

Chemex Environmental International Ltd	<b>WASTE ACCEPTANCE CRITERIA (WAC)</b>	Section No: 1.104
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Issue Date: Dec 2007		Version: 1.0

1. Analyte: **WASTE ACCEPTANCE CRITERIA**
2. Matrix Types: Soil, Solid Waste
3. Technique: A number of different analytical techniques are employed in the analysis of WAC. See Table 1.
4. Reference Method: The method is a combination of individual validated methods from the Chemex Method manual.

Recent changes in legislation have led to the introduction of the Environment Agencies Waste Acceptance Criteria for Landfill Disposal and the requirement for those responsible for waste clearance to have their waste tested for suitability for disposal in landfill sites. There are three classifications of landfill. These classes are hazardous waste, stable non-reactive hazardous waste and inert waste. Each of these classes has a different suite of analytical parameters and limits that must be met.

Despite the differences between the classes, they all require the waste to undergo a two part leaching procedure for calculation of the cumulative release of a number of inorganic parameters at a liquid solid ratio of 10:1. This leaching procedure is outlined in the BS EN 12457 standard, which details not only the two part leaching procedure, but also additional procedures that can be adopted for different scenarios and matrices.

In addition to the leaching procedure carried out for all classes, each class requires a number of different parameters to be carried out on the solid waste. These are very dependent on the class being considered. Chemex offer the required analysis to enable clients to determine whether their waste meets the necessary criteria and decide upon the most appropriate disposal method accordingly.
5. Chemex Method ID: WAC/INERT/1.0, WAC/HAZ/1.0
6. Scope of Application: Table 1 indicates which analysis is required for each class of landfill and the necessary limits for disposal.
7. Sample requirements: Sample masses required depend upon the required suite of analysis but generally approximately 1Kg of sample is sufficient. Sample bottles provided are 500ml amber glass bottles however it should be noted that due to the leaching requirement, if the sample has a high moisture content then a larger amount of sample is required.
8. Sample Batch QC: Blank, Blank Spike monitoring, Sample Duplicate when requested.
9. Instrument QC: Instrument QC is described in the individual methods, but comprises initial calibration followed by real time QC checks such as Independent Quality Control solutions, internal standard monitoring and continuing calibration checks.
10. Interferences/Points to Note: Not specified.
11. Detection Limits: Table 1 indicates method detection limits for individual analytes.
12. Turnaround: Chemex Standard 10 Day.

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Table 1.

Parameter	Method Detection Limit (MDL)	Analytical Technique	Inert waste	Stable non-reactive hazardous waste	Hazardous Waste
<b>Parameters to be determined on the waste</b>					
Total Organic Carbon (TOC%)	0.1%	TOC Analyser	3	5	6*
Loss on Ignition (LOI)	-	Gravimetric			10*
BTEX (mg/Kg)	0.005mg/Kg	GC-PID	6		
PCB Congeners (mg/Kg)	10ng/Kg	GC-ECD	1		
TPH C <sub>10</sub> -C <sub>40</sub> (mg/Kg)	0.7mg/Kg	GC-FID	500		
PAH (mg/Kg)	0.075mg/Kg	GC-MS	100		
pH	-	pH Meter		>6	
Acid Neutralisation Capacity	-	Titration		To be evaluated	To be evaluated
<b>Parameters to be determined on the leachate</b>			<b>Limit Values (mg/Kg) at L/S=10 L/Kg according to leaching test BS EN 12457-3</b>		
Arsenic (As)	0.002mg/L	ICP-MS	0.5	2	25
Barium (Ba)	0.001mg/L	ICP-MS	50	100	300
Cadmium (Cd)	0.00025mg/L	ICP-MS	0.04	1	5
Chromium Total (Cr)	0.002mg/L	ICP-MS	0.5	10	70
Copper (Cu)	0.002mg/L	ICP-MS	2	50	100
Mercury (Hg)	0.00006mg/L	CV-AFS	0.01	0.2	2
Molybdenum (Mo)	0.001mg/L	ICP-MS	0.5	10	30
Nickel (Ni)	0.002mg/L	ICP-MS	0.4	10	40
Lead (Pb)	0.0005mg/L	ICP-MS	0.5	10	50
Antimony (Sb)	0.0005mg/L	ICP-MS	0.06	0.7	5
Selenium (Se)	0.001mg/L	ICP-MS	0.1	0.5	7
Zinc (Zn)	0.005mg/L	ICP-MS	4	50	200
Chloride (Cl)	0.10mg/L	Ion Chromatography	800	15,000	25,000
Fluoride (F)	0.05mg/L	Ion Chromatography	10	150	500
Sulphate (SO <sub>4</sub> )	0.05mg/L	Ion Chromatography	1,000	20,000	50,000
Total Dissolved Solids (TDS)**	20mg/L	Gravimetric	4,000	60,000	10,000
Phenol Index	0.005mg/L	Flow Injection Analysis	1		
Dissolved Organic Carbon (DOC)	0.2mg/L	TOC Analyser	500 +	800	1,000

- Key: \* Either TOC or LOI must be used for hazardous wastes. LOI analysis is subcontracted.  
 \*\* The values for TDS can be used instead of the values for Cl and SO<sub>4</sub>.  
 + In the case of soils a higher TOC limit value may be permitted by the Environment Agency at an inert waste landfill provided the DOC value of 500mg/Kg is achieved at L/S=10.