS)

### Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

### Full text of any H-statements not written out in full under Sections 2 to 15

H319 Causes serious eye irritation.

H372 Causes damage to organs through prolonged or repeated exposure.

H372 Causes damage to organs through prolonged or repeated exposure by inhalation.

### Training information

Follow training instructions when handling this material.

### Disclaimer

HASLE Refractories A/S cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.