EUROPEAN LAMP COMPANIES FEDERATION

15 December 2006

European Commission
DG Environment
Directorate G Sustainable Development and Integration
ATTENTION: Karolina Fras
Unit G.4 Sustainable Production & Consumption
Rue de la Loi 200
B-1049 Brussels
Belgium

Stakeholder consultation on adaptation to scientific and technical progress under Directive 2000/53/EC on End-of-Life-Vehicles for the purpose of a possible amendment of Annex II.

Dear Ms Fras,

We thank the Commission for the opportunity to respond to this Stakeholder Consultation.

The ELC represents the leading lamp manufacturers in Europe and accounts for 95% of total European lamp production, with approximately 50,000 employees in Europe and a 5 billion EURO European turnover.

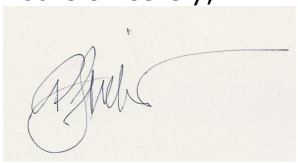
In response to this consultation (Section 2.2 – Article 4(2)(b)(iii)), the ELC does not support the withdrawal of the exemption of discharge lamps containing mercury. We propose the following:

- An extension for discharge lamps containing mercury in existing cars and the spare parts supporting existing cars; and
- New cars to use mercury free discharge lamps from an agreed date with the automotive and headlight manufacturers.

Please find attached in the Annex, our arguments in support of our position to maintain use of discharge lamps containing mercury.

I trust the information we have provided is clear. Please do not hesitate to contact me, in the event that you have any further queries.

Yours sincerely,



Gerald Strickland
Secretary General

• Diamant Building • 6th Floor • Bde A. Reyers 80 • B-1030 Brussels • Belgium •
• T. +32 2 706 86 08 • F. +32 2 706 86 09 • info@elcfed.org • www.elcfed.org •

CURRENT EXEMPTION and SUBSTITUTE		
No	Criteria	Justification
1	Please describe the material and/or component of a vehicle that contains the hazardous substance.	The current exemption reads: **Mercury: 19. Discharge lamps and instrument panels**. Below justification is for substitution of mercury in discharge lamps for automotive head lighting. Two technologies exist for head lighting: conventional incandescent (halogen) and gas discharge lamps. The gas discharge lamps are filled with a mixture of sodium, scandium and mercury as illuminating materials. To be able to operate the lamp, electronic lamp drivers are necessary. A mercury containing light system has very high light intensity and a long life span. As compared to conventional halogen lamps, gas discharge bulbs have clear advantages especially in terms of light intensity, longer lifetime, whiter light and better energy efficiency.
2	Please indicate the type and quantity of the hazardous substance used in the material and/or component and the substitute that can replace the currently used substance.	Mercury as pure material. Substitution by zinc salt compounds
3	Please indicate the functionality of the existing substance in the material and/or component of a vehicle and the functionality of a substitute.	Mercury evaporates at rather low temperatures – thus allows to change to gaseous phase easily. This allows generation of ant light emission in a high-efficient way as well as stable gas pressure inside the lamp. Stable gas pressure also results in a stable lamp voltage, which allows lamp operation with an electronic driver. As mercury stabilizes all electrical parameters of the lamp, this helps to simplify the electronic circuit. Substitution: Zinc compounds can evaporate almost as quickly as Mercury, and also emit light in visible wavelength spectrum. This allows balancing the lamp efficacy versus operation conditions on an adequate level similar to a Hg-containing lamp. Also the Hg-free lamp needs to be operated with an electronics driver, different from the current one, as lamp voltage is lower.
4	If possible, please provide an estimate of the annual quantities of the hazardous substance	Per lamp average 0.5 mg (Hg). Total lamp market about 15M/yr Total of lamps put on the market in Europe hence about 7,5kg/yr.

	used in this particular application.	
5	Please explain why the substitution of the hazardous substance is currently technically and scientifically possible / practicable.	Zn compounds allow to stabilise the lamp voltage on a lower but constant level as Mercury-containing lamps. Light emission can be realized in an efficient way as the radiation of Zn-compounds happens in the visible range of light.
6	Please indicate what are the potential positive environmental, health and/or consumer safety impacts caused by substitution. Please describe what could be the potential negative environmental, health and/or consumer impacts of such substitutes. *If existing, please refer to relevant studies on negative impacts caused by substitution.*	Zinc, scandium and sodium iodides are mentioned in the literature on mercury-free lamps. The potential impact on health, safety and environmental of these compounds is much less than mercury.
7	Please indicate if substitutes currently exist on an industrial and/or commercial scale. Please indicate the possibilities and/or the status for the development of substitutes and indicate if these substitutes will be available by the expiry date of the exemption or at a later stage.	A substitute exists on industrial and commercial scale. Number of non-mercury containing lamps put on the market is about 1M (2005) and 2M (2006). There are 3 independent lamp manufacturers offering the substitute on a commercial scale. The mercury-free head lighting is at present applied by 2 independent car manufacturers 4 brands and more than 20 car types.
8	Please indicate if any current restrictions apply to such substitutes. If yes, please quote the exact title of the appropriate legislation/regulation.	Mercury-free lamps to satisfy the requirements as set in ELV directive 2000/53/EC. UN/ECE Regulations do not allow for the interchange of lamps in the head lamp for safety reasons. In practice, headlamps, once approved according to ECE Regulation No. 98, cannot and

		- in several countries - may not be equipped later on with other lamps than the headlamp has been approved for. Allowed lamps are specified by ECE Regulation No. 99, which does not specify use of materials but parameters for interchangeability.
9	Please indicate the costs and benefits and advantages and disadvantages of such substitutes. If existing, please refer to relevant studies on costs and benefits of such substitutes.	Mercury-free lamps cannot be retrofitted in existing cars. The lamp requires an adapted electronic lamp driver. For use in new car designs, the mercury-free lamp must be used with this electronic driver. The optics had to be adapted to accommodate a special keying system, to prevent the mismatch between the bulb and the head lamp.
10	Please provide any other relevant information that would support your application.	Reference can be made to scientific papers, see below list of references.

References:

- C.J. Jalink, P. Postma, H. Tiesler-Wittig, M. Haacke, *Mercury Free Xenon HID – The Conscious Alternative*, PAL 2003 Symposium; Darmstadt University of Technology
- Helmut Tiesler-Wittig, Michael Haacke, Kim Jalink and Pieter Postma, *Mercury Free Xenon HID - A Challenging Development in a Global Context*, 2003 SAE World Congress, Detroit, Michigan, March 3-6, 2003 in: Lighting Technology (SP-1787)
- Helmut Tiesler-Wittig, Pieter Postma and Benno Spinger, *Brightness to the Very Limit –Headlighting Sources With High Luminance – Mercury Free Xenon HID*, 2005 SAE World Congress, Detroit, Michigan, April 11-14, 2005 in SAE TECHNICAL PAPER SERIES, 2005-01-1011
- Pieter Postma, Helmut Tiesler-Wittig, Holger Weinert, *Combining Safety with Environmental Protection - Headlighting Sources for Perfect Safety with High Luminance Mercury free Xenon HID*,
ISAL 2005 Symposium; Darmstadt University of Technology
- Matthias Born, *Quecksilberfreie Hochdruckgasentladungslampen für den Einsatz in Automobilfrontscheinwerfern*, in: Info Phys Tech 62/2006, VDI Technologiezentrum GmbH
- D. Grundmann, C. Schimke, Th. Reiners, O. Hering, *Hg-free Gas Discharge Lamps for Automotive Use*, PAL 2003: Vol 10, Darmstadt University of Technology, ISBN 3-8316-0257-3
- D. Ehrlichmann, *Quecksilberfreie Xenonlampen-Systeme für Kfz-Scheinwerfer*, Licht 2004 – Dortmund, Lichttechnische Gesellschaft