

Position Paper on food contact materials

The European Commission is currently reviewing the existing regulatory framework on food contact materials, in particular Directive 84/500/EEC¹ for ceramic articles. Among the discussed features of a possible legislative revision are:

- ▶ The potential extension of the Directive's scope to glass materials and articles,
- ▶ A significant reduction of the limit values for the migration of lead (Pb, reduction by a factor of 400) and cadmium (Cd, reduction by a factor of 60) and,
- ▶ The potential inclusion of limit values for other metals.

Glass products currently fall under the Framework Regulation (EC) 1935/2004 on materials and articles intended to come into contact with food. They are not covered by specific measures like those established for ceramic articles under the Directive 84/500/EEC. Nevertheless, glass manufacturers follow Directive 84/500/EEC on a voluntary basis.

Glass for Europe understands that the proposed revision and new limit values are driven by the European authorities' intention to put in place the most stringent regulatory framework with a view to eliminating any potential health risk.

Since the European Commission is considering a review of Directive 84/500/EEC and its possible extension to glass products and articles, **Glass for Europe would like to highlight some of the specificities of soda-lime silicate flat glass products and present results of a recent testing campaign**, which confirms the view that there is insignificant health hazard linked to the release of metals from flat glass products.

Considering undetectable or extremely low migration levels while using most precise analytical techniques available in laboratories and the disproportionate nature of the measure for a sector serving principally the construction and automotive industries, **Glass for Europe believes that:**

1. **Clear soda-lime silicate flat glass should be exempted from systematic testing obligations in light of test results**
2. **Coloured soda-lime silicate flat glass should be exempted from systematic testing obligations. Although releases of iron, which can be intentionally added for the production of green coloured flat glass, have been measured, these remain of extremely low levels.**

¹ Directive 84/500/EEC: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31984L0500>

Use of flat glass for food applications is very limited and rare: flat glass is mostly used in buildings, automotive and solar energy modules

More than 99% of flat glass production is used for windows, facades, automotive glass and solar energy modules. Only a very small fraction of flat glass production (much lower than 1% taking into account all other applications) is used in products intended for food contact. This limited number of articles includes cutting boards, decorative serving plates, tables, counter tops and fridge shelves.

Although quantities of flat glass products that may have food contact applications are almost negligible, **demonstration of compliance with new limit values would be required for all flat glass production** (around 10 million tonnes in the EU), **as the products' final destination and usage are not known to the flat glass producer at the time of production.**

Insignificance of health hazard

A large measurement campaign has been conducted in 2018. It analyses the release of 18 different metals from 16 flat glass samples coming from thirteen manufacturing sites in the EU. **For 16 of the 18 tested metals, the releases measured according to ISO 6486-1 were under the limit of quantification (LQ).** It is the case for cobalt, barium, lithium, chromium, copper, manganese, molybdenum, aluminium, antimony, arsenic, nickel, titanium, zinc, boron, lead and cadmium. Most of these metals are not intentionally added to soda-lime silicate flat glass with a few exceptions².

Releases could be quantified in certain flat glass samples for both iron (Fe) and tin (Sn).

For iron³, two of the sixteen tested samples showed release values above the limit of quantification (LQ) of 4,45µg/dm². The maximum release measurement was 5,61µg/dm² that is equivalent to 0.03mg/kg⁴. This value is 1000 times under the current specific release limit of 40mg/kg defined in the resolution CM/Res2013/9 of the Council of Europe⁵ on metals and alloys used in food contact materials.

Concerning tin⁶, all except two of the flat glass samples tested showed release. The maximum measurement value was 44,0µg/dm², which is equivalent to 0.26mg/kg. This is 200 times below the limit value set up in the EU Regulation 1881/2006⁷ of 50 mg/kg directly contained within baby foodstuff.

These migration results on flat glass products show that release levels are undetectable for 16 metals under the EU scrutiny. Even when based on a conservative conversion factor of 6, the maximum release levels observed for tin and iron are respectively 200 and 1000 times below EU regulatory limits on foodstuff and food contact. This supports the view that there is insignificant health hazard linked to the release of metals from flat glass products.

² Aluminium is one of the metals found in the flat glass matrix. It is a constituent of feldspar, which is one of the raw materials to produce flat glass. Its proportion by mass in soda-lime silicate flat glass is between 0 to 1.6%. Cobalt is sometimes added to raw materials to produce coloured glass. There is however no trace of release for any of these metals in all 16 tested samples.

³ Iron is added intentionally in the mix of raw materials to colour glass (greenish effect). To increase the glass transparency, which is essential for building glass, iron content is minimised as much as possible. This explains why the measurement is above the LQ for only two of the sixteen samples.

⁴ A factor of 6 dm²/kg is used to convert a surface release into a volume release value. As explained below, this conversion factor is inappropriate to flat glass products which can only have one contact surface: a flat piece and not a closed container. The factor of 6 therefore largely overestimates migration levels for flat glass and represents an overly conservative approach.

⁵ https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805c8094 and https://www.edelstahl-rostoffrei.de/downloads/iser/CoE-Guidelines_EN.pdf

⁶ Released tin is not coming from raw materials used to manufacture flat glass products but comes from a step in the manufacturing process. 90% of flat glass in the EU is manufactured by way of the float process, whereby molten glass floats on top of a tin bath immediately after exiting the furnace. In the case of cast and rolled glass, whose production does not require the molten glass to 'float' on top of a tin bath, tin release levels were below the LQ.

⁷ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32006R1881>



Testing conditions not adapted to the reality of food contact for flat glass products

Unlike other articles potentially targeted by the directive, flat glass products that are used for food contact purposes are usually intended to have **short-contact times and contact with food in the solid state only**. The prescribed testing conditions (24h contact at 22°C in 4% acetic acid) are not representative of a solid exchange.

Tests provide results per litre and conversion factors must be used for flat ware. The conversion factor is based on a factor of 6 from litres to square decimetres (considering the sum of the areas of the 6 faces of a cube of 1 litre), which implies a contact with all faces of a cube and the entire area of each of the six faces. This cannot physically happen while using products made of flat glass pieces.

Such test conditions lead to **a major overestimation of real migration**, and consequently consumer exposure. This factor was nevertheless used by Glass for Europe for this measurement campaign as it is already used in different food contact material (FCM) regulations, such as the FCM plastic materials regulation⁸, despite it representing an overly conservative approach to flat glass products.

A disproportionate burden on producers for no public health benefit

Reconfirming compliance with the newly proposed limits cannot be performed internally by companies since limit values migration measurement requires specific testing conditions including the use of ultra-pure reagents, clean rooms and the most advanced equipment in terms of accuracy. It would therefore require testing to be done by specialised external laboratories that have the appropriate equipment and expertise to perform this testing.

Even if a combination of laboratory type tests and proxy tests were allowed, this would still be disproportionate considering that over 99% of flat glass products will never be used for food contact applications. In this context, imposing the testing of all flat glass produced in Europe would put **a major burden on manufacturers, whereas all scientific evidence shows that soda-lime silicate flat glass products do not pose migration problems**.

Finally, it must be kept in mind that flat glass manufacturers do not put on the market the 'final articles' but only supply the glass to downstream processors that are specialised small and medium-size companies (SMEs). **These SMEs may face major difficulties in demonstrating compliance** for their final flatware products. Indeed, they would be forced to demonstrate compliance for each consignment of flat glass.

Glass for Europe is the trade association for Europe's flat glass sector. Flat glass is the material that goes into a variety of end products, primarily in windows and facades for buildings, windscreens and windows for automotive and transport as well as solar energy equipment, furniture and appliances. Glass for Europe brings together multinational firms and thousands of SMEs across Europe, to represent the entire building glass value-chain. It is composed of flat glass manufacturers, AGC Glass Europe, Guardian, NSG Group, Saint-Gobain Glass Industry and Siseçam-Trakya Cam, and works in association with national partners gathering thousands of building glass processors and transformers all over Europe.

⁸ [Commission Regulation \(EU\) No 10/2011 of 14 January 2011](#) on plastic materials and articles intended to come into contact with food.

