



Waste Characterisation for Waste Acceptance Criteria (WAC) and Lead in Paint Analysis.

Hazardous Waste & Landfill Regulations

A revision of both the Hazardous Waste and Landfill Regulations in 2005 has resulted in stricter controls being applied to waste disposal.

Waste can generally be split into two categories:

- Hazardous (formerly “special waste”).**
- Non – Hazardous.**

The practice of co-disposal (mixing of hazardous with non-hazardous waste) is now banned.

Primary testing of waste is now the responsibility of the waste producer. To ensure an appropriate disposal route is followed, a sound understanding what is in a company’s waste stream is critical. Evidence that identifies what is in waste and the quantities present, will be required prior to acceptance by a licensed waste carrier and landfill site.

Analysis is an option when attempting to categorise waste streams to ascertain basic characterisation prior to disposal.

Specific and exacting tests can be applied to assist a waste producer in defining whether or not their waste is Hazardous or Non-hazardous. This can be achieved by utilising a number of complimentary analytical techniques. The quantity of leachable hazardous components may be required.

X-Ray Fluorescence along with semi-quantitative software capabilities can quickly give a good estimate of general characterisation. XRF analysis is ideal for identifying any significant levels of metallic contaminants present in your waste. This is an appropriate starting point when considering disposal options.



Fig.1. Drainage System

Elements of Concern for Waste Acceptance Criteria Testing

- Arsenic (As)
- Barium (Ba)
- Cadmium (Cd)
- Chromium (Cr)
- Lead (Pb)
- Mercury (Hg)
- Molybdenum (Mo)
- Selenium (Se)

A particular area where potentially large volumes of toxic / hazardous waste can be generated is the Demolition / Redevelopment industry. This includes lead in paints and rubble materials.



Fig.2. Waste handling

(* denotes UKAS accredited test)



2766

A UKAS Accredited Laboratory

LPD Lab Services Limited

– a unique combination of analytical equipment, techniques, and investigative experience

Lead (Pb) in Paint Analysis

The laboratory offers a very competitive, speedy, yet reliable and accurate test to confirm and quantify levels of lead present in any particular waste stream, such as lead in old paint.

Only a small quantity of material is required for assessment. The technique involves leaching of the material under test in mineral acid to extract any soluble lead from the matrix.

Lead analysis is performed under UKAS accredited testing procedures (ISO17025) using Atomic Absorption Spectroscopy (AAS).

This type of testing gives a **clear indication of waste classification** i.e.:

<0.25 % (Pb_3O_4) Red Lead is Non-hazardous

>0.25 % (Pb_3O_4) Red Lead is Hazardous

In the event that waste falls into the category of Hazardous waste further testing may be required.

Hazardous Waste Classification for Lead

Assuming the lead is present as the 'worst case' lead compound (Red Lead (Pb_3O_4)) the waste will be considered hazardous if the Red Lead is 70.25% (Pb_3O_4) when considering ecotoxic effects (R50 R53) in any homogeneous waste



Fig.3. Hazardous Waste



Fig.4. Lead paint peeling as part of a renovation

WAC Testing (Waste Acceptance Criteria) BSEN12457

WAC testing was introduced to supplement the revised changes to the Hazardous Waste and Landfill regulations in 2005.

WAC is primarily a compliance test (PASS/FAIL) against regulatory limit values.

The test involves applying an acceptance leaching test, which requires the taking of a representative sample of waste and subjecting it to leaching in water under specific test conditions.

Acceptance limits for lead are outlined in the Waste Acceptance Criteria tests.

Additional tests may also be carried out e.g.; Acid Neutralisation Capacity (ANC). This test requires waste to be chemically treated by pH variation to assess stability.

Leaching potential under "worst case scenario" conditions is more relevant than assessing "total" lead content with respect to assessing any risk to the surrounding aqueous environment.

This is an extremely important factor when considering landfill as the preferred disposal route.

Contact us today

Find out how we can help solve your problems in process improvement, process control and materials analysis

LPD Lab Services
Phone: +44 (0)1254 676074
E-mail: enquiries@lpdlabservices.co.uk
Web: www.lpdlabservices.co.uk