

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product identifier

Substance name:	Quartz
Synonyms:	Silica sand, Crystalline silica sand, Silicon dioxide, Quartz sand, Quartzite
Chemical name and formula:	SiO ₂
Trade name:	Quartz
EINECS	238-878-4
CAS	14808-60-7
REACH Registr. no.:	Exempted in accordance with Annex V.7

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

Main applications (non exhaustive list): paint, ceramics, glass fibre, adhesives, plastics, rubber sealants, special concrete, manufacture of silicon, ferrosilicon and ironoxide pellets. Additive in production of cement and concrete. Fluxing material.

No use identified in Section 1.2. is advised against.

1.3 Details of the supplier of the safety data sheet

Company Name:	SMA Mineral Oy
Address:	Selleenkatu 281 95450 Tornio
Phone No.:	+358 40 712 2360
E-mail of person responsible of SDS	sds@smamineral.com

1.4 Emergency telephone number

European Emergency No.:	112
Poison Information Centre, Estonia	+372 626 9390
Poison Information Centre, Latvia	+371 704 2468
Poison Information Centre, Finland	+358 9 4711
Poison Information Centre, Sweden	+46 10 456 6700

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the mixture

2.1.1 Classification according to Regulation (EC) 1272/2008

No classification

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) 1272/2008

No classification (<1% Dust)

2.3 Other hazards

This product is an inorganic substance and does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH.

No other hazards identified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Name: Quartz,
Amount: SiO₂ 91-96%
EINECS 238-878-4

3.2 Mixtures

No impurities relevant for classification and labelling.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Following inhalation

Movement of the exposed individual from the area to fresh air is recommended.

Following eye contact

Rinse with copious quantities of water and seek medical attention if irritation persists.

4.2 Most important symptoms and effects, both acute and delayed

No acute and delayed symptoms and effects are observed.

4.3 Indication of any immediate medical attention and special treatment needed

No specific actions are required.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media

No specific extinguishing media is needed.

5.1.2 Unsuitable extinguishing media

No restriction on the extinguishing media to be used

5.2 Special hazards arising from the substance or mixture

Non combustible. No hazardous thermal decomposition.

5.3 Advice for fire fighters

No specific fire-fighting protection is required.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid airborne dust generation, wear respiratory personal protective equipment in compliance with national legislation, see EN 143: 2000.

6.2 Environmental precautions

No special requirements.

6.3 Methods and material for containment and cleaning up

Avoid dry sweeping and use water spraying or vacuum cleaning systems (with high-efficiency particulate air filter) to prevent airborne dust generation. Wear personal protective equipment in compliance with national legislation

6.4 Reference to other sections

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE**7.1 Precautions for safe handling****7.1.1 Protective measures**

Avoid airborne dust generation. Provide appropriate exhaust ventilation at places where airborne dust is generated. Other suitable controls may include enclosure, isolation, water suppression, respiratory protective equipment. Handle packaged products carefully to prevent accidental bursting. If you require advice on safe handling techniques, please contact your supplier.

7.1.2 Advice on general occupational hygiene

Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. Shower and change clothes at end of work shift.

7.2 Conditions for safe storage, including any incompatibilities

Minimise airborne dust generation and prevent wind dispersal during loading and unloading. Keep containers closed and store packaged products so as to prevent accidental bursting..

7.3 Specific end use(s)

If you require advice on specific uses, please contact your supplier.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**8.1 Control parameters**

Follow workplace regulatory exposure limits for all types of airborne dust (e.g. total dust, respirable dust, respirable crystalline silica dust). List of national OELs is presented below and responsible authority is presented in next table.

Please ensure the current legislation and OELs of your country from the responsible authority.

OELs in mg/m³ 8 hours TWA – Respirable dust – in EU 271 and Norway & Switzerland (2014):

Country/Authority	(inert) dust INHALABL U	(inert) dust RESPIRAB I F	Quartz	Cristobalite	Tridymite	Diatomace ous earth Amorphou s silica	Fused silica	Kaolin	Mica	Talc
Austria/I		5	0.15	0.15	0.15		0.15			2
Belgium/II		3	0.1	0.05	0.05	3	2	0.1	2	3
Bulgaria/III		4	0.07	0.07	0.07	1 ²				3
Cyprus/IV		/	10k/Q ³	/	/	/	2	/	/	/
Czech Republic/V			0.1	0.1	0.1		4		2	2
Denmark/VI		5	0.1	0.05	0.05	1.5	0.1	2		
Estonia			0.1	0.05	0.05	2				
Finland/VII		/	0.05	0.05	0.05	5				5
France/VIII		5	0.1	0.05	0.05			10		
Germany/IX		0.5 ⁴	/ ⁵	/	/		0.3			/
Greece/X		5	0.1	0.05	0.05					2
Hungary			0.15	0.1	0.15					2
Ireland/XI		4	0.1	0.1	0.1	2.4	0.08	2	0.8	0.8
Italy/XII		3	0.05 ⁶	0.05	0.05		0.1	2	3	2
Lithuania/XIII		10	0.1	0.05	0.05					1
Luxembourg/XIV		6	0.15	0.15	0.15		0.3			2
Malta ⁷ / XV		/	/	/	/					
Netherlands/ XVI	10	5	0.075	0.075	0.075				2.5	0.25
Norway/ XVII	10	5	0.1	0.05	0.05	1.5	1.5		3	2
Poland/XVIII	2	0.3	0.3	0.3	0.3	2	2	1	10	1
Portugal/ XIX	10	5	0.025	0.025	0.025		0.1	2	3	2
Romania/ XX		10	0.1	0.05	0.05			2	3	2
Slovakia	10		0.1	0.1	0.1	2			2	2
Slovenia			0.15	0.15	0.15		0.3			2
Spain/XXI	10	3	0.1	0.05			0.1	2	3	2
Sweden/XXII		5	0.1	0.05	0.05					1
Switzerland/XXIII		6	0.15	0.15	0.15	0.3	0.3	3	3	2
UK/XXIV	10	4	0.1	0.1	0.1	1.2	2.4	0.08	2	0.8

1) Missing information for Latvia – To be completed.

2) Inhalable fraction

3) Q : quartz percentage – K=1

4) Defined for a density of 1 g/cm³, i.e. for minerals with a common density of 2,5 g/cm³, a calculated OEL of 1,25 mg/m³ applies.

5) Germany has no more OEL for quartz, cristobalite and tridymite. Employers are obliged to minimize exposure as much as possible, and to follow certain protective measures.

6) Inspection authorities use the ACGIH recommended limit value of 0.025 mg/m³.

7) When needed, Maltese authorities refer to values from the UK for OELVs which do not exist in the Maltese legislation.

Source : IMA-Europe. Date : October 2014, updated version available at <http://www.crystallinesilica.eu/content/rcs-workplace-exposure-prevention>

List of authorities and specific national names of OEL:

Country	Adopted by/Law denomination	OEL Name (if specific)
Austria	I Bundesministerium für Arbeit und Soziales	Maximale Arbeitsplatzkonzentration (MAK)
Belgium	II Ministère de l'Emploi et du Travail	
Bulgaria	III Ministry of Labour and Social Policy and Ministry of Health. Ordinance n°13 of 30/12/2003	Limit Values
Cyprus	IV Department of Labour Inspection. Control of factory atmosphere and dangerous substances in factories, Regulations of 1981.	
Czech Republic	V Governmental Directive n°361/2007	Přípustný expoziční limit (PEL) (=Permissible exposure limit)
Denmark	VI Direktoratet for Arbejdstilsynet	Threshold Limit Value
Finland	VII National Board of Labour Protection	Occupational Exposure Standard
France	VIII Ministère du Travail	Valeur limite de Moyenne d'Exposition
Germany	IX Bundesministerium für Arbeit	Maximale Arbeitsplatzkonzentration (MAK)
Greece	X Legislation for mining activities	
Ireland	XI 2011 Code of Practice for the Safety, Health & Welfare at Work (CoP)	
Italy	XII Associazione Italiana Degli Igienisti Industriali	Threshold Limit Values (based on ACGIH TLVs)
Lithuania	XIII Dėl Lietuvos higienos normos HN 23:2001	Ilgalaikio poveikio ribinė vertė (IPRV)
Luxembourg	XIV Bundesministerium für Arbeit	Maximale Arbeitsplatzkonzentration (MAK)
Malta	XV OHSA – LN120 of 2003, www.ohsa.org.mt	OELVs
Netherlands	XVI Ministerie van Sociale Zaken en Werkgelegenheid	Publieke grenswaarden http://www.ser.nl/en/oel_database.aspx
Norway	XVII Direktoratet for Arbejdstilsynet	Administrative Normer (8hTWA) for Forurensing i Arbeidsmiljøet
Poland	XVIII Regulation of the Minister of Labour and Social – 29.11.2002	Limit values
Portugal	XIX Instituto Portugues da Qualidade, Hygiene & Safety at Workplace NP1796:2007	Valores Limite de Exposição (VLE)
Romania	XX Government Decision n° 355/2007 regarding workers' health surveillance. Government Decision n° 1093/2006 regarding carcinogenic agents (in Annex 3: Quartz, Cristobalite, Tridymite).	OEL
Spain	XXI Instrucciones de Técnicas Complementarias (ITC) Orden ITC/2585/2007	Valores Limites
Sweden	XXII National Board of Occupational Safety and Health	Yrkeshygieniska Gränsvärden
Switzerland	XXIII	Valeur limite de Moyenne d'Exposition
United Kingdom	XXIV Health & Safety Executive	Workplace Exposure Limits (WEL)

 Source : IMA-Europe. Date : October 2014, updated version available at <http://www.crystallinesilica.eu/content/rcs-workplace-exposure-prevention>

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Minimise airborne dust generation. Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below specified exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne particles below the exposure limit. Apply organisational measures, e.g. by isolating personnel from dusty areas. Remove and wash soiled clothing.

8.2.2 Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side-shields in circumstances where there is a risk of penetrative eye injuries.

Skin protection

No specific requirement. For hands, see below. Appropriate protection (e.g. protective clothing, barrier cream) is recommended for workers who suffer from dermatitis or sensitive skin.

Hand protection

Appropriate protection (e.g. gloves, barrier cream) is recommended for workers who suffer from dermatitis or sensitive skin. Wash hands at the end of each work session.

Respiratory protection

In case of prolonged exposure to airborne dust concentrations, wear a respiratory protective equipment that complies with the requirements of European or national legislation.

The use of half or full face masks with filters against particles of category 2 or 3 (FP2 - FP3) is recommended. See EN 143: 2000 - Respiratory protective devices. Particle filters

8.2.3 Environmental exposure controls

Avoid wind dispersal.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	solid,
Colour:	grayish/white
Odour:	odourless
Odour threshold:	not applicable
pH:	5-8 (400 g/l water at 20°C)
Melting point:	> 1610°C
Boiling point:	between 2230°C and 2590°C
Flash point:	Not applicable (solid with a melting point >1610°C)
Evaporation rate:	Not applicable (solid with a melting point >1610°C)
Flammability (solid, gas):	Non flammable (not combustible)
Explosive limits:	Non explosive (absence of chemical groups associated with explosive properties)
Vapour pressure	Not applicable (solid with a melting point >1610°C)
Vapour density	Not applicable
Relative density	2 -- 3 g/cm ³
Grain shape	angular
Solubility in water	negligible
Solubility in hydrofluoric acid	yes
Partition coefficient: n-octanol/water	Not applicable (inorganic substance)
Auto-ignition Temperature	No self-heating below 400°C
Decomposition temperature:	ca. 2000°C
Viscosity:	Not applicable (solid with a melting point >1610°C)
Explosive properties:	Non explosive (absence of chemical groups associated with explosive properties)
Oxidising properties	Not applicable (substance is incapable of reacting exothermically with a combustible material)

9.2 Other information

Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Inert, not reactive

10.2 Chemical stability

Chemically stable

10.3 Possibility of hazardous reactions

No hazardous reactions.

10.4 Conditions to avoid

Not relevant.

10.5 Incompatible materials

No particular incompatibility.

10.6 Hazardous decomposition products

Not relevant.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

a. Acute toxicity

The acute oral/dermal LD50 of quartz and cristobalite is greater than 2000 mg/kg.

Acute toxic inhalation:

There is no specific acute toxicity data at doses that enable a categorical decision on the acute inhalation toxicity classification for any form of crystalline silica at 100%. Acute inhalation toxicity is not expected based on read across to an OECD compliant study, with a substance that contains 45% cristobalite and gives no indication of lethality. Hence further testing is not warranted in the interests of animal welfare.

b. Skin corrosion/irritation

Quartz (coarse sand and milled) is not irritating to skin (OECD TG 404).

c. Serious eye damage/irritation

Quartz (coarse sand and milled) is not irritating to eye (OECD TG 405).

d. Respiratory or skin sensitisation

No evidence of skin sensitisation in handbook data.

e. Germ cell mutagenicity

Quartz has a genotoxic and mutagenic effect mainly through its inflammatory effects. Respirable quartz was unable to cause increased HPRT mutations in rat lung epithelial cells in vitro.

f. Carcinogenicity

Lung cancer excess risk is demonstrated only under high occupational exposures to Respirable Crystalline Silica. The lung cancer excess risk is restricted to subjects who contracted silicosis.

g. Reproductive toxicity

Silica is essential for normal body function and is ingested orally via the consumption of foods containing silica naturally. An early one-generation study on Wistar rats gave no evidence of any adverse effects arising from long-term feeding of silica-rich water.

h. STOT-single exposure

Studies available; inconclusive

i. STOT-repeated exposure

This product is not classified as STOT RE according to criteria defined in the Regulation EC 1272/2008

Prolonged and/or massive exposure to respirable crystalline silica-containing dust may cause silicosis, a nodular pulmonary fibrosis caused by deposition in the lungs of fine respirable particles of crystalline silica.

There is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis. Worker protection against silicosis should be assured by respecting the existing regulatory occupational exposure limits and implementing additional risk management measures where required (see section 16 below for more information).

j. Aspiration hazard

No aspiration hazard envisaged

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Not relevant

12.2 Persistence and degradability

Not relevant

12.3 Bioaccumulative potential

Not relevant

12.4 Mobility in soil

Negligible

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

No specific adverse effects known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste from residues/unused products

Where possible, recycling is preferable to disposal. Can be disposed of in compliance with local regulations.

Packaging

Dust formation from residues in packaging should be avoided and suitable worker protection assured. Store used packaging in enclosed receptacles.

Recycling and disposal of packaging should be carried out in compliance with local regulations.

The re-use of packaging is not recommended. Recycling and disposal of packaging should be carried out by an authorised waste management company.

SECTION 14: TRANSPORT INFORMATION

Calcium carbonate and dolomite are not classified as hazardous for transport (ADR (Road), RID (Rail), IMDG / GGVSea (Sea)).

14.1 UN number

Not relevant.

14.2 UN proper shipping name

Not relevant.

14.3 Transport hazard class(es)

ADR: Not classified

IMDG: Not classified

ICAO/IATA: Not classified

RID: Not classified

14.4 Packing group

Not relevant

14.5 Environmental hazards

Not relevant.

14.6 Special precautions for user

No special precautions.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not regulated.

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance****National regulations:**

Workers need to be informed about existence of quartz dust and they have to be trained to use and handling of product according to current legislation.

15.2 Chemical safety assessment

Exempted from REACH Registration in accordance with Annex V.7. of Regulation (EC) 1907/2006.

SECTION 16: OTHER INFORMATION

Data are based on our latest knowledge but do not constitute a guarantee for any specific product features and do not establish a legally valid contractual relationship.

16.1 Abbreviations

LD50: Medial lethal dose

PBT: Persistent bioaccumulative toxic

STOT: Specific Target Organ Toxicity

vPvB: Very persistent very bioaccumulative

OEL: Occupational exposure level

SDS: Safety data sheet

TWA: time-weighted average

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Dangerous Goods Code

RID: Regulations concerning the international railway transport of dangerous goods

16.2 Revision**September 2018 Version 4.1**

Section 1.3: Changed contact info

Section 1.4: Expanded the list of poison information centers

September 2017 (Version 4.0/EN)

This is the first version in English based on the Finnish version 4.0(2017) of quartz sds.

Section 8.1: Added list of oels and table of authorities

Section 16.3: Added abbreviation TWA, ADR, IMDG, RID in list

16.3 Other relevant information

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 it pointed out that not all industrial circumstances, nor all crystalline silica types, were to be incriminated. (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 2009, in the Monographs 100 series, IARC confirmed its classification of Silica Dust, Crystalline, in the form of Quartz and Cristobalite (IARC Monographs, Volume 100C, 2012).

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).

A multi-sectoral social dialogue agreement on Workers Health Protection through the Good Handling and Use of Crystalline Silica and Products Containing it was signed on 25 April 2006. This autonomous agreement, which receives the European Commission's financial support, is based on a Good Practices Guide. The requirements of the Agreement came into force on 25 October 2006. The Agreement was published in the Official Journal of the European Union (2006/C 279/02). The text of the Agreement and its annexes, including the Good Practices Guide, are available from <http://www.nepsi.eu> and provide useful information and guidance for the handling of products containing respirable crystalline silica. Literature references are available on request from EUROSIL, the European Association of Industrial Silica Producers.

Health & Safety Executive (specific for UK): Detailed reviews of the scientific evidence on the health effects of crystalline silica have been published by HSE (Health and Safety Executive, UK) in the Hazard Assessment Documents EH75/4 (2002) and EH75/5 (2003). The HSE points out on its website that "Workers exposed to fine dust containing quartz are at risk of developing a chronic and possibly severely disabling lung disease known as "silicosis". In addition to silicosis, there is now evidence that heavy and prolonged workplace exposure to dust containing crystalline silica can lead to an increased risk of lung cancer. The evidence suggests that an increased risk of lung cancer is likely to occur only in those workers who have developed silicosis.

Disclaimer

This safety data sheet (SDS) is based on the legal provisions of the REACH Regulation (EC 1907/2006; article 31 and Annex II), as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this SDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this SDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship. This version of the SDS supersedes all previous versions.