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Adaptation to scientific and technical progress under Directive 2002/95/EC

EXCERPT
of final report 2009

Final report

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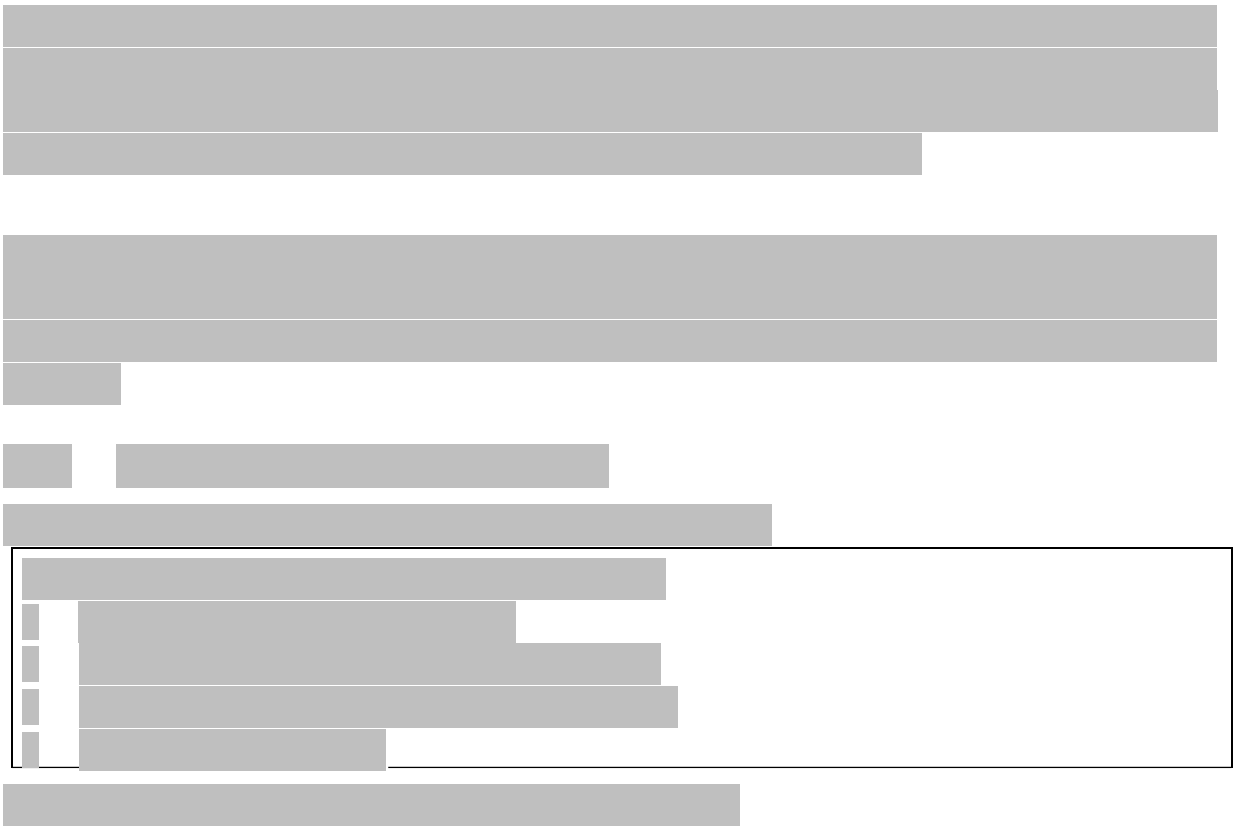

4.4 Exemption 3

The current wording of the exemption is

"Mercury in straight fluorescent lamps for special purposes".

Taking into account that the contractor adjusted the lamp classification compared to the current RoHS Annex, this exemption therefore only covers **"Mercury in cold cathode fluorescent lamps (CCFLs)"**.

CCFLs are used as backlight lamps in displays as well as in scanners and projectors. Currently, for some applications, mercury-free alternatives using LED are available. Although there is no sound hard fact based scientific analysis available, environmental NGOs and the authors of the Swedish study claim that LED-based backlights are a valid substitute for CCFLs [3] [4].

ELC [1] and JELMA [14] have proposed the following limit values for CCFLs:

1. mercury in short length (not over 500 mm) cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) not exceeding 3.5 mg per lamp;

2. mercury in medium length (over 500 mm and not over 1500 mm) cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) not exceeding 5 mg per lamp;
3. mercury in long length (over 1500 mm) cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) not exceeding 13 mg per lamp;

It is important to note that JELMA requests the explicit mentioning of EEFLs (they are a type of CCFL) and that upon request of the consultant JELMA has proposed a limit value for CCFLs and EEFLs bigger than 1.500 mm (which was not taken into account by ELC in its proposal since the JELMA input was given after the last stakeholder meeting). Lamps of these dimensions are currently under development and a mercury threshold value was difficult to determine since the maximum length of the lamps is not yet known. Nevertheless, JELMA has proposed 13 mg as limit value.

AeA [16] and EICTA [15] have both requested a limit value of 5 mg – independently what length the lamps have.

Environmental NGOs request a limit value of 2 mg for CCFLs. They justify the 2 mg limit due to the fact that CCFLs should be considered as linear fluorescent lamps and should thus be given the same limit. NGOs further suggest that given the recent developments laptop computer and LCD screens should be mercury free by 2012.

The Swedish study comes to the conclusion that LED are “already been used some time in small displays but are successively introduced in larger displays. LCDs with LED are already available, especially for notebooks with small (13 inches) displays.” Environmental NGOs confirm that “very recently Dell has announced that all new laptops will be 100 percent mercury-free by October 2009. […] Soon after Dell, HP announced that by 2010 their laptops will be mercury-free.” They thus request that exemptions under RoHS should not be valid for these areas of application by 2012 at the latest.

For other areas of application (such as commercial signs / neon signs, exit signs and scanning devices), the Swedish study comes to the conclusion that there are also mercury-free alternatives existing.

4.4.1 Critical review

In the case of CCFLs no reliable market data is available. The industry proposal on limit values has been well justified on a qualitative level. Currently, no limit is set at all for these types of lamps. At this point of time it cannot be evaluated whether a 2 mg limit would be feasible for all CCFLs and no data has been provided either to support this request.

Penetration of LED as a substitute technology is taking place independently of RoHS exemptions. It is mercury-free but no evidence has been provided whether there are or not environmental drawbacks associated with this technology when used as a substitute.

Currently it is unclear whether the announced introduction of LED-based backlights in displays will be successful on the market. Furthermore, until now there seems to be no reliable data and information available on the environmental impacts of LED-based lamps compared to current lighting applications (e.g. energy needed for production, efficacy, lifetime, etc.) on a life-cycle based approach. Therefore, the consultant recommends to observe the further technological development and to review the applicability of this technology by 31.12.2012.

4.4.2 Recommendation

Concluding on the above the recommended wording would thus be:

- *Mercury in short length (not over 500 mm) cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) not exceeding 3,5 mg per lamp until 31.12.2012;*
- *Mercury in medium length (over 500mm and not over 1500 mm) cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) not exceeding 5 mg per lamp until 31.12.2012;*
- *Mercury in long length (over 1500 mm) cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) not exceeding 13 mg per lamp until 31.12.2012.*

Since for the application of CCFLs in the different areas of application substitute technology like LED-based backlights is already available, but without reliable data on the environmental impacts, it is recommended to restrict the exemption in time and to review the applicability of the new technologies by 31.12.2012.

Mercury in long length (over 1500 mm) cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) are not yet in development. In order to give industry legal guarantees for future developments, a limit value for this type of lamps is recommended by the consultant. The consultant, however, proposes a notification process for these lamps to collect data and information for future revisions of the Directive.