

Annex 5 - Descriptions of Industries

Aggregates

Aggregates are a granular material used in construction. Nearly 3 billion tonnes of aggregates are produced and used in Europe annually. However, a majority of operators in the sector are small and medium sized enterprises. A typical small site provides direct employment for 7 to 10 persons. The aggregates industry consists of around 25,000 extraction sites across Europe, with 250,000 employees in the EU.

The most common natural aggregates are sand, gravel and crushed rock with a wide range of free silica content (from 0% to 100%). Subject to the individual risk assessments to be carried out under this Agreement, only the deposits with a high content of silica are relevant. But even in such cases, the risks of Respirable crystalline silica exposure for workers are normally low. Aggregates produced from rocks containing a small percentage of silica are, without prejudice to individual risk assessment, likely to be negligible in terms of their impact on worker's health.

Ceramics industry

The ceramics industry uses silica principally as a structural ingredient of clay bodies and as a major constituent of ceramic glazes. The principal ceramic products containing silica include tableware and ornamental ware, sanitary ware, wall and floor tiles, bricks and roof tiles, refractories etc.

Around 2,000 companies produce ceramics in the EU. The number of employees in the EU ceramics industry is estimated at around 234,000. The ceramic industry is present in virtually all EU Member States.

Foundries

The foundry industry's products are ferrous, steel or non-ferrous metal castings produced by pouring molten metal into moulds which are typically, in total or in parts, made of bonded silica sand. The foundry industry is an important supplier to the automotive industry, mechanical engineering and other industries. It is a branch of mostly small and medium sized companies: roughly 4,000 foundries with 300,000 employees are situated in the EU Member States.

Glass Industry

Silicon dioxide is the principal glass forming oxide and thus silica sand is the major ingredient in all types of glass. The main glass products include packaging glass (bottles, jars etc.), flat glass (for buildings, mirrors, cars, etc.), domestic glass (tableware: drinking glasses, bowls; decoration, etc.), glass fibre (for reinforcement, insulation) and special glass (for tv, laboratory, optics etc.).

More than 1,000 companies produce glass in the EU. The glass industry is present in all European countries and employs more than 230,000 people in the EU.

After melting the raw material, there is no crystalline silica any more. Glass is an amorphous material.

Industrial Minerals and Metalliferous Minerals industries

Industrial Minerals:

A number of industrial minerals products are composed of silica. Silica is found commonly in the crystalline state but occurs also in an amorphous (non-crystalline) state. Crystalline silica is hard, chemically inert and has a high melting point. These are prized qualities in various industrial uses, mainly in the glass, foundry, construction, ceramic and chemicals industries. 145 million tons of

industrial minerals (e.g. bentonite, borate, calcium carbonate, diatomite, feldspar, gypsum, kaolin & plastic clay, talc, etc) are extracted every year in Europe. Although not all do, industrial minerals may contain variable amounts of crystalline silica.

Those industrial minerals are produced by 300 companies or groups operating about 810 mines and quarries and 830 plants in 18 EU Member States, and in Switzerland, Norway, Turkey, Bulgaria, Romania and Croatia. The industrial minerals industry employs about 100,000 persons in the EU.

Metal ores:

A wide range of metal ores are extracted within the EU and for some, such as mercury, silver, lead, tungsten, zinc, chromium, copper, iron, gold, cobalt, bauxite, antimony, manganese, nickel, titanium, the EU is a relatively significant producer. In some cases, the European producers rank amongst the first ten producers in the world.

Metal ores are produced in 12 EU Member States as well as in Norway, Turkey, Bulgaria, Romania, Kosovo and Serbia. In the EU, this section of the mining and minerals industry employs directly about 23,000 people.

Although not all do, metal ores may contain variable amounts of crystalline silica.

Cement Industry

Cement is a powdered substance mainly used as the binding agent in the making of concrete. It is produced through several stages, basically made up of the two following essential phases:

- manufacture of a semi-finished product, so-called "clinker", obtained from the calcination in a high-temperature kiln (1 450°C) of a "raw mix" made up of a mixture of clay, limestone, and several other additives.

- manufacture of cement as a finished product, obtained by the homogeneous mixture of the ground clinker and calcium sulphate (gypsum) with or without - depending on the type of cement - one or more additional components: slag, fly ash, pozzolana, limestone, etc.

In 2004, the cement production of the current 25 Member States of the EU has reached 233 million tons, about 11% of the total world production (2,1 billion tons).

There are nearly 340 plants in the EU. Four of the five largest cement companies in the world are European. The cement industry employs about 55,000 persons in the EU.

Mineral Wool

Mineral wool has a unique range of properties, combining high thermal resistance with long-term stability. It is made from molten glass, stone or slag that is spun into a fibre-like structure which creates a combination of thermal, fire and acoustic properties, essential to the thermal and acoustic insulation as well as to the fire protection of domestic and commercial buildings or industrial facilities.

These properties derive from its structure, a mat of fibres which prevent the movement of air, and from its chemical composition.

Insulation manufacturers are developing to meet the growing environmental concerns of society, improving standards and regulations for the use of insulation materials.

Among mineral wools, only glass wool is of concern with regard to crystalline silica as glass wool is manufactured using sand, whilst stone wool is not. After melting the raw material for glass wool, there is no crystalline silica any more, as it becomes an amorphous material.

The mineral wool industry is present in all European countries and employs over 20,000 people across the EU.

Natural Stone Industry

Dimension stone exists in nature as an almost ready-made building material. Few realize, however, that it takes millions of years for this material to get to the point at which it can be easily produced and processed.

The industry consists only of small and medium sized companies of between 5 to 100 employees and is an essential supplier of the building industry. More than 40,000 companies exist in the EU, employing around 420,000 persons in the EU. Work with natural stones not only covers the production of stone in quarries, much more important is the processing of stones and the implementation of stones. Restoration and high-tech applications need qualified education and training which starts with stone workers up to high-tech stone engineers.

Mortar Industry

Mortar is defined as a mixture of aggregates, generally with a grain size of less than 4 mm (sometimes less than 8 mm, e.g. mortar for special decorative renders or floor screed mortar) and one or more binders and possibly additives and/or added mixtures.

Mortar with inorganic binders contains in addition water. The application and use of mortar is not limited to masonry constructions. The field of floor screed mortar is growing. There are many special kinds of mortar which are used for concrete repair, for tile fixing, for roofs, for the anchoring of bolts and for many other applications.

In addition the external thermal insulating composite systems (ETICS) are also a product of the mortar industry playing an important role in energy saving measures. More than 1,300 companies produce mortar in the EU. The EU mortar industry has more than 34,400 employees.

Precast Concrete Industry

Precast concrete is a factory-made building material widely used worldwide and available in all sizes and forms, from very small paving units to more than 50 meters long bridge elements.

Its production process consists in mixing cement, aggregates, water, additives and admixtures in different proportions, pouring them in moulds and let them harden. The products are supplied to the market in a dust-free hardened state. Dust generation can mainly occur in raw material handling and post-manufacturing mechanical treatments.

The industry is composed of small to medium-size enterprises, spread all over Europe. Estimated figures for the EU are: 10,000 production units, 250,000 workers and 300 to 400 million tons of products.