EWC classification of mixed municipal waste exiting waste management facilities

It is now becoming commonplace in the Republic of Ireland to export baled municipal waste for energy recovery that has been subjected to minimal treatment at waste management facilities. The National TFS Office has been engaging with the EPA on the appropriate EWC classification of material exiting EPA licensed facilities.

The “treatment” carried on the municipal waste at the waste management facilities varies widely and can range from rudimentary or basic treatment with separation of large items followed by baling of the waste to more sophisticated treatment operations including shredding, removal of metals using magnets and trommelling/screening the waste into oversize and fines fractions.

The question is what is the minimum “treatment” necessary to justify a reclassification of the waste code from EWC code 20 03 01 mixed municipal waste to EWC code 19 12 ** – waste arising from mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified.

Figure 1 below shows a schematic of typical processing of MSW bin collections undertaken at Irish facilities. Processing of MSW skips tends to have more complexity than that shown in Figure 2 with additional screens, manual picking lines and other technologies such as wind-shifters and eddy currents commonly used.

Figure 1  Schematic of typical waste processing of MSW bin collections in Ireland
Proposed Approach

In coming to the proposed approach outlined below, the following information was considered:


For information, Recital 33 of the Waste Framework Directive is repeated here:

For the purposes of applying Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste [16], mixed municipal waste as referred to in Article 3(5) of that Regulation remains mixed municipal waste even when it has been subject to a waste treatment operation that has not substantially altered its properties.

It appears that the key point at which mixed municipal waste may move from 200301 to a 1912** code relates to where a waste treatment operation has or has not substantially altered the properties of the waste.

The EPA is of the view that for a waste to move from EWC code 200301 to 1912**, the waste must have undergone a treatment process that substantially alters the properties of the waste.

Table 1 below details the common waste treatments undertaken at Irish waste management facilities and whether the process is considered to substantially alter the properties of the waste and hence the EWC code:

Table 1

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Comment</th>
<th>Are properties of waste substantially altered</th>
<th>EWC code before/after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baling/compaction of waste only</td>
<td>Baling or compacting alone does not substantially alter the properties of the waste.</td>
<td>No</td>
<td>200301/200301</td>
</tr>
<tr>
<td>Removal of large/bulky items followed by baling/compaction</td>
<td>A common part of waste processing is to remove large and bulky items prior to either baling/compacting the waste or passing the waste through the treatment line (often known as pre-sort). The removal of these large items alone does not</td>
<td>No</td>
<td>200301/200301</td>
</tr>
<tr>
<td>Treatment</td>
<td>Comment</td>
<td>Are properties of waste substantially altered</td>
<td>EWC code before/after treatment</td>
</tr>
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<tr>
<td>Trommelling or screening of waste to produce oversize and fines residues combined with other processes including magnets, manual picking lines, blowers, wind-shifters, eddy currents etc.</td>
<td>Typically, following the removal of large or bulky items, the waste is then shredded (or passed through bag opener), passed through a trommel or screen that produces a residual oversize fraction and a residual fines fraction. Processing lines can have varying degrees of complexity and can include a combination of processes including magnets, manual picking lines, blowers, wind-shifters, eddy currents etc. The EPA considers that residues from this form of mechanical processing is significant treatment and does substantially alter the properties of the waste.</td>
<td>Yes</td>
<td>200301/191212</td>
</tr>
<tr>
<td>Mechanical separation, blending and compressing to increase the calorific value of the waste and produce RDF/SRF*</td>
<td>A wide range of possible preparation techniques to produce RDF or SRF are possible including sorting (manual as well as mechanical), biological treatment, crushing, grinding, shredding, separation, screening, washing, drying, cooking, homogenisation, compacting etc. Key to the production of RDF/SRF is that the net calorific value of the waste is increased by the processing. The RDF/SRF needs to undergo regular sampling and testing in order to monitor the</td>
<td>Yes (has to be demonstrated)</td>
<td>200301/191210</td>
</tr>
</tbody>
</table>

* RDF: Refuse Derived Fuel, SRF: Secondary Refuse Derived Fuel
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>quality and to demonstrate an increase in NCV between inputs and outputs at the treatment facility.</td>
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<td></td>
<td></td>
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</tbody>
</table>

*At what point does 191212 become 191210 combustible waste (waste derived fuel)?*

This question is not so easily answered. Combustible waste is often referred to as RDF or SRF. RDF is a generic term and includes all recovered fuels. There are no specific standards or classification systems for RDF. The EPA National Waste Report defines refused derived fuel (RDF) as fuels produced from waste through a number of different processes such as mechanical separation, blending and compressing to increase the calorific value of the waste. Such waste derived fuels can be comprised of paper, plastic and other combustible wastes and can be combusted in an energy-from-waste plant, cement kiln or industrial furnace. RDF is a more generic term than SRF and there are no specific standards or classification systems in use for RDF.

The term SRF is as per the mandate given by the European Commission to the Technical Committee (TC343) of the CEN. The standard *EN 15359:2011 SRF – Specifications and classes* prepared by the CEN defines solid recovered fuel as *solid fuel prepared from non-hazardous waste to be utilised for energy recovery in incineration or co-incineration plants and meeting the classification and specification requirements laid down in prEN15359.* “Prepared” here means processed, homogenised and upgraded to a quality that can be traded amongst producers and users.

Section 1 Scope of this EN says, amongst other notes, that SRF are produced from non-hazardous waste and that untreated municipal waste is not included in the scope of the document. It then goes onto classify SRF into chosen fuel characteristics to be used for trading and for information or permitting authorities etc. The classification is based on net calorific value (economic), % chlorine (technical) and mercury content (environmental).

Annex A Part 1 of the standard also lists parameters that are obligatory to specify. Annex A Part 2 lists non-obligatory properties to be specified and this list includes compositional information on the weight percentage of main fractions of wood, paper, plastics, rubber, textiles etc. The EN also gives a template that can be filled in on the fuel preparation techniques used. This information would give the end-user valuable information on how to store, transport and handle the fuel. A wide range of possible preparation techniques are listed in the EN including sorting (manual as well as mechanical), biological treatment,
crushing, grinding, shredding, separation, screening, washing, drying, cooking, homogenisation, compacting etc.

For a waste operator to classify waste as 191212, evidence of the following should be in place:

- Details of the tonnages of different waste streams accepted for processing e.g. tonnes of household waste, tonnes of commercial waste
- Details of the treatment process that the waste has undergone prior to entering the waste management facility e.g. what % of household is 2 bin or 3 bin, what % of commercial is 2 bin or 3 bin, what treatment have skips undertaken.
- Details of all processing that the waste undergoes at the treatment facility, including schematic diagram.
- Details of weights of recyclables removed at the treatment facility.
- Photos of waste prior to baling.
- Results of waste surveys of inputs and outputs at facility verifying the above information

In addition to the above, for a waste operator to classify waste as 191210, evidence of the following should be in place:

- Details of the specification (setting out desired values for relevant parameters) that is being used by the facility for the end-user in question
- Effective sampling procedures for RDF stream
- Analytical results to verify specification is being met and to demonstrate that the RDF is consistently meeting the requirements

End.