

## QUALITY CONTROL

# We can do it in the mix

Controlling the quality of the input and output of a MRF is a crucial part of the recycling process, writes **TARA DONAGHY**

McGrath's main MRF in Barking integrates mechanical, magnetic and manual processes to segregate mixed wastes into individual material streams.

Quality monitoring starts at the tipping stage, with a visual inspection of tipped consignments for contaminants. Supervisors observe the discharge of each consignment which is examined for any hazardous items.

Loads of pre-sorted wastes considered to have more than 5% contamination are typically rejected and placed into a quarantined area. The customer is then contacted and a re-sorting process discussed to remove the contaminant materials. All loads are photographed to provide evidence should any disputes around quality arise.

Continuous monitoring of the various sorting processes continues throughout the sorting lifecycle to ensure that individual material streams are as free from contamination as practicable.

Visual inspection typically suffices for materials such as plastics, paper/cardboard, metals, wood and plasterboard, which undergo further decontamination as part of their reprocessing into new materials. However, testing is often required to demonstrate the quality of other MRF outputs.

For example, the energy-from-waste plants which process the refuse-derived fuel we generate have a minimum specification for the input they will accept. Each has a slightly different specification, requiring us to implement a testing regime, which is compliant

with European Standard BS EN 15442:2011.

Samples are taken directly from the conveyor moving the final product into the baler just before it is baled and packed for shipping. The samples are taken on a regular basis and are subjected to rigorous chemical testing.

As well as determining product quality, it checks that any toxic or heavy metal contaminants are below the industrial threshold. Constituent material streams are tested as well as moisture and ash content, net and gross calorific value and other inorganic tests such as quantities of chlorine, sulphur and nitrogen levels.

Testing is vital because it gives the composition of the waste and provides information to make further improvements. This may be by bringing the ash and moisture content down by just a few percentage points.

Typically, our score is very good, with the correct mix of wood, paper and cardboard for the biogenic content of the fuel, along with low-density plastic which keeps up the net calorific content. Valuable recyclate streams such as metals are not found in our samples, indicating the efficiency of sorting.

The processing of rubber, which occurs on-site, is accredited to industry standard PAS 107. Samples of shredded rubber are taken on a monthly basis and sent to a UKAS-approved lab, where they are tested for a number of properties against tolerances specified by WRAP, including particle size, density and content of moisture,



**Pick a number:** Manual sorting is done at 22 stations in the picking cabin

## HOW THE MRF WORKS

At pre-sort stage, operatives extract oversized materials using grab plant. The rest of the items are placed on to a feeding belt and pass through a trommel to separate materials by size.

Larger items are passed into a 22-station picking cabin for manual sorting. Smaller items are further sorted by size and weight into mineral and non-mineral items.

Mineral items are crushed and pass through a washing plant. The output passes through a screener to separate it into different sizes of recycled aggregate.

Non-mineral residues such as paper, textiles and plastics, which are too small to segregate further, are packaged using purpose-built baling/wrapping plant for transport to EfW plants as refuse-derived fuel.

Overband magnets located strategically throughout the system remove ferrous metals, while non-ferrous materials are removed manually and separated at the picking station.

The individual material streams created at the MRF are either processed on-site or transported to specialist reprocessors.

fibre and other elements.

Aggregates which are processed at the MRF from inert mineral wastes such as concrete, hardcore and masonry are also sampled to demonstrate compliance with a variety of standards.

The efficiency of the semi-automated system which constitutes the MRF is predicated on maintaining the operational continuity of its various plant. The company operates its own internal maintenance division for inspecting, servicing and repairing all the equipment.

The in-house workshop employs 10 full-time engineers,

who provide a swift response to any plant-related defects and keep our operation running 24/7. Screeners, crushers, balers, trommels and the feeding belt which continuously supplies them are inspected on a daily basis by the maintenance team and servicing is carried out in-house.

The whole process of managing the quality and operational continuity of the MRF is governed by an integrated management system which is certificated against ISO 9001, ISO 14001 and OHSAS 18001.

● *Tara Donaghy is business director at McGrath Group*