

# Instant Loss on Ignition Results for Trommel Fines

## Cost-effective compliance with landfill tax regimes.

Many issues have been raised with HMRC's proposed Loss on Ignition (LOI) testing regime for landfill taxes, including concerns that tests will take too long to be actionable and will cost too much to perform with any regularity. This may indeed be true for samples sent to a laboratory, but there is an alternative: the Computrac® MAX® 5000XL. The Computrac provides accurate loss-on-ignition test results in minutes, requires no operator skill, and is very inexpensive to operate.

### Instant, actionable feedback

By the time test results come back from a laboratory, it's too late to do anything about them. The Computrac enables all parties involved to know in minutes if waste fines are in compliance with the law or if they require further processing.

### Economically test every load

The Computrac makes it possible to test every load. Running a LOI test on the Computrac takes about 30 minutes and costs around **50p**. Annual testing fees to outsourced labs to test even five samples per day would be more than **£11,000** per year.

- **Laboratory: £10** per test x **5** tests per day x **250** days per year = **£11,250**
- **Computrac: £0.50** per test x **5** tests per day x **250** days per year = **£562.50**

### No surprises

Relying on visual inspections may lead to unpleasant surprises. For an average load of 15 tonnes, a single failed test can cost almost £1,200. Computrac provides confidence that you won't be hit with an unexpected tax bill.

### Designed for difficult environments

The Computrac MAX 5000XL is constructed of solid steel and was designed to give reliable, accurate results in the harshest environments. Simple one-button operation eliminates the need for specialized personnel and reduces potential sources of error. To run a LOI test, simply load the sample into the instrument and push the start button.

### Correlates precisely with proposed reference methods

In its consultation document dated 30 June, 2014, HMRC suggested two possible test method standards on which to base the tax assessments: EN 12879 and EN 15935. Arizona Instrument, makers of the Computrac, obtained samples from an inert waste landfill and tested our instrument against the proposed methods. Compared with either method, the Computrac had a comparable result with a lower standard deviation.

	Computrac	EN 12879	EN 15935
<b>Organic Content</b>	14.3%	13.7%	14.1%
<b>Standard Deviation</b>	0.23	0.83	0.76
<b>Total Test Time (min)</b>	30	210	270



## Appendix – Test Method Detail

All samples taken from a five gallon bucket of material from an inert landfill. A portion of this fill was taken and processed. All rocks larger than 10mm in diameter were discarded, and all clots were ground by mortar and pestle until a coarse powder. The pulverized mixture was then shaken in a 1 litre mason jar until thoroughly homogenized. This homogenized sample was then divided in half where one 'half' was labelled the control, while the other was labelled 'organic'. Approximately 20 g of dehydrated food product was added to the 'organic' fill to simulate a failing level of organic content within a landfill.

For methods EN 12879 & EN 15935, ceramic crucibles were purged at their corresponding testing temperatures for 30 minutes prior, and allowed to cool for an additional 30 minutes in a desiccator. These cooled crucibles were then weighed and recorded on a 4 place precision balance. Samples were loaded in triplicate into these crucibles to the appropriate sample size (weighed and recorded) and placed within a muffle furnace at appropriate temperatures. When each test was completed, the samples were taken out of the muffle furnace and allowed to cool in the desiccator for an additional 30 minutes, before weighing the ignited sample/crucible.

The testing parameters on the Computrac® MAX® 5000XL, were set to a test temperature of 550°C with an idle temperature of 50°C and ending rate of 0.01%/min. Sample size for both the 'control' and 'organic' samples were set to 8g +/- 0.5g. Once the instrument is programmed to these conditions, the analyst selects 'Start' which tares the aluminium waffle pan placed on the 4 place precision balance within the instrument. The instrument then prompts the analyst to open the lid and add sample to the pre-set amount. The instrument visually and audibly signals when the sample is within specifications, which prompts the analysts to close the lid and allow for testing.

Along with producing accurate and repeatable data in a short amount of time, the MAX® 5000XL has the ability to graph in real-time as well allow the user to download the raw data from the instrument via the optional web server feature. This feature along with a spreadsheet operating program (i.e. Microsoft Excel®), the analyst is able to report the loss on ignition in many different ways. The rate curves below show the loss in mass over time of both the 'control' and 'organic' samples; the moisture content of the samples is evolved off at around 100°C while the organic material begins to ignite at around 200°C.

