September 2013

Recommendation for inclusion of Zirconia-Aluminosilicate Refractory Ceramic Fibres (Zr-RCF) and Aluminosilicate Refractory Ceramic Fibres (Al-RCF) in Annex XIV

Glass Alliance Europe contribution to the public consultation

Glass manufacturers support the REACH regulation and believe in the reduction of the risks associated to workers' exposure and the environmental impact of dangerous substances in the EU Market. In this perspective, the glass industries would like to contribute to the public consultation as regards the recommendation for inclusion of Zirconia-Aluminosilicate Refractory Ceramic Fibres (Zr-RCF) and Aluminosilicate Refractory Ceramic Fibres (Al-RCF) in Annex XIV of REACH (the "Authorisation list").

Glass sector

Glass Alliance Europe is the European Alliance of Glass Industries. It is composed of 19 national glass associations and of the main sectors of the glass industries: container glass, flat glass, special glass, domestic glass and continuous filament glass fibres.

Glass industries invest in research, develop and manufacture glass products fit for a sustainable, resource-efficient and low-carbon society such as energy-efficient windows, fully recyclable bottles and jars, weight-lightening continuous glass fibres, glass for photovoltaic modules, etc. Glass industries continuously invest in upgrading manufacturing installations to minimize the carbon content of products and increase their recycling.

The EU-27 is the world's largest glass market, both in terms of production and consumption. The European glass industry with its ca. 1,100 companies accounts for more than one quarter of the non-metallic mineral sector. The sector employs around 200.000 people over Europe. In 2011, the total glass production in the European Union reached a volume of more than 35 million tonnes, which represents a production value of approximately € 36 billion.

89, Avenue Louise - B - 1050 Brussels - Belgium
T + 32 (0)2/ 538 44 46 - F + 32 (0)2/ 537 84 69
info@glassallianceeurope.eu - www.glassallianceeurope.eu
VAT N° BE 0418 388 615

Use in the glass industries

The use of Zirconia-Aluminosilicate Refractory Ceramic Fibres (Zr-RCF) and Aluminosilicate Refractory Ceramic Fibres (Al-RCF) is essential in the European glass industry in certain insulation applications, allowing for energy savings and environment protection. Major efforts have been made over the last decade to substitute RCF products wherever possible.

Refractory Ceramic Fibres materials, in the form of formed shapes, boards, blankets and mats are used in the glass melting process, but also as high temperature insulation material for moulds (covering & interior wall insulation), mould release agents, transport media, and tool protection. These materials are applied in high-temperature melting glass processes as electrical and thermal insulation of platinum components, sealing of floor drains in the glass melting tank, sealing of electrode feeders and permanent insulation of the expansion joints between the melting tank and the plate block. Besides, they are also used for temporary repairs such as covering small holes in the roof or crown of a melting tank, gaps in the rear and side wall and to insulate the glass feeder, the stirring unit and various parts during hot repairs. These types of insulation materials are applied as well in laboratory furnaces for glass melting research and development.

Products based on Refractory Ceramic Fibres combining high thermal resistance, mechanical strength and insulating properties, are the best performing materials for such applications and for many industrial insulation needs above 900°C. Likewise, the production of many glass types is not currently possible without products based on RCF as insulation material.

Substitute materials

Substitute materials have been investigated in glass furnaces applications. Glass manufacturers have already implemented the use of alternative materials for certain applications, where technically and economically feasible, for many years. Nevertheless, substitute materials are still not available for all applications. To date, no appropriate materials have been found that can withstand the required combination performance of the high thermal, chemical and mechanical stress experienced in the high temperature glass melting process and at the same time giving appropriate insulation performance.

This situation has been acknowledged by the Federal Institute for Occupational Safety and Health in Germany in the published Technical Rules for Hazardous Substances (TRGS) regarding Substitute Materials for Aluminium Silicate Wool Products (TRGS 619)[1].

[1] Above 900°C to max. 1200°C, the possibility for using AES wool products is reduced owing to technological constraints. This temperature range is the main application range for aluminium silicate wool products. Above approx. 1200°C, AES wool products can no longer be used and the application of aluminium silicate wool products is also limited.

Risk reduction measures

The use of RCF products in glass manufacturing is strictly controlled by EU legislation already in place, in particular the Carcinogens and Mutagens Directive, which applies to RCF since the adoption of the carcinogenic classification in 1997.

When in use, RCF are mostly inaccessible in glass industrial operations, since they are located inside the glass tank or other inaccessible locations.

The sole contact with RCF occurs during furnace construction and maintenance operations and is performed by experienced and strictly trained employees.

Contact with RCF materials and potential exposure to fibber dust is limited to situations of furnace construction or repairs, after a risk assessment and the implementation of suitable risk reduction measures. It is carried out under rigorous controlled conditions and during short time periods by a limited number of experienced and specifically trained glass industry employees, employees of furnace construction companies or demolition companies. Workers installing or removing these products are obliged to use personal protective equipment (PPE), in particular, protective clothing, sealed gloves and respirators. They are periodically submitted to medical surveillance to monitor their health. Additionally, the RCF using workshops are regularly monitored by the competent authorities, e. g. the German Employer's Insurance Association (Verwaltungs-Berufsgenossenschaft VBG) in Germany. No occupational diseases have been recorded.

Substance identification

The scope of the RCF substances impacted is confusing to the glass industries, as downstream users. Indeed, the definition presented in the Article XV dossiers and based on the chemical composition (“other oxides”) makes it impossible to know which RCFs are covered. Moreover, the lack of a standard identifier such as a CAS-Number precludes tracking RCF uses.

It has also to be stressed that most of the uses of RCF products are in the form of articles, in light of the REACH Regulation, for which the definition and exact status in a potential authorisation process is not clear for users.

Energy and Environment impacts

During the melting process, temperatures in the glass furnaces raise above 1200 °C. For this reason, industrial glass furnaces are the heart of energy intensive processes, which means that energy costs represent a substantial part of the total production costs. To rationalize the energy consumption and environmental emissions, namely CO_2 emissions associated with the melting process, are economical and environmental imperatives to remain competitive.

The use of RCF products, able to resist to very high temperatures (above 900°C and up to 1400°C for very special glasses), has been fundamental for these processes to reach significant improvements in energy efficiency and CO_2 emissions reduction over recent years. The utilisation of RCF products also allows for raw material savings and high quality of the end glass products.

The advantages of RCF products are essential to help attaining the current and future objectives and targets in the context of the EU climate and energy package 2030 and other EU initiatives on efficient use of resources.

Without the use of these materials and thus without proper insulation of glass furnaces, energy consumption associated with the glass melting process will increase substantially and consequently CO_2 emissions will increase concomitantly.

Conclusion

For certain industrial insulation applications above 900°C, Refractory Ceramic Fibres products and above 1200 ^{o}C aluminosilicate and zirconia-aluminosilicate fibrous materials are the best performing materials and substitution is not possible. The use of these materials in the glass industries is limited to a minimum and it is well monitored, controlled and regulated under current legislation. Workers dealing with these materials are experienced and trained and are submitted to regular health surveillance.

Furthermore, the prioritisation with the consequence of authorisation would lead to negative impacts on energy savings and environmental protection and ultimately undermining the competitiveness of the industry.

For these reasons, the glass industries believe that Zr-RCFs and Al-RCFs should not be prioritized and consequently not be included in Annex XIV of REACH, the so called "authorisation list".