Reuse and recycle of End-of-Life Electronic Products
Waste of Electrical and Electronic Equipment (WEEE) Problems

- The waste stream of electrical and electronic equipment has been identified as one of the fastest growing waste streams in the European Union. Today, this stream, calculated as 7.5 millions tons in the EU, constitutes 4% of the municipal waste, and is assumed to increase by 16–28% every five years.

- **Sources of WEEE**
  - **End-of-life** electric and electronic equipment mainly originates from the following three sources:
    - 1) manufacturer, distributors and retailers
    - 2) commercial end-user
    - 3) domestic end-user
Re-use and recycling in electronic industry is a very demanding but advantageous alternative to incineration or the landfill of electronic scrap. Thus the market for re-use and recycling has a growing interest for companies.

This is followed by increasing research and development activities especially for technological solutions. By more sophisticated technologies – e.g. automation in disassembling – the economic benefit will increase or at least rise. On the other hand the realization of high level EOL possibilities is dependent on the quality of the logistical background.
EOL process of electronic equipment:
Discussion 1:

Q1: What might be the different recycle levels for CRT monitors? And, what’s your detailed plan for level-3 recycling: materials’ recycling?

Q2: What’s your detailed plan for level-1 recycling: reuse product as a whole, and level-2 recycling: reuse of assemblies and components?
CRT Recycling: (video 1)
Discussion 2:

Q3: What did you noticed from this video, and what’s their recycling steps?

Q4: Please point out the recycling details in the video, and their recycling levels.

Discussion: 20 minutes, after discussion, please refer to Video 2
The Glass Components of a Cathode Ray Tube (CRT)

The CRT or kinescope, which is composed of 85% glass and 15% plastic and metal, represents about two thirds of the weight of a television set or a computer monitor. The recycling techniques for EOL CRT glass is quite problematical because of the different components which constitute themselves:

1. Panel (the front part): a barium, strontium and very homogeneous glass, of a greenish-blue colour, whose weight is about 2/3 of the whole CRT
2. Funnel (the hidden part inside the TV set): a lead glass, whose weight is about 1/3 of the whole CRT
3. Frit (the connection between the panel and the cone): a low melting temperature lead glaze
4. Neck: a very rich lead glass that envelops the electron gun.
Q5: What might be recycled from CRT glasses, and what should be treated and controlled before disposal?

Q6: What do you think might be considered and paid attention to during the recycling processes of the CRT glass?