



Soil Property Testing Ltd.

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UKAS Policy on Deviating Samples - TPS 63 Edition (Draft) March 2013

Introduction

As a UKAS accredited laboratory we are duty bound to conform to all UKAS policies. The international standards ISO/IEC 17025 and ISO 15189 require testing laboratories to have procedures in place to ensure that the integrity of samples they test is maintained and the results are reported accurately, clearly, and unambiguously, and where necessary comment upon the quality or adequacy of the primary sample which may have compromised the result.

Deviating Samples

Deviating samples can be defined as those which are not correctly cared for. For example: -

- Have been supplied in insufficient quantity.
- Lack correct sample details and/or other relevant information.
- Have been supplied in inappropriate containers/packaging
- Have become cross contaminated.
- Have been denatured through heat, light, or humidity.
- Have been damaged in transit. i.e., Wax fallen out of the ends of U100 tubes, Sample bags split open.

Additional requirements apply to Environmental samples that require chemical analysis

- Have inappropriate headspace.
- Have rotted or suffered microbiologically.
- Have not been retained at the appropriate temperature.
- Presented in inappropriate containers for type of analysis required
- Have exceeded their maximum holding time.

Deviating samples may jeopardise the validity of the reported test results.

To avoid a disclaimer being applied to your report, please ensure that all geotechnical samples are presented in accordance with BS5930 - Codes of Practice for Site Investigations, and BS1377-Part1:2016. Soils for Civil Engineering Purposes and BS EN ISO 17892 Series where relevant.

Any samples requiring Organic or In-organic chemistry which clients require us to subcontract to a specialist Chemical laboratory, must also comply with the additional requirements. It is recommended guidance is obtained from such laboratories before sampling takes place



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BS5930:1999+A2 2010 Code of Practice for Site Investigations gives recommended procedures for obtaining soil samples from the ground.

The following table is a simplified version of Table 5 from BS1377-Part1:2016, Soils for Civil Engineering Purposes, tailored to list the relevant masses for basic Classification testing, in-house Chemistry, CBR, and Compaction related tests.

The Water Content is taken from Laboratory Testing of Soil BS EN ISO 17892-1:2014 Table 1

MASSES OF SAMPLE REQUIRED FOR TESTS ON DISTURBED SAMPLES. RE BS1377-1:2016 - TABLE 5 (Issued July 2016)

Water Content BS EN ISO 17892-1:2014 Table 1	Max grain size 0.063mm	Max grain size 2.00mm	Max grain size 10.0mm	Max grain size 31.5mm	Max grain size 63.0mm
Min mass of moist test specimen excluding any discrete coarser particles	30g	100g	500g	3000g	21000g
Type of test-	BS 1377: Part No	Sub-clause No	Fine grained soil	Medium grained soil	Coarse grained soil
Moisture content	2	3.2	50g	350g	4 kg
Saturation moisture content of chalk	2	3.3	Lump - 300 to 500 ml (600-1000g)		
Liquid and plastic Limit 4 point	2	4.3	500g	1kg	2kg
Liquid and plastic Limit 1 point	2	4.4	100g	200g	400g
Plastic Limit	2	5.3	50g	100g	200g
Linear Shrinkage	2	6.5	500g	800g	1.5kg
Particle Density by Gas Jar method	2	8.2	300g	600g	600g
Particle Density by Small Pycnometer method	2	8.3	100g	-	-
Particle size distribution by Wet Sieve method	2	9.2	150g	2.5kg	17kg
Particle size distribution by Dry Sieve method	2	9.3	130g	2.5kg	17kg
Particle size distribution by Hydrometer method	2	9.5	250g	100g*	100g*
*Sufficient to give stated mass of fine-grained material					



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Type of test	BS 1377: Part No	Sub-clause No	Fine grained soil	Medium grained soil	Coarse grained soil
Organic Content by Loss on Ignition method	3	4.3	150g	600g	3.5kg
Sulphate 2:1 water soluble SO ₃ by Gravimetric method	3	5.5	150g	600g	3.5kg
pH value by Electrometric method	3	9.5	150g	600g	3.5kg
For combined 2:1 water soluble SO ₃ and pH value	-	-	300g	1.2kg	7.0kg
Compaction Test by 2.5kg rammer method for soils with particles up to medium gravel size	4	3.3	25kg (10kg)*	25kg (10kg)*	25kg (10kg)*
Compaction Test by 2.5kg rammer method for soils with some coarse gravel size particles	4	3.4	80kg (50kg)*	80kg (50kg)*	80kg (50kg)*
Compaction Test by 4.5kg rammer method for soils with particles up to medium gravel size	4	3.5	25kg (10kg)*	25kg (10kg)*	25kg (10kg)*
Compaction Test by 4.5kg rammer method for soils with some coarse gravel size particles	4	3.6	80kg (50kg)*	80kg (50kg)*	80kg (50kg)*
Compaction Test by Vibrating Hammer method	4	3.7	80kg (50kg)*	80kg (50kg)*	80kg (50kg)*
Maximum Density of Sands	4	4.2	6kg	-	-
Maximum Density of gravelly Soils	4	4.3	16kg	16kg	30kg
Minimum Density of Sands	4	4.4	2kg	-	-
Minimum Density of gravelly Soils	4	4.5	16kg	16kg	30kg
Moisture Condition Value (MCV) of a sample of soil at its natural moisture content	4	5.4	3kg	3kg	6kg
Determination of the MCV/Moisture Content relationship of a soil	4	5.5	6kg	6kg	12kg
MCV rapid assessment	4	5.6	3kg	3kg	6kg
Chalk crushing value (CCV)	4	6.4	-	2kg	4kg
California Bearing Ratio (CBR)	4	7.4	6kg	6kg	12kg

* The masses given in brackets apply only when the soil is **NOT** susceptible to crushing during compaction

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LABORATORY DEFINITION OF SOILS – BS1377-1:2016

FINE Grained Soils contain not more than 10% material retained on a 2mm test sieve.

MEDIUM Grained Soils contain more than 10% material retained on a 2mm test sieve but not more than 10% material retained on a 20mm test sieve.

COARSE Grained Soils contain more than 10% material retained on a 20mm test sieve but not more than 10% material retained on a 37.5mm test sieve.

Soils with greater than 10% material retained on the 37.5mm sieve are outside the scope of BS1377, (**conflicts with table 3 below!**) - but may in some cases be classed as Aggregates.

Aggregates, concretes, and bitumen are covered by the BS EN series of documents, and information is published separately for these materials.

REMEMBER. For all samples, seal in airtight container, protect from the environment, label clearly and have tested as soon as possible.

Masses of SOILS samples required for sieving in laboratory

Reproduced from Table 3	BS1377: Part2: 1990
Maximum size of material present in substantial proportion (i.e., more than 10%)	Minimum mass of sampling to be taken for sieving
Test aperture sieve mm	Mass in kg.
63	50
50	35
37.5	15
28	6
20	2
14	1
10	0.5
6.3	0.2
5	0.2
3.35	0.15
2 or smaller	0.1