

**Öko-Institute e.V.
Stephanie Zangl
P.O. Box 50 02 40
D-79028 Freiburg
Germany**

Brussels, 31 March 2008

Subject: Stakeholder consultation on Adaptation to scientific and technical progress under Directive 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment for the purpose of a possible amendment of the Annex

Exemption 9 Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.

Dear Mrs. Zangl,

As one of the main producer of absorption refrigerators in Europe we welcome the opportunity to contribute to the stakeholder consultation concerning exempted application from the RoHS Directive 2002/95/EC and in particular Exemption no. 9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.

Since 1925, Dometic (previously owned by Electrolux) has produced some 50 million absorption refrigerators. Today, Dometic produces approximately 700.000 cooling units per year, of which 350.000 units are sold in Europe. Out of them, only 200.000 units are considered under the RoHS Directive. The production is located in Sweden, Germany, and Hungary. Absorption refrigeration is a unique heat driven technology that can be operated on gas (propane/butane), kerosene or electricity. Absorption refrigerators contain no moving parts and as a result they are completely silent and vibration free. Therefore, they are frequently used in hospitals, hotels, and small apartments. Furthermore, they are used in caravans, motor homes and other places where electricity is not readily available. Today, the life length of an absorption refrigerator could be as long as 15 years or even longer.

The Dometic absorption cooling units are constructed in carbon steel because of its strength and good welding and cold-working properties. The refrigerant is an ammonia-water solution. The absorption cooling system is a completely closed system, which is pressurised with hydrogen gas (see Annex 1). In order to prevent corrosion of the carbon steel cooling system a small amount of *hexavalent chromium* is added to the refrigerant. At this stage, despite extensive research, there are a number of scientific and technological challenges, which remain to be overcome, and where alternatives to hexavalent chromium give rise to difficult trade-offs in respect to product lifetime, product reliability and energy efficiency.

Dometic is committed to investigate possible alternatives to hexavalent chromium, as indicated by the large body of research that we have carried out to date. Indeed, we are currently conducting further research in this area, however at this time there exists no viable alternative. You will find answers to the general questions and specific questions related to Exemption 9 and further information about our activities in the enclosed documents.

Please note that it is our request that part of the information we have submitted to you should be considered as confidential, other information should not be publicised, which we have clearly marked at the documents. If you feel that the exemption cannot be justified on the basis of the confidential information we have submitted please let me know as soon as possible and we will try to find an acceptable agreement for both parties.

Should you have any questions or require any further information, please do not hesitate to contact me at telephone +32 2 300 0766 or by e-mail: kristin.sjoblom@dometic.be

Yours sincerely,

Kristin Sjöblom
Environmental Manager Dometic Group

	<u>List of enclosures</u>	<u>Status</u>
1	Answers to general questions	Not for publication
2	Answers to specific questions exemption 9	Not for publication
3	Annex 1. The Absorption System (schematic drawing)	-
4	Annex 2. Corrosion Studies 1920-1999	Not for publication, sent by post
5	Annex 3. Corrosion Studies 2000-2007	Confidential, sent by post
6	Annex 4.1 Road-map Possible substitute survey	Confidential, sent by post
7	Annex 4.2 Road-map Historical and future activities	Confidential, sent by post
8	Annex 4.3 Road-map List of Corrosion experiments	Confidential, sent by post



THE ABSORPTION SYSTEM

