Questionnaire

Exemption request 3 under Directive 2002/95/EC

"Cadmium as a Pigment for the Use in Vitreous Enamel"

The applicant requests an exemption for cadmium in vitreous enamels claiming that

- cadmium-free substitutes with comparable properties are missing, in particular for red-colored enamels.
- possible substitutes pose risks to the environment, which are only partially known, whereas risks from vitreous enamels containing cadmium are very small and well known

Before answering the below questions, please check the applicant's exemption request document (http://rohs.exemptions.oeko.info/fileadmin/user_upload/RoHS_IV/Cons_4/Exe-request-3-Institute-Vitreous-Enamellers.pdf).

1. How can "vitreous enamels" be characterized and differentiated from other enamels? What different types of enamels are available?

2. Do you agree with the applicant's arguments that substitutes for red color enamels are not available in the necessary quality and with the required properties?

3. The scope of the exemption is not clear.
    a. As the heat resistance of the enamels and of substitutes is of particular importance, can the exemption be limited to cookers?
    b. The exemption should be limited to red colors, as for other colors acceptable cadmium-free enamels are available. Cadmium, according to the applicant, cannot be replaced in some of these red colors. Which red colors are these, and can they be defined with a physical or other clear parameter indicating the exact colors?
    c. Do these red colours have a technical functionality or is their use needed for aesthetic aspects? If there is a technical functionality please describe it.

4. The applicant states that the use of cadmium "in this in the specific application on RoHS relevant product" is around 6 kg per year.
    a. Does this figure relate to the products produced or put on the market and does it refer to the EU 27 or to the global market?
    b. What are the specific applications the cadmium was used for?

c. If cadmium was used in RoHS-relevant products until now, how was this in line with the ban of cadmium in the RoHS Directive?

5. The applicant claims that the replacement of cadmium has resulted in losses of sales in particular for products with red colors.
   a. Is there any evidence that this has actually happened and that it is related to the substitution of cadmium?
   b. The RoHS Directive bans the use of cadmium since 2006. Why has this loss of sales become important now in 2010 only?

6. Plastics powder paints can be a substitute. The applicant claims that plastic resins, when burning, may give toxic decomposition products during recycling. Many plastic resins for example contain isocyanate cross linkers (polyesters, urethane) which will burn to give toxic hydrogen cyanide as a product of decomposition. Such substitutes shall hence have higher adverse impacts on the environment and human health compared to cadmium-containing enamels.
   a. Which different types of plastics are used as substitutes, and do the above potential problems occur with all of them?
   b. The above mentioned plastics, such as polyesters and polyurethanes, are commonly used materials. Why should it be such an environmental and health problem to use them as a substitute for cadmium-containing enamels? Additionally, incineration occurs under conditions with flue gas cleaning, at least within the EU so that there is less risk of emissions.
   c. Is Bisphenole A a precursor substance in all of the plastics substituting cadmium-containing enamels?
   d. How does the end-of-life phase of such products like cookers look like? Is such equipment actually incinerated at end of life?
   e. Is there any life cycle assessment or other study proving that the use of cadmium in this application is actually more environment-friendly compared to these plastics-based substitutes?
   f. Could substitution also take place at the colour level? I.e. could another colour or no colour also allow for the same technical functionality of the application covered by the exemption request?

7. The applicant states that organic red pigments used for plastic resins are based on organic complex carbon ring structures, mostly azo-pigments. The applicant claims that some azo-pigments have been found to be mutagenic and some azo-pigments are suspected to be carcinogenic. Some organic azopigments also contain halogen groups so that dioxines or furanes are possible decomposition products during any high temperature recycling of the base substrate. Other possible decomposition

products of organic pigments are carcinogenic aromatic amines because of the presence of Nitrogen and aromatic ring structures.

a. The above mutagenic and carcinogenic effects are linked to certain azo-pigments. Can these azo-pigments not simply be avoided using those, which do not have these genotoxic and carcinogenic effects?

b. Can the carcinogenic amines as decomposition products be produced under normal use conditions e.g. of a cooker?

The applicant and stakeholders are invited to clarify the above questions as detailed as possible. In your contribution, please state which question number you are referring to.

Documentation provided by stakeholders including replies to the questions above should take the following points into consideration:

Please justify your contribution according to Article 5 (1) (b) RoHS Directive, i.e.

- Justification for exemption still given or not given anymore according to technical and scientific progress;
- Substitution of concerned hazardous substances via materials and components not containing these is technically or scientifically either practicable or impracticable;
- Elimination or substitution of concerned hazardous substances via design changes is technically or scientifically either practicable or impracticable.