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Context :

As the French Technical Center for research and innovation dedicated to glass material and processes, the Cerfav submits in this document its answers to the questionnaire related to the RoHS Exemption 29 :

“Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4)
of Council Directive 69/493/EEC (1)”

1. We fully support the exemption 29 request as proposed by the applicant. Due to the adding of lead oxide, crystal has a low melting temperature and a long working range. That means that it can be hand-crafted to produce a wide range of various shaping at low temperature. Glass without lead (soda-lime, borosilicate...) has shorter working time, which makes some design forms very difficult to realize.
Moreover, simple glass does not achieve the optical properties of crystal, it does not provide its shining and its light dispersion qualities. The refraction index of crystal items generates a light transmission bigger than the one generated by flint glass (by a factor of at least 10%) and makes possible the famous “rainbow effect”.
Last but not least, electric crystal equipments are luxurious, they are kept and repaired if needed, and landfilling of those prestigious and expensive items is highly unlikely.
2. Today, on the basis of current knowledge, there is no alternative to lead oxide in the crystal composition. Lead oxide is the one and only known oxide that allows to achieve exceptional workability and technical properties.
Those 20 last years, several studies have been carried out to find a substitute. The colorless, refracting index, shining and transparency of a soda-lime glass can be improved by the adding of Bore, Barium and Zinc for example, but are still very far from crystal optical properties values. And their workability ranges are shorter.
It's important to point out that crystal glass has the same properties in terms of inertness and stability as usual soda-lime glass. Lead oxide is synthesized into the substance crystal. The applicants have produced the results of leaching tests that demonstrate that crystal is classified as non-hazardous waste according to criteria from Council Decision 2003/33/EC, including in relation to lead leaching.
3. For the French Technical Center for research and innovation dedicated to glass material and processes, more time is needed for studies and research, in order to try to achieve the crystal properties without lead. We need more time to test some elements from the periodic table of elements.

Vannes-le-château, France, the 16th of October 2015
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