IL Recycling
Gothenburg, Sweden
Paper Sorting Facility
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The following is a summary of findings from a visit with IL recycling in Gothenburg, Sweden.

The visit was to study the speed and accuracy of the paper sorting technologies employed by IL Recycling.

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Background

IL Recycling is owned by a consortium of Swedish pulp mills seeking to secure a clean feedstock of the quality fibres needed for their individual processing and product manufacturing requirements.

IL Recycling has the capacity to sort 90,000 tonnes of recovered paper per year. Of that amount, 50% are news and pams, 20% OCC and 28% tetra pak container materials.

Facility is designed to take in a relatively clean stream of fibre recovered from the bring systems in Sweden as well as local collection systems in Denmark and Germany, operated by local authorities. IL recycling sorts the various grades of fibres into the specifications required by the mills they supply. The sorting equipment used is the MSS Papersort Technology

Papersort Technology

The Papersort Technology produced by MSS consists of a series of conveyor belts moving paper at progressively faster speed. During this movement, papers are spread apart and with air current flowing in the same direction and speed as the moving paper, keeps the individual sheets flat on the belt.

At high speed, the multiple grades of fibre pass under a multi-grade sensor system which identifies the fibre of each sheet. Air knives sort the fibre based on the identification read by the sensors. The system is capable of sorting:

- Fibre from non fibre materials
- Various grades of fibres

Technology flexibility
The facility in Gothenburg was designed to take a relatively clean feedstock of recovered fibre and sort into appropriate grades. However, the optical scanning system (or sensors) can be configured to sort according to both the demands of the mills they are supplying and/or the feedstock received.

Typically in sorting the various grades of fibre the sensors identify:

- Fibre
- Brightness
- gloss

According to the IL recycling staff, and the MSS representative, the system works at it's optimal performance if there is less than 30% contamination removal required for the equipment to operate properly.

MSS has a sensor that can sort wood-free fibre but as of yet there has been no demand from the market for that sensor to be added to their equipment

MSS will be installing two machines to sort paper from the single-stream collection system in San Diego, California. The machine should be operating in April 2003. In this application the system will:

- First sorts paper fibre from non fibre materials (glass, plastic, tin, etc)
- Second sorts fibres into different grades to meet mill specs.

Sorting Speed
Papersort systems can be built to scale for the volume anticipated by each individual facility that purchases or leases a sorting machine. Likewise, speed varies according to size. However, as an average, the through-put of a paper sorting machine is:

- For news and pams – 12-15 tonnes per hour
- For office paper - 3-4 tonnes per hour
- For sorted white ledger - 2-3 tonnes per hour

Economics
Prior to using automated sorting technology, IL recycling sorted the recovered paper manually. Under their previous manual sorting system, one person could sort 5 tonnes per hour. The quality of the sorted fibre was inconsistent.

With the Papersort, IL recycling now sorts 12 tonnes per hour, with two individuals, and the quality of the sorted fibre is consistently high.

IL Recycling suggests that they have saved the costs of 3 people. On an annualized cost basis, this represents a significant savings.

Costs of Sorting
ILS Recycling books show the current costs of sorting recovered fibres to be 12 SEK/tonne

ILS Recycling found significant savings in the costs of sorting mixed grade fibre. The company presented the following comparison:

- Automated sorting = 18 SEK/tonne (1.35 GBP)
- Manual sorting = 219 SEK/tonne (28.80 GBP)

Savings to company of 1.2 million SEK per year (89,539 GBP)

Costs of equipment
Systems are built to scale, depending on capacity desired. For average size equipment the costs would be:

- Sensors = $150,000US (93,692 GBP)
- Sensors , air knives, conveyors = $300,000k (187,392 GBP)