Recycling:
Occupational health?

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www.hse.gov.uk/waste
Recycling industry

• Diverse
• Evolving
• Enlarging
Recycling drivers

• Waste directive and others
  – Reduce
  – Re-use
  – Re-cycle
  – Recover

• Ecomonics (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 inflamed 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.