



Integrated Skills



A Master Class in Waste Composition Analysis

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What is Waste Composition Analysis

The measurement of the materials found in waste and recycling streams.

It involves:	Where do the samples come from?
1 Sample selection	✓ The kerbside
2 Sample collection	✓ HWRCs
3 Sub sampling	✓ Litter and street sweepings
4 Sorting	✓ Beach cleansing
5 Weighing	✓ Bulky waste
6 Recording	✓ Trade
7 Analysing	✓ MRF/ERF Feed streams
8 Reporting	✓ Back of a RCV



Preparing a Specification for a WCA

- ⚙️ What do you want to know?
 - ⚙️ Prescriptive or vague - contractor interpretation, how to evaluate
 - ⚙️ Don't get hijacked - nice to know versus important to project
- ⚙️ Who will benefit from the data, how will it be used and to what end
 - ⚙️ Format
 - ⚙️ Level of detail
 - ⚙️ Data license
- ⚙️ Own the project
 - ⚙️ QA
 - ⚙️ Project team involvement
- ⚙️ Realistic timeline, milestones and deliverables
 - ⚙️ Understand weight data. What is achievable?



Sampling 1 - Bulk samples

- Sample removed from a pile via
 - Coning and quartering
 - Points of the compass
 - Every Nth bag/sack
- Potentially no collections involved
- Cheaper option or more waste sorted
- Currently used mainly at waste management plants
- Sort in batches = stats analysis possible
- Good level data for composition of a waste stream
 - Feed-stream planning
 - Identify recycling opportunities – strategy, targets, comms
 - Infrastructure procurement



Sampling 2 – Street level

- ⚙️ Socio economic profiles - whole county, district, collection round -
 - ⚙️ Mosaic
 - ⚙️ ACORN
 - ⚙️ Council tax bands
- ⚙️ Select representative sample areas - input from project team
- ⚙️ On normal collection day, time:
 - ⚙️ carry out house survey bins/bags/boxes – set out
 - ⚙️ collect all waste and recycling – capture and diversion rates
- ⚙️ Return to sort site - hand sort, record weights, enter data
- ⚙️ Composition and weight data for specific household types
 - ⚙️ Identify recycling opportunities – strategy, targets, comms



Sampling – Pro and Cons

	Pros	Cons
Bulk sample	<ul style="list-style-type: none">Covers many more samplesSample from each vehicle (25+ samples required for stats)Greater weights sortedCheaper	<ul style="list-style-type: none">Composition but no frillsCompacted waste harder/hazardous to sort
Street sample	<ul style="list-style-type: none">Samples not compactedData for specific housing types or areas (trial area)Set out ratesLink waste with recycling =Capture rates	<ul style="list-style-type: none">Greater planningMissed collectionsPoor set out3 weekly collections! Limited by van volume/loadLess time to sort5 sets of results onlyExpensive



Fieldwork: Set out

Keep it simple for the collection team

- ☀ Where are the bins?
 - ☀ Back alleys – keys
 - ☀ Bin stores – keys
 - ☀ Piled up – whose
- ☀ Assisted collections
- ☀ Return bins/bags
- ☀ Replacement bags
- ☀ Household survey – replication?



Fieldwork: collecting the samples



Fieldwork: Sort Site



Fieldwork: Weigh-off



Fieldwork: disposal









Deliverables


- ⚙️ Data
 - ⚙️ storage in the field
 - ⚙️ Data transfer
 - ⚙️ Accuracy of data entry - QA
- ⚙️ What level of analysis is required – agree in advance
- ⚙️ Do you want the data to be interpreted – agree in advance
- ⚙️ What do you want to see in the report - sections, data tables, charts – agree in advance to save edits
- ⚙️ Face to face meetings or video/telephone conferencing



H&S and the well being of the team

-  Risk assessment at sort site
-  SSOW
-  HSE recommendations

-  Full information to team - what is expected of them
-  Management of team in the field
-  Appropriate PPE and good housekeeping

-  State of sample to sort – 3 weeks old and cooking, compacted



Common Problems

- ⚙ Misuse of profiling data – length of licence T&C, sharing
- ⚙ Communication errors - Missed collections wrong time/day/week/crew/poor set out
- ⚙ Too much for collection vehicle – what is possible 1 van or 3 = ££££££
- ⚙ Householder concern - call centre/police/letters/advance warning to households - opt in or opt out?
- ⚙ Sample management:
 - ⚙ Site staff remove sample before sorted - cones, tarp, correct size team
 - ⚙ Tagging
- ⚙ Overstating what can be achieved - 150kg/person but 150kg food = 1 hour 150kg of film 4 hours. 50hh weight residual 1 tonne - collect?
- ⚙ Overstretched fieldwork team
- ⚙ Audit the fieldwork – is what you expected happening?



What to expect from ISL

- ⚙️ Waste composition analysis packages tailored to meet your specific requirements
- ⚙️ Painless project set up
- ⚙️ Courteous, well managed fieldwork teams
- ⚙️ User friendly, transparent data formats
- ⚙️ Insightful reports clearly outlining what the results mean to your situation
- ⚙️ You will be our client but we will work as part of your team





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Thank you

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