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Clermont-Ferrand, 9th October 2015

Dear Sir,

Please find enclosed my answers to the Consultation Questionnaire Exemption for Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC.

Best regards,



Pr. Jean-Marie NEDELEC

Questions

1. The applicants have requested the renewal of Ex. 29 of Annex III, with the same wording formulation and with the maximum possible duration.

a. Do you agree with the scope of the exemption as proposed by the applicant?

YES

b. Please suggest an alternative wording and explain your proposal, if you do not agree with the proposed exemption wording.

c. Please explain why you either support the applicant's request or object to it. To support your views, please provide detailed technical argumentation / evidence in line with the criteria in Art. 5(1)(a) to support your statement.

Substitution of lead oxide in silica glasses has been the subject of numerous studies without success to date. Lead is used as intermediate in the production of Crystal glass both as a network former and a modifying agent. The first one is clearly not a problem for practical applications since it remains bound in the glass network even under severe conditions. The second one can be leached out in particular conditions which are never reached for lightning applications.

2. Please provide information concerning possible substitutes or developments that may enable reduction, substitution or elimination, at present or in the future, of lead in Crystal glass

a. In this regard, please provide information as to alternatives that may cover part or all of the applicability range of lead in crystal glass;

The most approximating candidate is probably Baryum oxide which still does not match the remarkable properties of Crystal glass and in turn raises toxicity issues. Right now, the remarkable properties of Crystal glass can not be reached without lead.

b. Please provide quantitative data as to application specifications to support your view, particularly explaining how suggested substitutes provide comparable workability to that of Pb based crystal glass or how this problem is solved through alternative manufacture practices. In this respect, please also provide quantitative specifications to allow a comparison of substitutes and Pb based crystal glass in relation to their aesthetic properties in end-products.

3. Please provide information as to research initiatives which are currently looking into the development of possible alternatives for some or all of the application range of Pb based crystal glass.

a. Please explain what part of the application range is of relevance for such initiatives (in what applications substitution may be possible in the future).

b. Please provide a roadmap of such on-going research (phases that are to be carried out), detailing the current status as well as the estimated time needed for further stages.

To my knowledge, the limited number of possible substituting elements has been explored without resulting in any usable formulation. The research is now more focused in further limiting migration of lead from the Crystal glass especially for alimentary applications (cementation process, coatings, ...). In the targeted applications, the risk is negligible.