

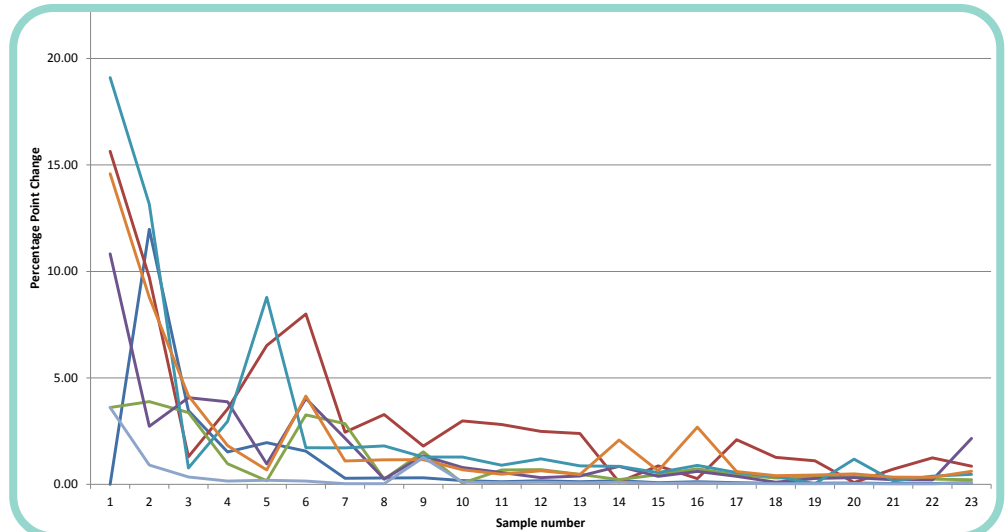
### Waste input material streams

All waste processing facilities have infeed material streams which are complex mixtures of different materials. The primary processing task is to carry out sorting and separation activities using a wide range of technologies to recover valuable materials at high purity from co-mingled waste. However, the composition of in-feed changes over time and the separation process needs to respond to these changes in order to keep processing efficiently and stay profitable.

### Measuring input and output variability

*"If you can't measure it; you can't manage it".*

However, taking an accurate and representative measurement of a complex waste stream is not a trivial job. Typical infeed mixtures are highly diverse in nature and have variable particle sizes across multi-component material formats. Maintaining key output streams within established specifications is a constant juggling-act for process supervisors as plant inputs vary.



Graph illustrates that variability reduces as sample size increases. © Axion Recycling Limited, 2011

### The solution

If this situation applies to your own processing plant, you should consider taking a fresh-look at the process of sampling and compositional analysis being used in your company.

Axion Consulting has significant expertise in the waste sector based upon hands-on testing and analysis of many varied types of waste material streams. We have applied our learning about sampling frequency, design of sampling methods and optimising sample size to everything from waste plastic pots and trays to mixed bread, cakes and doughnuts.

We apply the correct statistical sampling models to each particular problem and have perfected a portable software-

based tool which allows any sampling and measurement task to be checked for accuracy and reliability 'right on-the-job'.

### Our experience

Over the past ten years Axion Consulting's Process Engineers have seen numerous examples of sampling and analysis methods being employed to provide critical process control data which is then used by site managers to make important commercial decisions.

On many occasions the design of the sampling method, the frequency and size of the samples being taken are inadequate for the required level of confidence in the results.

Often the 'sampling method' is chosen by site operating staff based upon a loose guess about what feels right. The selected material sample is then transferred to an analytical laboratory where further sub-samples are taken at random and complex preparations carried out to allow an expensive instrument to be applied and yield a 'key number' as the end-result.

Management later reports that the test results are 'varying wildly' and 'cannot be relied upon'.

## The benefits

By allowing Axion Consulting to evaluate your existing sampling systems and analysis methods we can highlight where some relatively straight forward changes can be applied which will yield major benefits in terms of the value you obtain from regular, important process measurements.

We can visit your facilities to find out what level of confidence and statistical relevance applies to current methods and follow your plant samples through to downstream analytical services, making sure that the sums do add-up in terms of money spent on laboratory services.

Our engineers and technicians can conduct 'on-site' trials to

understand the exact nature of the variability which applies to the infeed waste streams.

Working with your own technical managers we can re-design the sampling methods, locations and frequency to devise a system which delivers more reliable results within known limits of confidence and accuracy.

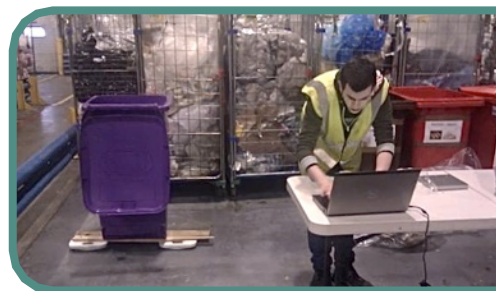
Process plants can then operate with improved commerciality and quality control to deliver increased profits at higher efficiency.

## Who is Axion?

Axion Consulting develops and optimises processing and collection methods to recover value from waste resources for a wide range of clients within the recycling and process industries.

Axion designs and builds innovative process plants for companies in the recycling sector, advising on plant design and equipment selection.

We have a team of enthusiastic process engineers and project managers that can draw on extensive experience in the recycling and process sectors with special expertise in mixed waste plastics and biofuels.



## Contact us:

Call the MRF Services team at Axion Consulting for further information:

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