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Defining material acceptance

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Aims

- Review materials collected from kerbside to identify good practice and propose greater commonality

- Inform the development of standard terminology that can be used by local authorities when communicating accepted materials

MRFs, reprocessors and industry bodies engaged

MRFs and reprocessors	Industry bodies	
WM Tracey	Recoup	SESA
Viridor	Alupro	ACE
Glasgow City Council	Resource Association	BRC (OPRL)
UPM	Confederation of Paper Industries	British Glass

Local authorities engaged

Kerbside sort/source segregated	Twin stream	Partly comingled (without glass)	Fully comingled (including glass)
Orkney	Fife	Aberdeenshire	
East Refrewshire	Western Isles	Falkirk	
		West Lothian	

Scenario challenges

- Wide range of collection and processing scenarios:
  - Varying collection system options
  - MRFs and reprocessing operations, capabilities and outputs
  - Players in supply chain in addition to MRFs and reprocessors (e.g. PRFs and glass merchants)
  - Materials from different collection systems likely to pass through same sorting process e.g. twin stream material passing through a fully co-mingled MRF likely to have similar value to fully comingled collections.

Scenario assumptions

- Kerbside sort / source segregated:
  - Cans, aerosols and foil mixed
  - Plastic bottles and pots tubs and trays mixed
  - Assumed all other materials segregated by householder or crews

- Twin stream:
  - Paper and card collected in one stream
  - Containers (cartons, glass, cans, plastic containers, plastic film and foil) collected mixed and sent to fully comingled MRF
  - Textiles, WEEE, batteries and hard plastics are each collected as separate streams

Collection scenarios assumptions

- Comingled excluding glass:
  - Textiles, WEEE, batteries and hard plastics are each collected as separate streams
  - All other materials are collected mixed
  - HDPE and PET bottles are polymer sorted at MRF and plastic pots tubs and trays are sold with coloured bottles
  - Glass is not collected and an alternate collection system would need to be provided

- Comingled including glass:
  - Textiles, WEEE, batteries and hard plastics are each collected as separate streams
  - All other materials are collected mixed

Outcomes: Reasons for material acceptance

Reasons for acceptance of materials

Local authorities	MRFs	Reprocessors
Recycle and reduce residual waste	Value of materials	Value
Maintaining quality and value / reduce contamination	Meet local authority needs	Tonnage throughput
Minimise costs	Getting material even if not accepted	
Residents presenting material anyway		
Simplify public messages		

Outcomes: Cardboard and Paper

Cardboard and paper

- Generally accepted formats: Most paper and card types including:
  - Newspapers and magazines
  - Brochures, catalogues, directories and junk mail
  - Board
  - Corrugated card*
  - Envelopes*

- Main issues:
  - Wet paper / cardboard
  - Glass (most impact on paper)
  - Food waste

Cardboard and paper

- Impact on other materials:
  - Can adhere to other materials making them slightly less desirable e.g. shredded paper can fall out at MRF and affect glass fines
  - Cardboard can reduce news and pams quality if not effectively separated (some authorities collect corrugated card only from HWRCs / bring sites)

- Other considerations:
  - Ideally collected separately to containers to prevent damage from leakage
  - Shredded paper likely to join residual stream at MRF but recycled if collected separately
  - Protecting paper from water needs to be considered within operations e.g. sealed containers / bags for collection

Cardboard and paper

- Performance:
  - Markets are generally good
  - Quality reduces with a higher degree of mixing
  - Prices will drop to some extent for paper and card from mixed collections and this material will be more affected in poor market conditions
  - High public demand and high tonnage associated with paper


Outcomes:
Plastics

Plastic film

- Accepted formats:
  - Carrier bags
  - Bread and vegetable bags
- Main issues:
  - Film lids from microwave meals are not recyclable
  - Can be affected by glass
  - Generally not desirable at MRFs
- Impact on other materials:
  - Can influence paper quality
- Performance:
  - Tends to score best when separately collected
  - Operational issues with both separate collection and MRF processing
  - Very small markets with demand only in good market conditions
  - Negligible price

Hard plastics

- Formats might include:
  - Toys
  - Household items such as baby baths

- Main issues:
  - No UK markets and very small export markets (one MRF reported storing it until markets became available)
  - Negligible market value
  - Could be difficult to communicate e.g. inclusion of plastic WEEE items
  - Likely to be low public demand / relatively infrequent set out
  - Likely to be operational issues regarding collection
  - Would make polymer separation at MRFs and PRFs difficult and would likely flow into residual stream / large items may get stuck

Plastic bottles, pots tubs and trays

- Accepted / more desirable formats:
  - PET trays and bottles (PET trays usually accepted >10% with bottles)
  - HDPE trays and bottles
  - PP (reasonable demand in UK and mainland Europe)
- Less desirable formats:
  - Polystyrene (limited facilities)
  - CPET
  - Laminate trays

Plastic bottles, pots, tubs and trays

- Impact on other materials:
  - Food and drink residues can impact other materials

- Main contaminants / issues:
  - Containers that are not completely empty of food or drink
  - Glass from mixed collections
  - Bottle lids, pump / spray tops and silicone tops on squeezy bottles
  - Engine oil / garden products containers (although these are recyclable except for some high end applications)
  - Full sleeve labels on bottles
  - Small products e.g. Yakult pots often fall through the screen into the fines and are disposed.

Plastic bottles, pots, tubs and trays

- Performance:
  - If pots, tubs and trays are not collected with bottles there are very limited markets
  - Bottles have higher value and demand and therefore perform best in scenarios when collected separately to PTTs
  - Public demand to recycle plastics is high
  - Performance remains relatively static over different collection scenarios with minor impact from glass in mixed collections


Outcomes:
Glass

Glass

- Generally accepted formats:
  - Glass bottles and jars

- Main contaminants / issues:
  - Organics e.g. food and paper
  - Ceramics and Pyrex
  - Non-container glass
  - Size of fragments is key (smaller fragments harder to colour sort)
  - Less that 80% compaction on collection is better

Glass

- Impact on other materials:
  - Glass shards affects quality of other materials mixed with e.g. paper, cardboard, plastics, cans and foil
  - Leakage from glass containers can affect paper and card

- Other considerations:
  - Residents should rinse containers
  - Ideally corks should be removed (not large issue) but screw tops left on bottles

Glass

- Performance:
  - Flint and amber glass have strong demand
  - Green and mixed glass can suffer changes in demand due to export and value closely linked to PRN
  - If oversupply in market buyers will choose to purchase higher quality glass
  - Negligible prices for MRF sorted glass assumed on basis value is occasionally negative
  - Quality of glass decreases with compaction and mixing
  - High public demand and expectation to recycle glass


Outcomes:
Metals

Metals

- Generally accepted formats:
  - Food and drink cans
  - Empty aerosols
  - Clean foil*, pie cases and containers

- Main contaminants / issues:
  - Glass
  - Fused laminates e.g. food and drink pouches
  - Other metals should not be included

- Impact on other materials:
  - Leakage from containers can affect other materials

Metals

- Other considerations:
  - Cans should be empty and rinsed
  - Aerosols should be empty
  - Foil should be clean
  - Aluminium caps can be left on glass bottles

- Performance
  - Markets are good for these metals
  - High public demand / expectation for their collection from kerbside
  - Relatively static over each scenario

Outcomes: Cartons

Cartons

- Generally accepted formats:
  - Foil and polymer coated cartons
- Main contaminants / issues:
  - Very minor impact from glass
- Impact on other materials:
  - Can reduce paper quality if collected together
- Other considerations:
  - Ideally not collected with paper or cardboard as difficult to separate and can cause issues with import and export regulations
  - Should be rinsed to prevent leakage

Cartons

- Performance
  - Small markets and low market value though tend to be accepted even in poor market conditions
  - ACE report few problems when collected comingled with containers (this is preferable to mixing with paper due to reduction in paper quality)
  - Relatively strong public demand – Highland added them to collection as were getting 25% of them anyway
  - Relatively static over each scenario
  - Compaction can influence operational feasibility in kerbside sort / source segregated collections depending on vehicles


Outcomes:
WEEE,
Batteries and
Textiles

WEEE

- Accepted formats:
  - Small WEEE (East Ayrshire define as nothing bigger than a toaster)
  - Note: no reprocessors or industry representatives engaged with on this stream

- Performance:
  - Collection driven by regulation therefore will be demand regardless of market conditions
  - Low value
  - In all mixed scenarios WEEE would need to be collected as a separate stream which could be extremely costly and resource intensive

Batteries

- Accepted formats:
  - Rechargeable and single use household batteries
  - Note: no reprocessors or industry representatives engaged with on this stream

- Performance:
  - Collection driven by regulation therefore will be demand regardless of market conditions
  - Only a small number of facilities but adequate for current levels
  - Negative market value
  - In all mixed scenarios batteries would need to be collected as a separate stream which could be costly and resource intensive

Textiles

- Accepted formats:
  - Clothes, shoes and household textiles (usually excluding pillows and duvets, oil stained textiles etc)
  - Note: no reprocessors directly engaged
- Contaminants / issues
  - Wet textiles
  - Glass fragments
  - Theft and management issues
- Performance:
  - In all mixed scenarios would need to be collected as a separate stream which could be cost and resource intensive
  - Markets and values are generally good

Thank you.

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