

Consultation Questionnaire Exemption 1(c) of RoHS Annex IV

1. The applicants have requested the renewal of exemption 1(c) of RoHS Annex IV with partially different scopes and wording.
 - a. Please let us know whether you support or disagree with any of the above wordings, scopes and requested durations of the exemption. To support your views, please provide detailed technical argumentation / evidence in line with the criteria in Art. 5(1)(a).
 - b. If applicable, please suggest an alternative wording and duration and explain your proposal.
2. Please provide information concerning possible substitutes or elimination possibilities at present or in the future so that the requested exemption could be restricted or revoked. Please specify which of the requested exemption scopes and wordings you address in your answers.
 - a. Please explain substitution and elimination possibilities and for which part of the applications in the scope of the requested exemption they are relevant.
 - b. Please provide information as to research to find alternatives that do not rely on the exemption under review (substitution or elimination), and which may cover part or all of the applications in the scope of the exemption request.
 - c. Please provide a roadmap of such on-going substitution/elimination and research (phases that are to be carried out), detailing the current status as well as the estimated time needed for further stages.
3. Do you know of other manufacturers producing devices of comparable features and performance like the ones in the scope of this exemption request that do not depend on RoHS-restricted substances, or use smaller amounts of these substances compared to the applications in the scope of this exemption?
4. As part of the evaluation, socio-economic impacts shall also be compiled and evaluated. For this purpose, if you have information on socioeconomic aspects, please provide details in respect of the following:
 - a. What are the volumes of EEE in the scope of the requested exemptions which are placed on the market per year?
 - b. What are the volumes of additional waste to be generated should the requested exemption not be renewed or not be renewed for the requested duration?
 - c. What are estimated impacts on employment in total, in the EU and outside the EU, should the requested exemption not be renewed or be renewed for less than the requested time period? Please detail the main sectors in which possible impacts are expected – manufacturers of equipment in the scope of the exemption, suppliers, retail, users of MRI devices, etc.
 - d. Please estimate additional costs associated should the requested exemption not be renewed, and how this is divided between various sectors (e.g. private, public, industry: manufacturers, suppliers, retailers).

Please specify which of the requested exemption scopes and wordings you address in your answers.
5. Any other information you would like to share?

Laser Components request the renewal of the exemption with the following scope and wording:

“Lead in infra-red light detectors”.

SUMMARY OF THE EXEMPTION REQUEST OF LASER COMPONENTS

According to Laser Components, “PbSe and PbS infrared detectors have unique characteristics that enable them to be used in a wide variety of applications. They are used in near infrared analysers used by very many diverse industries, medical devices for analysis of carbon dioxide in patients’ breath and in spark detection systems. These detectors are used because of their high sensitivity in the near infrared range and can be used without cooling. Another advantage over thermal heat detectors is the very fast response times of the lead based detectors, which is essential in many applications.” Voller Antrag ist in “Ex_1c-IV_LC_Renewal-Request.pdf”

Responds to the consultation for Exemption 1(c) of RoHS Annex IV

We, Voestalpine Signaling Siershahn, are producing and developing railway diagnostic and monitoring technologies, among other systems for hot box and hot wheel detection. We use PbSe-detectors to measure the temperatures of wheels and bearings on moving trains with stationary systems. The hot box and hot wheel detection is an essential part of the safety measures in railway traffic and transportation.

1. Our responds refers to the statement of LaserComponent.
 - a. We confirm the statement from LaserComponent. We use PbSe-detectors for hot box and hot wheel detection in safety measures of rail traffic and transportation because of their high sensitivity at relatively large wavelength (up to 5 μm), the fast responds time and the usage of high detector temperatures.

It is very important for us to obtain access to detectors with high sensitivity, because the trend to lower alarm temperatures in the safety measures of railway traffic is continuing. With lower alarm temperatures, the railroad operators are able to find damages at bearings, brakes and wheels earlier and help to ensure a safe and undisturbed rail traffic. To precisely measure low temperatures (30°C to 100°C), a high sensitivity for big wavelength is vitally important. For a black body at 30°C the peak emission is at $\sim 9.7 \mu\text{m}$ and for 100°C at $\sim 7.8 \mu\text{m}$. The maximal sensitivity for PbSe-detectors is at 4.2 μm with the upper boarder at 5.2 μm (at 0°C detector temperature). The emission of lower wavelengths from a black body is falling rapidly; this is the reason, why the high sensitivity for large wavelength is vitally important for us.
 - b. We do not want to suggest an alternative wording.
2. Substitution and elimination possibilities.
 - a. Until now, we have not found an adequate alternative for PbSe-detectors to use in the critical safety infrastructure of railroad traffic.

It is not possible to reduce the amount of detectors in our systems because in every device is just one detector and the detector is the most relevant part in a device to measure the temperature via infrared radiation.

The only possibility to reduce the amount of lead would be a RoHS conform detector, able for the usage in hot box and hot wheel detection. Until now, we have not found a suitable alternative.

3. As far we now IR-detectors made of Lead-Selenide (PbSe) and Cadmium-Mercury-Telluride (CMT or $\text{Hg}_{1-x}\text{Cd}_x\text{Te}$) are used for hot box and hot wheel detection, both materials contain RoHS restricted substances. In some regions of the world bolometers are used, these detectors are not suitable for fast moving trains. The European Railway Norm EN15437-1 requires the ability to measure trains with a speed of 250 km/h, this is not possible with bolometers.
4. Evaluation of socio-economic impacts
 - a. The devices we distribute in a year contains ~5 mg lead. It is to mention that our devices have a lifetime of around 20 years with a regular maintenance interval. At the end of the lifetime, the devices will be refurbished and properly disposed.
 - b. We are not able to evaluate the additional waste generated if the exemption is not be renewed.
 - c. We have 230 employees in our company, without the production of devices for hot box and hot wheel detection on the basis of PbSe-detectors we would not be able to keep these employees. The European and not European railroad companies would not be able to install state of the art systems for hot box and hot wheel detection. The safety measures for hot box and hot wheel detection are required by national railway authorities (in GER Eisenbahn-Bundesamt) the impact on the railroad traffic could be enquired by the railway authorities.
 - d. We are not able to estimate the additional costs if the examination is not renewed.