

<b>DOCUMENT TITLE:</b>	Level 1 Characterisation Testing	 <b>Murphy Environmental Hollywood Ltd</b>	<b>DOCUMENT REF:</b>	P4.6.C/LEVEL 1
<b>Responsibility:</b>	Manager/Assistant Manager		<b>Licence Condition:</b>	Schedule A

## LEVEL 1: BASIC CHARACTERISATION TESTING PROCEDURE

1. In relation to your query to accept inert waste at Murphy Environmental Hollywood Ltd. Landfill, you are asked to complete laboratory analysis on a sample of waste to confirm that it falls within our waste acceptance criteria as listed in the table on page 2.
2. We will advise you how many samples are required and associated laboratory costs (tel. 01 8433744).
3. To organise lab analysis, we recommend you contact either ALcontrol Laboratories on 01 8829893, Jones Environmental Forensics Ltd. on 0044 7718976066 or STL on 01 8623714. They will provide you with sample jars and collect the sample from your premises, where required. You should specify that testing is for Murphy Environmental Hollywood Ltd. and they will complete testing as required on this form.
4. Analysis will take 5 to 10 days. Please forward results to Murphy Environmental Hollywood Ltd.

Chemical analysis (detailed overleaf) of a representative sample: at least 1 sample per 1,500 tonnes or portion thereof for each excavation/demolition works OR if excavation or clearance has not yet commenced, 1 sample for each 7,500 tonnes or portion thereof. Sampling and testing shall be carried out by independent and qualified persons and institutions only and in reference to associated CEN standards, as follows:

#### *General Waste Properties*

EN 13137: Determination of Total Organic Carbon (TOC) in waste, sludge and sediments

PrEN 14346: Calculation of dry matter by determination of dry residue or water content

EN 13656: Microwave assisted digestion with hydrofluoric (HF), nitric (HNO<sub>3</sub>) and hydrochloric (HCl) acid mixture for subsequent determination of elements (Total digestion of the solid waste prior to elementary analysis)

#### *Leaching Tests*

PrEN 14405: Leaching behaviour test – Up-flow percolation test (Up-flow percolation test for inorganic constituents)

EN 12457/1-4 Leaching: Compliance test for leaching of granular waste materials and sludge's (compliance leaching test of granular waste L/S 2, 4mm; L/S 10, 4mm; L/S 2 and 8, 4mm; L/S 10, 10mm)

#### *Analysis*

ENV 12506: Analysis of eluates – Determination of pH, As, Ba, Cd, Cl, Co, Cr, CrVI, Cu, Mo, Ni, NO<sub>2</sub>, Pb, total S, SO<sub>4</sub>, V and Zn (Analysis of inorganic constituents of solid waste and/or its eluate; major, minor and trace elements)

ENV 13370: Analysis of eluates – Determination of Ammonium, AOX, conductivity, Hg, phenol index, TOC, easily liberatable CN, F (Analysis of inorganic constituents of solid waste and/or its eluate (anions))

#### *Digestion of raw waste*

EN 13657: Digestion for subsequent determination of aqua regia soluble portion of elements (Partial digestion of the solid waste prior to elementary analysis, leaving the silicate matrix intact)

Pr En 14039: Determination of hydrocarbon content in a range of C<sub>10</sub>-C<sub>40</sub> by gas chromatography

**Author:** Kate Moonan

**Murphy Environmental Hollywood Ltd.**  
W0129-02

**Approved by:** \_\_\_\_\_

**Version:** 002

**Version Date:** 7<sup>th</sup> September 2009

Page 1 of 2



<b>DOCUMENT TITLE:</b>	Level 1 Characterisation Testing	 <b>Murphy Environmental Hollywood Ltd</b>	<b>DOCUMENT REF:</b>	P4.6.C/LEVEL 1
<b>Responsibility:</b>	Manager/Assistant Manager		<b>Licence Condition:</b>	Schedule A

Parameter	Note	Liquid:Solid = 10 l/kg mg/kg dry substance	Total Pollutant Content mg/kg dry substance	Limit mg/kg dry substance
Arsenic (as As)			N/A	0.5
Barium (as Ba)			N/A	20.0
Cadmium (as Cd)			N/A	0.04
Total Chromium (as Cr)			N/A	0.5
Copper (as Cu)			N/A	2.0
Mercury (as Hg)			N/A	0.01
Molybdenum (as Mo)			N/A	0.5
Nickel (as Ni)			N/A	0.4
Lead (as Pb)			N/A	0.5
Antimony (as Sb)			N/A	0.06
Selenium (as Se)			N/A	0.1
Zinc (as Zn)			N/A	4.0
Chloride			N/A	800.0
Fluoride			N/A	10.0
Sulphate	1		N/A	1000.0
Phenol index			N/A	1.0
Dissolved Organic Carbon (DOC)	2		N/A	500.0
Total Dissolved Solids (TDS)	3		N/A	4000.0
Total Organic Carbon (TOC)	4	N/A		30,000.0
BTEX	5	N/A		6.0
PCB (7 congeners)		N/A		1.0
Mineral Oil (C10-C40)		N/A		500.0
Total PAH	6	N/A		100.0
% Dry Matter Content			>14%	

**Note 1:** If the waste does not meet these values for sulphate, it may still be considered as complying with the acceptance criteria if the leaching does not exceed either of the following values: 1500 mg/kg as Co at L/S = 0.1 l/kg and 6000mg/kg at L/S = 10 l/kg. It will be necessary to use a percolation test to determine the limit value at L/S = 0.1 l/kg under initial equilibrium conditions, whereas the value at L/S = 10 l/kg may be determined either by a batch leaching test or by a percolation test under conditions approaching local equilibrium.

**Note 2:** If the waste does not meet these values for dissolved organic carbon (DOC) at its own pH value, it may alternatively be tested at L/S = 10 l/kg and a pH between 7.5 and 8.0. The waste may be considered as complying with the acceptance criteria for DOC, if the result of this determination does not exceed 500 mg/l. (A draft method based on prEN 14429 is available).

**Note 3:** The values for TDS (Total Dissolved Solids) can be used alternatively to the values for Sulphate and Chloride.

**Note 4:** The TOC limit value is complied with as long as the loss on ignition does not exceed 5% per weight. In the case of soils a higher limit value may be admitted by the Agency, provided the Dissolved Organic Carbon at pH 7 (DOC7) value of 500 mg/kg is achieved.

**Note 5:** Benzene, toluene, ethylbenzene, o-xylene, m-xylene and p-xylene.

**Note 6:** For determining the total of PAH, the following seventeen compounds must be added to a sum: flouranthene, benzo(a)pyrene, benzo(b)flouranthene, benzo(k)flouranthene, benzo(g,h,i)perylene, Indeno(1,2,3,-c,d)pyrene, naphthalene, acenaphthylene, acenaphthene, fluorine(9H-Flourene), phenanthrene, anthracene, pyrene, chrysene, benzo(a)anthracene, dibenzo(a,h)anthracene, coronene.

**Author:** Kate Moonan

**Murphy Environmental Hollywood Ltd.**  
W0129-02

**Approved by:**

**Version:** 002

**Version Date:** 7<sup>th</sup> September 2009

Page 2 of 2

