

## Legal recommendation on health and safety regulations

In the context of WEEE recycling, health and safety issue should be approached from three aspects:

- General occupational health and safety regulations, which is applicable in all industrial sites

The occupational health and safety regulations should state that it is the responsibility of employers to ensure that safety is maintained all the time at work; risks to the accidents and exposure to the dangerous substances minimized, appropriate monitoring, training and control programs implemented. Also, worker must have responsibility to follow all the safety rules and so ensure safety of themselves and co-workers.

- Dismantling and treatment of WEEE

The companies engaged in WEEE collection, transport, dismantling should be certified or approved (licensed) by appropriate authority.

- Regulations on EEE

Law should prohibit or limit usage of certain substance in EEE design, to minimise in the WEEE phase hazardous chemicals emissions. A solution could be to adopt all or part of the EU RoHS directive (Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment).

### **1. Legislation concerning hazardous substances in EEE**

In EU, hazardous substances in EEE is regulated by 2 norms:

1) EC REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006, concerning the Registration, Evaluation, Authorization and Restriction of Chemicals. This is the so-called REACH directive, which set the ground stone of definition of hazardous substances in general and limitation in their use in products and processes

2) In June 2011 the EU recast the RohS directive, DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. With the aim to restrict the use of hazardous substances like Cadmium, heavy metals, mercury, cadmium, lead, chromium VI, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) and other PoP etc. in EEE and to replace them with less harmful materials whenever technical progress makes this possible.

There are numerous exemptions from the substitution requirement. They are permitted if substitution is not possible from the scientific and technical point of view, taking specific account of the situation of SMEs or if the negative environmental, health and consumer safety impacts caused

by substitution are likely to outweigh the environmental, health and consumer safety benefits of the substitution or the reliability of substitutes is not ensured.

The decision on exemptions and on the duration of possible exemptions should take into account the availability of substitutes and the socioeconomic impact of substitution.

Most exemptions have an expiry date, which is being reviewed regularly.

Member States shall ensure that EEE placed on the market does not contain the substances listed in Annex II, or that the maximum concentration levels in homogenous substances are kept.

The Regulation defines in details the responsibilities of producers, importers, resellers, the marking requirements with the "CE" as sign of conformity, and the process of entering and omitting substances into or from the annexes.

The categories of EEE covered by this Directive are:

1. Large household appliances
2. Small household appliances
3. IT and telecommunications equipment
4. Consumer equipment
5. Lighting equipment
6. Electrical and electronic tools
7. Toys, leisure and sports equipment
8. Medical devices
9. Monitoring and control instruments including industrial monitoring and control instruments
10. Automatic dispensers
11. Other EEE not covered by an of the categories above

The restricted substances referred to and maximum concentration values tolerated by weight in homogeneous materials are the following:

- Lead (0,1%)
- Mercury (0,1%)
- Cadmium (0,01%)
- Hexavalent chromium (0,1%)
- Polybrominated biphenyls (PBB) (0,1 %)
- Polybrominated diphenyl ethers (PBDE) (0,1 %)

## **2. Legislation concerning the treatment of hazardous waste in WEEE**

Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE) and its successor, the Directive on waste electrical and

electronic equipment (WEEE) 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) regulate among the general provisions for recovery and recycling the treatment of specific substances in WEEE considered hazardous to “avoid the dispersion of pollutants into the recycled material or the waste stream”.

Further aim of the regulation is to ensure best available recovery and recycling techniques of WEEE for human health and environmental protection.

The regulation specifically states, that

1. As a minimum the following substances, preparations and components have to be removed from any separately collected WEEE:

- polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) (1),
- mercury containing components, such as switches or backlighting lamps,
- batteries,
- printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimetres,
- toner cartridges, liquid and pasty, as well as colour toner,
- plastic containing brominated flame retardants,
- asbestos waste and components which contain asbestos,
- cathode ray tubes,
- chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),
- gas discharge lamps,
- liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimetres and all those back-lighted with gas discharge lamps,
- external electric cables,
- components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress Council Directive 67/548/EEC relating to the classification, packaging and labelling of dangerous substances (2),
- components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation (3),
- electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume)

These substances, preparations and components shall be disposed of or recovered in compliance with Article 4 of Council Directive 75/442/EEC. 2. The regulation also defines how a number of components of separately collected WEEE have to be treated:

- cathode ray tubes: The fluorescent coating has to be removed.

- equipment containing gases that are ozone depleting or have a global warming potential (GWP) above 15, such as those contained in foams and refrigeration circuits: the gases must be properly extracted and properly treated. Ozone-depleting gases must be treated in accordance with Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer(4).
- gas discharge lamps: The mercury shall be removed.

Regarding treatment of printed circuit boards for mobile phones, and liquid crystal displays further research is considered to be necessary for inclusion in this list.

2. Sites for storage (including temporary storage) of WEEE prior to their treatment (without prejudice to the requirements of Council Directive 1999/31/EC):

- impermeable surfaces for appropriate areas with the provision of spillage collection facilities and, where appropriate, decanters and cleanser-degreasers,
- weatherproof covering for appropriate areas.

3. Sites for treatment of WEEE must have:

- balances to measure the weight of the treated waste,
- impermeable surfaces and waterproof covering for appropriate areas with the provision of spillage collection facilities and, where appropriate, decanters and cleanser-degreasers,
- appropriate storage for disassembled spare parts,
- appropriate containers for storage of batteries, PCBs/PCTs containing capacitors and other hazardous waste such as radioactive waste,
- equipment for the treatment of water in compliance with health and environmental regulations.