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 equipment 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. These terms of reference mean that the TAC cannot consider exemptions for any other reason, for example a justification based on increased costs.

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

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.

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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).	**Hand crafted luminous discharge tubes (HLDT) used for signs, decorative or general lighting and light-artwork.** Like in most fluorescent lamps, these discharge tubes contain a small quantity of mercury. The use of mercury results in generating about 99.8% of the light output through it's UV-emission inside the discharge tubes which is converted into visible light via fluorescent coatings. There is almost no light output in HLDT without or with insufficient mercury in the lamp, hence a minimum small quantity of mercury needs to be added. As these HLDT are also used outdoor they have to work reliably in severe and cold conditions with very high life expectations because they are often difficult to access. 20 mg per pair of electrodes plus 15 mg per 50 cm of tube length, but not exceeding 80 mg per tube. For indoor applications above 20°C this limits are 15 mg per pair of electrodes plus 12 mg per 50 cm of tube length. ESF targets to reduce this by the end of 2015 to 15 mg per pair of electrodes plus 8 mg per 50 cm of tube and for indoor applications above 20°C to 10 mg per pair of electrodes plus 6 mg per 50 cm of tube. A next target is set forward for the end of 2018 to 10 mg per pair of electrodes plus 7 mg per 50 cm of tube and for indoor applications above 20°C to 8 mg per pair of electrodes plus 6mg per 50 cm of tube length, based on evaluation of the results in the field
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.	The ideal of course is a world without mercury or taxes. The reality however shows a limited level of both are necessary to keep the world going. HLDT are no exception to the laws of physics. a)as with practically all fluorescent lamps mercury is essential for light output. "No mercury = no light". If there would be an alternative available to the usage of mercury with equal properties except toxity , the present exemption shall be re-evaluated. b)in HLDT the successful reduction of the quantity of mercury below 80 mg per tube recently has become possible in combination with the use of new materials like triphospor coatings, leadfree glass,

Criteria	Information: Please provide supporting technical and scientific evidence
	improved electrodes and anti-migration coating, under specific laboratory conditions. Yet HLDT are expected to work under various conditions at temperatures well below 0°C which exceeds the working conditions for traditional lamps. (To have some operating margin in the US an upper limit of 100 mg per HLDT is being accepted.) c)the longevity of HLDT is closely related to it's mercury content. HLDT can operate for up to 20 years which is equivalent to 130 000 hours without replacement, thereby outperforming any other light source in efficiency, life span and versatility regarding shape and light spectrum. The minimal requirement for maintenance is a major energy saving advantage in itself. d)The European Sign Federation (ESF) has promoted several programmes to reduce the amount of mercury per HLDT in the last 10 years. This has helped to reduce the quantity of mercury per tube by approx.75%. The total quantity of mercury used per year by all European HLDT manufacturers combined is less than 0.4% of the quantity of mercury sold every year in 'Energy Saving' lamps, promoted by all governments to reduce the energy bill. Moreover, unlike Energy Saving lamps that are almost always handled by untrained consumers HLDTs are always handled and installed by experienced technicians, they are not consumer products; for this reason the risk of exposure to mercury by HLDT lamp breakage is practically nonexistent. e)our industry is well capable of mastering all the parameters during the manufacturing of a HLDT but it is the wide variety of operating conditions that make a further reduction of the quantity of mercury per tube for all HLDT manufacturers impracticable at this point. However a team of experts and scientists has committed to follow up and evaluate tecnological development and field experience with the aim to comply with lower limits in increments of 3 years until 2018.
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 safety benefits. If existing, please refer to relevant studies on negative impacts caused by substitution.	a)no substitution is possible so far. HLDT are offered in the widest range of colours and dimensions in order to correspond in the most efficient way to the needs of architectural design and visual communication. Basically the HLDT are made of a very ecological material (glass). If the market would be forced to use a different light source, not linear and not perfectly adaptable, this would lead to increase the usage of more polluting or less available materials, like Arsenic, Indium, Antimony, Gallium on the one hand and on the other hand plastics of various kinds, to imitate the look of linear light source. As the physical qualities of the substitution cannot match those of rigid and continuous HLDT the imitation would require additional fixtures with e.g. aluminium profiles and insulated copper wires. Such materials will increase the amount of waste of EEE. In addition diffusers and filters required by these applications will decrease substantially the luminous efficiency of such alternatives, with negative impact to the global pollution. The lower life span of all other light sources and increased usage of plastic materials will lead to more frequent maintenance, with more polluting transports

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	and waste generated. b)a reduction of the quantity of mercury per tube would seriously affect the lifespan of the tube, thereby multiplying energy and effort required to make and install replacement lamps in order to cover the same total period of service. Further, HLDT with lower quantities of mercury per tube could only be used in stable temperature controlled environments at or above 20°C (indoor), ruling out the common application for in- and outdoor and cancelling all advantages stated above. c)ESF together with various experts has studied this effect extensively in recent years and had to conclude the upper limit of 80 mg per tube cannot be lowered at this moment. d)technical enquiries in depth among leading manufacturers clearly show 80 mg cannot be lowered as upper limit for mercury in a tube of 2m long without affecting the high ratio of light output versus energy consumption nor it's life expectancy. HLDT and their mercury content are 100% recyclable. The recycling is already in place since many years as HLDT are not a consumer product. HLDT can be repaired and reused after their original operational life has elapsed. In contrast, although leds are often cited as alternative for HLDT there are no dedicated recycling programmes for leds. If leds are incinerated as electronic pcb waste the toxic waste like arsenicum amalgam goes into the dump. HLDT are in clear advantage regarding practiced recycling and pose less threat to the environment than leds.
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?	a)no substitute for mercury is available. b)no other lightsource can match the performance of these HLDT in terms of ratio of light output versus energy absorption, colour spectrum, aesthetics and longevity. Not applicable. Within ESF and it's affiliated national organisations of signmakers and producers of components continuous R&D is being carried out to find ways to optimize light output while reducing the quantity of mercury in a tube. The whole illumination industry is searching for an alternative, like for the holy grail. So far nobody has been fully successful, even with large-scale research studies at small and large lamp manufacturers.

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	We cannot foresee when this situation may change, if at all. In the present situation the total European energy bill would be 10 times higher if there was no mercury.
5.Please provide any other relevant information that would support your application for an additional exemption.	ESF has set up a monitoring and quality programme called EQN. The response is very positive as members realize this is the only way forward. The ultimate goal is to have the programme integrated in all glasshops, so the industry would be monitored. The EQN Charter that is signed by the members is all about commitments, one of them is to have all broken or end-of-life tubes recycled. Based on the fact that the materials used in HLDT and commercial fluorescent lamps are almost identical, they can be managed in similar systems. In the EQN audits the presence of a recycling contract with a licensed recycler is a basic requirement. The manufacturing of HLDT is labour intensive, it provides jobs to many individuals that completely depend on that product. Not obtaining an exemption would mean all these manufacturers and the related installation people would be pushed out of work and all HLDT manufacturing companies in Europe as well as some HLDT manufacturers overseas will need to close. This cannot be the intention of making regulations, especially if the product these people make is an exceptionally good one with a continuous use (often not realized) and development for more than 100 years since 1910, where it was patented by George Claude in Paris, Europe. HLDT is indeed by origin a European product. Please keep it there.

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.