CERAME-UNIE'S POSITION ON THE WORKING DOCUMENT FOR THE ECODESIGN CONSULTATION FORUM ON INDUSTRIAL AND LABORATORY FURNACES AND OVENS

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General remarks

The ceramic industry has always insisted that the eco-design regulation is not the appropriate tool to improve the performance (in an integrated way) of custom designed industrial ovens and furnaces, in particular for the following reasons: (i) custom designed industrial furnaces and kilns do not fall under the scope of the Eco-Design Directive, (ii) industrial furnaces and ovens are already sufficiently covered by other, more appropriate, legislation and (iii) industrial furnaces and ovens require a case-by-case approach. These arguments are further detailed in the joint industry position paper (April 2013).

We welcome the fact that the working document recognizes the legislative overlaps, notably with the IED and associated sector-specific BREFs and BAT conclusions as well as the existence of the ETS and Energy Efficiency Directive which already ensure energy efficient measures to be put in place. In addition, with energy costs representing up to 30% of total manufacturing costs in the ceramic industry, it is a must to be as energy efficient as possible in order to remain competitive.

Should there be a need to further discuss the ecodesign style objectives and strategy in the future, this could only be done in the frame of sector-specific BREFs. It is not appropriate to have these discussions in horizontal BREFs, such as the Energy Efficiency BREF, as this would not allow for a sector specific approach. Such sector specific approach is a prerequisite given the wide variety of ovens and furnaces used in the different industries.

Comments on mandatory ecodesign requirements

In the light of the impact assessment which is currently being finalised, Cerame-Unie would like to make the following comments:

Heat recovery:

It is not clear how the heat recovery could be calculated appropriately. In some cases it is possible to recover the heat from the firing process and use if for example for the dryers. However, it is even more energy efficient to keep the heat needed for the firing within the firing zone of the kiln. In a continuous kiln, this will reduce the amount of heat which is available for 'external recovery'.

It is also not clear how to account for the heat embedded in the walls of the furnace or surface heat losses. Recovering heat from inside the furnace (e.g. the walls) will increase the energy consumption in order to maintain a constant temperature inside the furnace.

In ceramic processes, a time-temperature controlled cooling phase is required after the firing phase, to control the final properties of the product. This is analogue to the 'processes where slow cooling of vapours is needed', a process which is explicitly exempted from the heat recovery requirement. The example of the ceramic industry should be added to clarify that ceramic furnaces are exempted from this requirement.

The working document recognizes that a general limitation to heat recovery is the need to have a use for the recovered heat. However, the solution proposed is to oblige the user of the furnace to "prove via a technical and economic submission that the installation and its end products are not suitable for the use of recovered energy technologies, or that the installation cannot be reasonably and economically adapted to facilitate the use of recovered energy." As already mentioned, due to the high energy costs there is already a strong incentive to recover energy where possible. Such a requirement to prove this via a technical and economic submission will only increase the administrative burden.

Minimum insulation performance:

The walls of a furnace are made of different layers of different products, with each their own heat resistant properties and insulating qualities. Technical trade-offs between these different properties have to be made. Glass melting and metal smelting process are given as examples of process which need to be exempted from the minimum insulation performance for this reason. The same applies however also to ceramic processes.

Adding additional insulation to the outside of the furnace might seem a simple solution but can prove unfeasible in reality. Increasing the exterior insulation of an existing furnace will increase the temperature of the middle to outer part of the kiln wall, thereby possibly exceeding the maximum temperature of the material used in that part of the furnace wall, leading to cracks, or other deformations of the furnace.

Cooling the walls to reach the surface heat loss requirement also has a counterproductive effect as it takes away heat/energy from the process and will thereby increase energy consumption.

Minimum air to gas ratio value:

An exemption from this requirement is proposed for all direct-fired ovens and furnaces. This is a very important exemption. On the one hand, the air:gas ratio control design option is unsuitable for direct-fired ovens and furnaces because the combustion gases require to be mixed with cold air to achieve the desired oven/furnace temperatures (as already highlighted in the discussion note). On the other hand, in case of direct-firing, the air:gas ratio might need to be adjusted to change the atmosphere in the oven/furnace, depending on the product being fired:

- A higher air:gas ratio in case additional air is needed to allow the firing of the organic content in the product (e.g. firing of ceramic bricks with organic content as pore-forming agents)

- A lower air:gas ratio if there is a need to create a reducing atmosphere (e.g. the firing of magnesia chrome refractory bricks which contain iron which would otherwise corrode).

Annex D: overview summary of ecodesign-related improvement potentials on a sectoral basis

For large size ceramics, an improvement potential is estimated at 10-20%. This % seems reasonable for some older kilns but not for newer ones. It would therefore be helpful to specify what age and state of maintenance of furnaces this refers to.

Annex D lists, amongst others, the reduction of the kiln car density to improve energy efficiency. However, it must be noted that these kiln cars have a number of important functions:

- to support the products loaded on the car
- to act as the 'fourth wall' of the kiln with a good insulating properties (to protect the inspection tunnel underneath the kiln car; to avoid the grease on the bearings not to burn; …)
- the kiln car also has to be very resistant to thermal shocks (where the walls of a continuous kiln are exposed to a similar temperature, the kiln cars fluctuate continuously from room temperature to up to 1800°C and back).

When listing several options, it should be noted that often the use of one technique prevents achieving any savings through another technique (mutual exclusivity of technologies). To what extent has this been taken into account?

Data collection

In general, data given refer to the Preparatory study report. However, it is not clear from this study report how many data points were used to base the information on. The representativeness and therefore also the credibility of some of the data in the Preparatory study and in the annexes to the working document can be put into question. For example, in Annex B, the lifetime of furnaces of sanitary ware industry is 10-15 years, based on information 'from stakeholder'.

Cerame-Unie welcomes the possibility to further contribute to the Impact Assessment study, to clarify any remaining issues or answer further questions.

The European ceramic industry covers a wide range of products including abrasives, bricks & roof tiles, clay pipes, wall & floor tiles, refractories, sanitaryware, table- & ornamentalware, technical ceramics and porcelain enamel. The industry generates over 200,000 direct jobs and a production value of €25 billion within the EU.

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