

BASIC INFORMATION ON SILICA

Increasing attention is paid today to health and the need for reducing the potential risks deriving from work activities.

In the field of construction and processing of natural and synthetic stone this attention is also focused on reducing lung diseases caused by dust, as the presence of inhalable free crystalline silica in the work environment has been acknowledged as potentially dangerous.

We have prepared this short document for our customers with the aim of informing and explaining certain concepts.

CRYSTALLINE SILICA

Silica is the main component of ceramic tile body, and also represents around half the weight of the earth's crust as well as being present in sand, granite and in many other minerals.

Silica exists in various mineral forms: it can be in amorphous – or vitreous – form, not biologically active, or in crystalline forms.

Quartz is the most common form of crystalline silica, and we can also find it in the form of cristobalite and tridymite.

We give below an indication of the content of crystalline silica in some building materials:

- Granite: 15-35%
- Marble: 0-5%
- Quartzite: above 95%
- Slate: up to 40%
- Recomposed quartz: 85-95%
- Ceramic tiles (FLORIM production) 15-25%

The part that is potentially dangerous for human health is only the free crystalline silica in its inhalable part, characterized by a precise particle size.

FLORIM ceramic tiles and slabs comprise a body composed of natural raw materials (clays, feldspars, kaolin and sands), and they therefore contain both amorphous and crystalline silica; since these components are firmly embedded inside the ceramic matrix, there are no problems of toxicity or legal obligations for labelling.

Free crystalline silica, inhalable in its “breathable” part, is formed with subsequent processing (cutting, polishing, shaping, milling, perforation, etc.) and, in the absence of due precautions, it may penetrate right down into the lungs causing, in the case of high exposures (or prolonged and repeated exposures over the course of some years, with high concentrations), irreversible effects on the health (pneumoconioses such as silicosis) or the worsening of lung diseases.

SAFETY DATA SHEET

Current legislation (Directive 1999/45/EC, Reg. EC/1907/2006 (REACH) and Reg. EC/1272/2008 (CLP)) lays down that mixtures or solutions containing chemical substances with recognized biological activity should be accompanied by a “safety data sheet” which supplies the necessary information to users on use, handling, etc..

A ceramic tile in its commercial form, whether glazed or not, is a finished product; a safety data sheet is not required, nor are there legal obligations for labelling.

GOOD PRACTICES

Precautions for safe handling

Due attention must be paid to the weight of the material and suitable certified handling systems provided for the load that is to be moved.

No special precautions are required for handling tiles, except for the normal personal protection devices in use for the work activities (cut-resistant gloves, safety footwear) according to prevailing regulations.

For large-size tiles (ceramic slabs) it is appropriate to equip oneself also with cut-resistant sleeves to protect the forearms.

Florim stone slabs are obtained through combining a ceramic slab with glass fibre and polyurethane resin. As well as the above-quoted personal protection devices, safety glasses and dust masks must be worn during handling to avoid direct contact of the skin and mucous membranes with the glass fibre.

If the material is supplied on an A-frame pay particular attention to the safety of the system: before starting any operation check that the packing is undamaged and stable to avoid the danger of crushing due to overturning of the load.

Always secure the load in the case of partial removal of materials from the A-frame.

Precautions for safe processing

Professional tile-layers and transformers, since they are experts working in the sector, should already be aware of the potential risks for health consequent on inhalation of dust deriving from ceramic tile processing (cutting, polishing, etc.).

They are advised to apply the laws/rules/directives in force locally, suitably instructing employees on potential hazards, on the adoption of personal hygiene measures in the workplace (e.g. not to eat, drink or smoke during processing, wash themselves carefully and change clothes at the end of work, etc.), on the use of appropriate equipment (e.g. to give preference to wet-cutting and grinding tools or dry-cutting tools connected to efficient suction systems, etc.) and personal protection systems (e.g. protective gloves, FFP3 dust masks for protecting the respiratory tract, safety glasses, etc.).

We would advise you to consult more updated information on the dedicated websites commonly drawn up by government bodies for safety at work.

(e.g. <https://www.nepsi.eu>, <https://www.osha.gov/dsg/topics/silicacrystalline/>, <https://www.cancer.org.au/preventing-cancer/workplace-cancer/silica-dust.html>).