EUROPEAN COMMISSION
DIRECTORATE-GENERAL
ENVIRONMENT
Directorate G - Sustainable Development and Integration
ENV.G.4 - Sustainable Production & Consumption

DIRECTIVE 2002/95/EC[1] ON THE RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT (ROHS).

CHECK LIST FOR REQUESTS FOR ADDITIONAL EXEMPTIONS

Industry has sent to the Commission's services a number of requests for exemptions from the requirements of the RoHS Directive that are additional to those currently covered by the study and the stakeholder consultation. In most cases these are not substantiated by scientific and technical evidence. The proposed check-list will enable the Technical Adaptation Committee (TAC) to carry out a first screening of the requests received. Proposals that successfully pass the screening process will then be considered for a possible exemption.

Article 4(1) of Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment1 provides 'that from 1 July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, PBB or PBDE.' The Annex to the Directive lists a limited number of applications of lead, mercury, cadmium and hexavalent chromium, which are exempted from the requirements of Article 4(1).

Adaptation to scientific and technical progress is provided for under Article 5 of the Directive. Pursuant to Article 5(1): "Any amendments which are necessary in order to adapt the Annex to scientific and technical progress for the following purposes shall be adopted in accordance with the procedure referred to in Article 7(2):"

Article 5(1)(b) allows the exempting of materials and components of electrical and electronic equipment from Article 4(1) if their elimination or substitution via design changes or materials and components which do not require any of the materials or substances referred to therein is technically or scientifically impracticable, or where the negative environmental, health and/or consumer safety impacts caused by substitution are likely to outweigh the environmental, health and/or consumer safety benefits thereof. <u>These terms of reference mean that the TAC cannot consider exemptions for any other reason, for example a justification based on increased costs.</u>

In order to allow the TAC to consider submissions for additional exemptions, the information in Table I should be provided as a minimum requirement. The request for submissions must fulfil the criteria of Article 5(1)(b). The information provided should be supported, as far as possible, with relevant technical and scientific evidence.

[1] OJ L 37, 13.2.2003, p. 19

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TABLE I – CHECK LIST

PROPOSALS FOR FURTHER EXEMPTIONS FROM THE REQUIREMENTS OF ARTICLE 4(1) OF DIRECTIVE 2002/95/EC FOR SPECIFIC APPLICATIONS OF LEAD, MERCURY, CADMIUM, HEXAVALENT CHROMIUM.

Submitted by: Test and Measurement Coalition

Criteria	**Information:** **Please provide supporting technical and scientific evidence**
1. Please indicate the specific application for which the exemption is requested and indicate a precise and clear wording for the new exemption. Please describe the material/ component of the electrical and electronic equipment that contains the hazardous substance. Please indicate the functionality of the substance in the material of the equipment. Provide a detailed description of the application which explains why the restricted substance is currently required or used. Please indicate the quantity of the hazardous substance present in the whole equipment (Kg).	Lead and cadmium in metallic bonds creating superconducting magnetic circuits. Magnetic Resonance Imaging (MRI) applications are covered by Annex IV exemption 12 "Lead and cadmium in metallic bonds to superconducting materials in MRI and SQUID." However the same application of the material is utilized in many superconducting devices with applications including but not limited to Nuclear Magnetic Resonance (NMR) and Fourier Transform Mass Spectrometer (FTMS) instruments - See press release introduction to NMR Use: Electrical connections are made to the coils using low temperature melting alloys which are also superconductors at 4K. The alloy of choice contains 25% lead and 12.5% cadmium and remains superconducting in the very strong magnetic field of the superconducting coil.
2. Please explain why the elimination or substitution of the hazardous substance via design changes of materials and components is currently technically or scientifically impracticable.	Potential substitutes are Pb,Bi, PbSn and InSn solders however these will not work satisfactorily since superconductivity is degraded in the presence of strong magnetic fields. This is confirmed in section 10.11.1 of the ERA study report In addition solders using tin are impractical as the tin undergoes a phase transformation with an associated large change in volume. This causes the metal to disintegrate into a fine powder so that the electrical connection is lost; this phenomenon is known as tin-pest - see section 3.2.1 of the COCIR report Although it is not normally a serious problem with commercial lead-free solders at temperatures above 30°C, the phenomenon prevents tin based solders being practical in metallic bonds for superconductors at a temperature of 4K.
3. Please indicate if the negative environmental, health and/or consumer safety impacts caused by substitution are likely to outweigh the environmental, health and/or consumer	No feasible substitutes are available.

Criteria	Information: Please provide supporting technical and scientific evidence
safety benefits. If existing, please refer to relevant studies on negative impacts caused by substitution.	
4. Please indicate if feasible substitutes currently exist in an industrial and/or commercial (please provide reference for the substitutes). If substitutes exist on the market, please indicate why they are not used. Please indicate in which applications they are used. Please indicate what efforts are being made by your company to develop alternative techniques. Please indicate if the alternative techniques will be available by 1 July 2006 or at a later stage. If not by that date, please indicate when you expect an alternative to be available?	Potential substitutes Pb,Bi, PbSn and InSn solders are not feasible as superconductivity is degraded in the presence of strong magnetic fields as noted in section 10.11.1 of the ERA study report **We therefore request that the exemption applies until 2021 for all Monitoring and Control products (aligned with typical product lifecycles and the first review of Exemptions for Category 9.)**
5. Please provide any other relevant information that would support your application for an additional exemption.	**The description of exemption 12 in Annex IV is limited to medical uses that do not cover the uses in category 9 instruments. The description of the exemption should be revised or a new one granted for category 9 products.** If the exemption is not granted for Category 9 Monitoring and Control the unavailability of this substance exemption would cause withdrawal of products from the EU market. This would have very serious consequences, not only for Category 9 producers, but also on client industries which are of key importance for the EU economy and competitiveness – NMR and FTMS equipment is used in science laboratories, pharmaceuticals, hard drive manufacture, silicon wafer manufacture and industrial magnetic separation.

Additional guidelines

To support your application, it may be useful to provide, in addition, an assessment of your application from an independent expert. These should be accompanied by information that will allow the Commission and TAC to be satisfied that the consultant is independent and is qualified to assess the application.

Explain the reasons why potential alternative materials, designs or processes are unsuitable with quantitative data wherever possible. If possible, provide photographs or diagrams to illustrate claims. Sources of information should be referenced where possible.