

Recycling: Occupational health?

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Recycling industry

- Diverse
- Evolving
- Enlarging

Recycling drivers

- Waste directive and others
 - Reduce
 - Re-use
 - Re-cycle
 - Recover
- Economics (landfill tax)
- Public opinion

Recycling industry

- Size?
- Processes
 - Collection
 - Segregation/ sorting
 - Recycling
- Excludes: re-use, recovery, incineration and landfill

Municipal recycling streams

- Paper and board
- Glass
- Metals
- Plastics
- Electrical equipment
- Batteries and accumulators
- Garden waste
- Food waste

Evidence of ill health

- RIDDOR- none
- SWORD/ THOR- none identifiable
- Published literature- handful of cases
- Review of Environmental and Health Effects of Waste Management: Studied composting but not other recycling processes.

Recycling processes (generic)

- Collection
 - Kerbside sort
 - Co-mingled
- Hazards: Dusts, aerosols, bio-aerosols, endotoxins, glucans etc.

Collecting recyclates

- Evidence of harm: Some evidence of elevated levels of airborne bacteria and fungi. Some evidence of inflammed respiratory tracts in workers (no long term studies)
- Implications: Alternate weekly collections, potential for increase. Greater concentration of material.

Recycling processes (generic)

- Sorting/ segregating
- Hazards: Dusts, aerosols, bio-aerosols, endotoxins, glucans etc.

Sorting recyclates

- Evidence of harm: Some evidence of inflamed respiratory tracts in workers.
- Implications:
 - Greater segregation of recyclates will lead to concentration of potential hazards.
 - Increased mechanisation at fixed sites

Paper and board reprocessing

- Similar to other primary paper processes
- Processing to make insulation creates large amounts of paper dust.

Glass reprocessing

- Similar to other primary glass processes

Metal reprocessing

- Similar to other primary metal processes
- Melting will result in generation of metal fume and fume from combustion of associated materials (plastic, paint, paper etc)

Plastics reprocessing

- Generation of plastic processing fume and evolution of other gases when melt material.

Electrical equipment reprocessing



- WEEE Regs require recovery of specified materials from equipment, e.g. TV's, fluorescent tubes, fridges, microwaves etc.
- Hazards: Phosphorus, mercury, sodium, PCBs, asbestos etc.
- Processing in authorised treatment facilities.
- EA has already issued guidance.

Batteries and accumulators

- Processing at authorised treatment facilities
- Hazards: Nickel, lead, cadmium, mercury.
- Increased blood lead levels found in Danish workers recycling batteries.

Composting

- Hazards: Bio-aerosols (e.g. *Aspergillus fumigatus*).
- Evidence of harm: Significant quantities of bio-aerosols in the working atmosphere. Few recorded cases of harm. No dose-response known.
- Implications: Potential to grow bigger. Control measures identified.

Food/ kitchen waste

- Weekly/ fortnightly collection from the home, sent to in vessel digestion
- Hazards: bio-aerosols, salmonella, e. coli
- Evidence of harm: DEFRA are exploring whether there are any public health risks. No evidence of harm to workers
- Implications: Public resistance possible if public health risk found. Amount of kitchen waste collected likely to increase.

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Waste and Recycling Section

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