Reworking rubbish: Keeping up with changes in waste compliance

Waste producers, carriers and disposers: do you know what you need to do to remain compliant with waste disposal legislation?

In 2020, the commercial and industrial sectors generated 33.8 million tonnes of waste in the UK. On top of this, over half of the municipal waste produced in the UK is sent to landfill sites. The Landfill Directive places controls on waste disposals, helping to reduce the volume sent to landfill.

To adhere to this Directive, current EC and Environment Agency regulations and guidance require waste producers, carriers and disposers and their advisers to classify waste material as either hazardous or non-hazardous. Classifying waste helps these companies maintain compliance and protect the environment.

However, the landscape for waste testing is changing. Read on to find out more about how and why it is shifting, the steps towards waste classification, misconceptions, things to avoid, what you need for compliance, WAC testing, and how Chemtech can help.

How the landscape for waste testing is changing

Waste classification and disposal testing has always been a staple of the environmental laboratory. However the last five years has seen a shift in the industry. Information is becoming more easily available and commercial entities now exist to support and guide waste classification and disposal. Environmental and commercial goals are also pushing towards re-use and recycling initiatives, as well as towards minimising disposal.

This has led to three things:

- more consideration of waste handling and disposal in wider project planning
- an increase in the volume of testing
- a deeper understanding of the underlying requirements and responsibilities that businesses must be aware of

The most widespread situation impacted by this relates to use of WAC (Waste Acceptance Criteria) testing. Not too long ago, it was common for clients to request some form of WAC testing as the universal panacea for dealing with a waste material. Even with available guidance from WM3 (guidance on the classification and assessment of waste) and its predecessor WM2, knowledge of the guidance and how to apply it was limited and this approach persisted. In fact, with WM3 in place, testing required for disposal at landfill (WAC) can no longer be used as part of the classification process.

The steps towards characterisation

Waste characterisation is the practice of assessing and describing all waste that is produced before sending it for disposal or recovery. There's no quick fix to this process but there is a series of guidance documents and regulations that relate to it, in addition to WM3, including the Waste Framework Directive, Waste Regulations (2011), and the Duty of Care from the Environmental Protection Act.

The Regulations establish a hierarchy of waste to try and minimise or eliminate the need for landfill disposal. The Duty of Care ensures that all reasonable steps are taken to ensure a waste is characterised prior to removal from the originating site including prevention, reuse, recovery and recycling. This also ensures adequate information is provided for downstream organisations like carriers and brokers.

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The word '*reasonable'* is quite important in this process as it ensures a degree of pragmatism. But, in general, the steps leading towards classification would be:

- Looking at the source of the waste and information on likely properties. Hazardous properties can be indicated on the manufacturer's safety data sheet (MSDS)
- Gathering a site history of wastes excavated from contaminated land
- Assessing the waste's visual appearance and odours
- Undertaking physical testing e.g. flash points, XRF and XRD
- Undertaking chemical analysis e.g. ICP/OES, GC/MS, LC/MS, IC, etc.
- Determining chemical characteristics e.g. gas generation in contact with water or acids

Misconceptions and mistakes to avoid

It's very common for businesses to come directly to the lab and request waste classification testing without any prior knowledge of site, history or provisional observations. This skips a few critical steps.

It is also often assumed that there is a 'standard' suite for waste classification. This is not the case. Limiting the process to a default set of analyses could land you in one of two problematic situations:

- **Failure to account for the presence of a potentially hazardous contaminant.** For example, you could miss elements of the site's history or historical use. This would result in you being liable for the misclassification of a hazardous waste as non-hazardous
- **Performing expensive testing that adds no value.** This is the flip side to the '*reasonable'* coin. If you can provide evidence that there would be no reasonable way for a particular chemical to be present then testing could be superfluous

What do you need for compliance?

There is a minimum series of tests to complete (pH, metals, asbestos, PAH and TPH C5-C40) but this doesn't equate to a '*standard'* suite. Your knowledge and experience of the site/waste will help to determine what extra analyses are required. There is also a growing industry of waste specialist consultants who can help advise and guide as this is typically outside the scope of the lab.

Once analysed, the process of classifying waste from the data isn't straightforward. Whilst there is not a simple list of pass/fail criteria for every identified contaminant, WM3 does outline the 16 Hazard Properties (HP) that effectively act as the criteria for a waste's hazardous classification. Underpinning each HP are a series of Hazard Statements (HS), which provide warnings of risks to human health and the environment by specific chemicals.

According to the Classification for Packaging and Labelling Regulations, any chemical identified can be checked for applicable HS. These can then be linked to a particular HP from which a threshold value can be derived, providing a comparison for your analytical data.

Some points to note:

- Chemicals can have multiple HS which then relate to multiple HPs
- Some results are cumulative – they need to be added together for review against the HP threshold
- Unless otherwise known, a worst-case approach should be taken. For example, if a metal is found in elevated levels and no other information is available, then you must assess based on it being present in its most 'toxic' form. Differing forms of hydrocarbon contamination have different limits, but if not known, then the lowest is applied. Site information or additional testing can be used to rule out certain forms

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- Assessment is made on results for 'as received' analysis. Most labs typically report soils and solids in a dry weight adjusted form and may account for the presence or removal of larger inert elements
- A waste can be classified as hazardous for failing multiple HPs

Specialist waste companies or consultants can assist you with classifying your waste. There are also various worked examples and guidance in WM3 should you wish to do it yourself.

Then, all that's left to ensure you are compliant with regulations is WAC testing.

WAC testing: How Chemtech can help

You now have a waste that is either considered 'hazardous' or 'non-hazardous'. If you have exhausted all treatment, recycling or re-use options and disposal at landfill is the desired intention, then the next step is based on the Landfill Directive (1999) the latest EA guidance for Disposal At Landfill, and the 2003/33/EC: Council Decision of 19 December 2002.

There are a series of steps in the guidance which, when followed, ultimately lead to the assessment criteria for acceptance at the three types of landfill we have in the UK. For ***hazardous waste*** it may be possible to dispose of it at either hazardous landfill or stable non-reactive hazardous landfill. For ***non-hazardous waste*** it may be possible to dispose at an inert waste landfill. Note that the classification process is purely 'hazardous'/'non-hazardous' and doesn't include an output for 'inert'. Despite the shared terminology, the hazardous classification is distinct from the acceptance criteria assessment for hazardous landfill.

The Council Decision lists a series of tests for WAC testing along with acceptance criteria for each of the three landfill types. Most labs (including Chemtech) will provide a standardised report that flags exceedances against these limits. What they do not commonly do is flag where additional testing may help mitigate failures. However, businesses should also be aware that final stipulations on testing requirements are set by the landfill operator to allow them to continue to comply with their operational permits, so check what you require beforehand.

Chemtech helps customers ensure that waste intended for landfill meets the acceptance criteria of the disposal site. We provide comprehensive WAC testing services, including full, inert, and hazardous waste suites and undertake testing to support waste characterisation procedures.

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