

# Collection of case studies – Dangerous substances – Waste management

(Topic Centers OSH 2010 – Task WE 10-27)

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# Institutions involved

- European Agency for Safety and Health at Work (Bilbao), *Project Management*
- KOOP (Germany), *Task Leader*
- BAuA (Germany), *Task Member*
- CIOP-PIB (Poland), *Task Member*
- ELINYAE (Greece), *Task Member*
- INRS (France), *Task Member*
- DEMI (Portugal), *Task Member*
- LZUU (Lithuania), *Task Member*

# Background

- The amount of waste generated in the EU is growing. European and national waste regulations were adopted in the 1990s primarily for environmental purposes and do not integrate OSH aspects enough. Indeed, in some cases, new waste handling and treating technologies have even increased risks for workers involved in waste collection, sorting, treatment and disposal activities
- Electrical and electronic equipment and end-of-life vehicles are increasingly being recycled and contain lead, cadmium, mercury and polychlorinated biphenyls (PCBs).
- The handling of medical waste presents extra challenges such as the risk of contamination with

## Scope of the task

- Collection of a range of case studies from industrial, medical and domestic waste treatment, covering a wide range of activities
- The cases should present 'good practice' – based on risk assessment, prevention at source, hierarchy of control principle, management commitment, workers involvement etc. The solutions presented should be sustainable over time.
- Investigation, analysis and presentation of the detailed cases (full and complete picture of what the cases cover, how the solutions are implemented, but also how they were developed and what they have achieved).
- Risks: biological or chemical

## Case Study (Greece)

- Five Employees' Unions in Municipal Companies for Water Supply and Sewage (MCWSS) and their Federation had requested from the Hellenic Institute for Occupational Health and Safety (ELINYAE) to elaborate a model risk assessment in their respective plants in the cities of Chania, Chalkida, Ioannina, Kalamata and Kavala.
- The concentrations of different chemical (CO, CO<sub>2</sub>, NH<sub>3</sub>, H<sub>2</sub>S) and biological (total microbial count, Fungi, E. Coli, Staphylococcus, Salmonella) agents have been determined and schemes for their own monitoring were designed.
- Measures were proposed for the reduction of exposure levels for a number of volatile chemicals and

## Case Study (Cyprus)

Advance Medical Waste Management (MWM) Ltd is a licensed waste management company.

- Collection, transportation and treatment require the application of different procedures for the safety and health of the employees and the protection of the environment. Employees are following Standard Operating Procedures.
- Continual training for the protection of the workers during their day-to-day tasks, how to use Personal Protective Equipment correctly etc.
- Transportation of wastes, using a know-how drawn from a variety of sources derived from scientific literature, European directives etc. Minimization of exposure to chemical and biological hazards at their source.

## Case study (United Kingdom)

The University of Sheffield produces large quantities of biological waste each year. Therefore it has set up a system that ensures segregation and disposal of this waste according to legislation

- A corporate procedure for the identification, segregation and disposal of biological waste has been developed. It defines biological and associated waste, requirements for its safe identification, collection, inactivation, storage, disposal and associated staff training. All departments must follow this procedure in order to ensure that they are complying with legislation.

- A special University's web page for waste management is created from that everybody can access the procedure, associated documents and relevant publications. The web page also contains training material and the web based training package which all lab workers must complete

## Case Study (Germany,1)

German institutions conducted two series of measurements in 1998-2001 and in 2009 in order to establish exposures and associated risks for workers in the WEEE (Waste Electrical and Electronic Equipment) processing facilities. The measurements showed that for companies under scrutiny, cadmium and lead contribute significantly to the total exposure from hazardous substances in the air. Mercury becomes relevant when it is necessary to handle broken components.

EERA (the European Electronics Recyclers Association) contracted TNO (the Dutch Organization for Applied Scientific Research) in 2009 to establish how much mercury is released during collection of LCD displays ('flat screens'). TNO found out that ca. 30 % of the LCD displays contained one or more broken backlights. The release of the vapours depends on the temperature and the capacity of ventilation and can remain in the atmosphere of the workplace for days or even weeks. Despite this, the air borne mercury concentration never exceeded the indicative limit for exposure of humans during longer periods of time.



# Case Study (Germany, 2)

## Results

The WEEE Forum has issued a normative document explaining the organisational and technical requirements for the protection of the workers in detail, focussing on handling, storage and de-pollution. It explains how certain components containing hazardous substances can be identified (e.g. PCB capacitors, mercury switches). It describes general requirements for all types of WEEE and specific requirements for the treatment of CRT display appliances, for Flat Panel Displays and for lamps.

# **European Agency for Safety and Health at Work (Bilbao)**

## **Waste Management**

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