

Geotechnical Testing - Sample Mass Guidance

		Most tests are upper grain size dependant on masses															
Test method	Standard no.	Coarse 60 - 20mm			Medium 20 - 5mm			Fine 5 - 2mm			Sand 2 - 0.63mm			Clay <0.63mm			
		Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	
Water Content	BS EN 1097-5-2008	20kg	12kg	20kg	5kg	4kg	10kg	2kg	1kg	4kg	1kg	0.4kg	1kg	0.5kg	0.2kg	1kg	
Particle Size Distribution (Wet / Dry)	BS EN 933-1:2012	50kg	36kg - 4kg	50kg	5kg	4kg	10kg	2kg	0.25kg	5kg	2kg	0.2kg	2kg	2kg	0.2kg	2kg	
Binder Grading	BSEN 12697-1:2020 & BSEN 12697-2:2015 + A1: 2019	>31.5mm			>22.4mm - ≤31.5mm			>16mm - ≤22.4mm			>10nn - ≤16mm			>6.3mm - ≤10mm			
		12kg	3k - 5kg	4kg	12kg	2.4kg - 3kg	2.5kg	12kg	1.5kg - 2.5kg	2kg	12kg	1kg - 2kg	1.5kg	12kg	0.8kg - 1.4kg	1kg	
Water Content	BS1377-2 2022 - BS EN ISO 17892-2:2014 + A1:2022	50kg	21kg - 3kg	50kg	5kg	3kg - 0.5kg	10kg	2kg	0.5kg - 0.1kg	3kg	1kg	0.1kg - 0.03kg	1kg	0.5kg	0.03kg	1kg	
Particle Size Distribution (Wet / Dry)	BS1377-2 2022 -BS EN ISO 17892-4:2016	50kg	36kg - 4kg	50kg	5kg	4kg - 0.25kg	10kg	2kg	0.25kg - 0.04kg	4kg	2kg	0.02kg	4kg	2kg	0.02kg	4kg	
Plasticity Index	BS1377-2 2022 - BS EN ISO 17892-2:2014 + A1:2022	10kg	10kg	10kg	5kg	5kg	5kg	5kg	1kg - 5kg	5kg	1kg	1kg	1kg	1kg	1kg	1kg	
Particle Density - Gas Jar	BS1377-2 2022	5kg	1kg	5kg	5kg	1kg	5kg	5kg	1kg	5kg	5kg	1kg	5kg	5kg	1kg	5kg	
OWC/MDD (Vibrating hammer)	BS1377-2 2022	100kg*	100kg*	100kg*	30kg passing 20mm	80kg	80kg	30kg passing 20mm	40kg	60kg	30kg	30kg	30kg	N/A			
OWC/MDD (Vibrating Hammer)	BS1377-2-2022	* If Greater than 30% is retained on the 20mm sieve contact client for instruction				N/A											
OWC/MDD (2.5kg / 4.5kg)	BS1377-2 2022	100kg*	40kg - 15kg*	100kg*	30kg	15kg - 6kg	50kg	30kg	15kg - 6kg	30kg	30kg	15kg - 6kg	30kg	15kg	15kg - 6kg	30kg	
OWC/MDD (2.5kg / 4.5kg)	BS1377-2-2022	* If Greater than 30% is retained on the 20mm sieve contact client for instruction				N/A											
OWC/MDD (2.5kg / 4.5kg)	BS EN 13286-2:2010	100kg*	40kg *	100kg*	40kg	40kg - 15kg	60kg	15kg	15kg	30kg	15kg	15kg	30kg	15kg	15kg	30kg	
OWC/MDD (2.5kg / 4.5kg)	BS EN 13286-2:2010	* If Greater than 25% is retained on the 63mm sieve contact client for instruction				N/A											
OWC/MDD (Vib)	BS EN 13286-4:2021	70-80kg*	40kg*	70-80kg*	40kg	40kg	60kg	40kg	40kg	50kg	40kg	40kg	50kg	N/A restriction			
OWC/MDD (Vib)	BS EN 13286-4-2021	* if Material is Greater than 40mm contact client for instruction				N/A											
CBR (Remould / Test / Swell)	BS1377-2 2022	20kg*	6kg Passing 20mm	20kg*	7kg	6kg Passing 20mm	20kg	7kg	6kg Passing 20mm	10kg	7kg	6kg Passing 20mm	20kg	7kg	6kg Passing 20mm	10kg	
CBR (Remould / Test / Swell)	BS1377-2020	*if more than 25% is retained on the 20mm contact the client for instruction				N/A											
CBR Immediate Bearing Index and Swell	BS EN 13286-47:2021	40kg	7.5kg Passing 22.4mm	40kg	10kg	7.5kg Passing 22.4mm	20kg	10kg	7.5kg Passing 22.4mm	10kg	10kg	7.5kg Passing 22.4mm	20kg	10kg	7.5kg Passing 22.4mm	10kg	
MCV (Single)	BS1377-2 2022	N/A restriction			3kg	1.5kg Passing 20mm	10kg	3kg	1.5kg Passing 20mm	5kg	3kg	1.5kg Passing 20mm	10kg	3kg	1.5kg Passing 20mm	5kg	
MCV (Relationship)	BS1377-2 2022	N/A restriction			15kg	1.5kg Passing 20mm	35kg	15kg	1.5kg Passing 20mm	20kg	15kg	1.5kg Passing 20mm	20kg	15kg	1.5kg Passing 20mm	20kg	
MCV (Single)	BS EN 13286-46:2003	N/A restriction			3kg	1.5kg Passing 20mm	10kg	3kg	1.5kg Passing 20mm	5kg	3kg	1.5kg Passing 20mm	10kg	3kg	1.5kg Passing 20mm	5kg	
MCV (Relationship)	BS EN 13286-46:2003	N/A for this Standard															
Crushed & Broken - Aggregate	(BS EN 933-5:1998)	40kg 63mm - 4mm	36kg - 4kg	50kg	30kg 63mm - 4mm	4kg	30kg	30kg 63mm - 4mm	0.25kg	30kg	N/A restriction						
Compacted Bulk Density - Aggregate	(BS 812-2:1995 (Withdrawn))	50kg < 31.5mm	50kg	60kg	50kg	10kg	50kg	20kg	5kg	20kg	10kg	5kg	20kg	N/A restriction			
Constituent Part - Aggregate	(BS EN 933-11:2022)	50kg	50kg - 20kg	60kg	50kg	50kg - 20kg	60kg	30kg	20kg greater than 4mm	40kg	N/A restriction						
Micro Deval Dry - Aggregate	(BS EN 1097-1:2011)	N/A restriction			10kg 10mm - 14mm	2kg (Passing 14mm retained 10mm sieve)	15kg	N/A restriction									
LA Abrasion - Aggregate	(BS EN 1097-2:2020)	25kg 10mm-14mm (can be crushed)	15kg (Passing 14mm retained 10mm sieve)	150kg	25kg 10mm-14mm	15kg (Passing 14mm retained 10mm sieve)	25kg	N/A restriction									

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		Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	Min Required	Minimum test portion (At required Size Fraction)	Preferred mass	Min Required	Minimum test portion (At required Size Fraction)	Preferred mass
PD & WA - Aggregate	(BS EN 1097-6:2022)	30kg passing 63mm	15kg (between 63mm & 45mm) / 7kg (<45mm) / 5kg 45mm -31.5mm	50kg	20kg	2kg (between 31.5mm and 16mm) / 1kg (between 16mm - 8mm)	20kg	30kg	1kg (between 8mm - 4mm)	50kg	20kg	0.4kg	5kg	N/A restriction		
Loose Bulk Density - Aggregate	(BS EN 1097-3:1998)	50kg<31.5mm	50kg	60kg	50kg<31.5mm	20kg	50kg	50kg<31.5mm	20kg	50kg	10kg	20kg	20kg	N/A restriction		
Magnesium Sulphate - Aggregate	(BS EN 1367-2:2009)	N/A restriction			25kg	1kg (passing 14mm Retained 10mm Sieve)	25kg	10kg	1kg (passing 14mm Retained 10mm Sieve)	25kg	N/A restriction			N/A restriction		
Micro Deval Wet - Aggregate	(BS EN 1097-1:2011)	N/A restriction			10kg	2kg (Passing 14mm retained 10mm sieve	15kg	N/A restriction								
Large Shear box Peak	(BS 1377-2:2022 & BS EN ISO 17892-10:2018)	N/A restriction			90kg	90kg	120kg	90kg	90kg	120kg	90kg	90kg	120kg	90kg	90kg	120kg
Large Shear box Peak	(SHW Clause 636 & BS 1377-2:2022 & BS EN ISO 17892-10:2018)	N/A restriction			90kg	90kg	120kg	90kg	90kg	120kg	90kg	90kg	120kg	90kg	90kg	120kg
Small Shear Box	(BS 1377-2:2022 & BS EN ISO 17892-10:2018)	N/A restriction			N/A restriction			N/A restriction			0.50kg	200g <2.00mm	1kg	0.50kg	200g <2.00mm	1kg
Soil Suction	BRE IP 4-93	minimum of 1kg of <2mm (recompact or intact)														
Linear Shrinkage	BS1377-2-2022	10kg	10kg	10kg	10kg	5kg	10kg	10kg	5kg	10kg	5kg	1kg	5kg	5kg	1kg	5kg
Bulk Density	BSEN ISO 17892-3-2015	intact lump >50cm³														
Unconsolidated Undrained Triaxial	BSEN ISO 17892-8-2018	(D) Diameter of Sample >34mm - Height of Sample 1.8 - 2.5 (D)														
Consolidated Drained & Undrained Triaxial	BSEN ISO 17892-9-2018	(D) Diameter of Sample >34mm - Height of Sample 1.8 - 2.5 (D)														
Unconfined Compressive Strength Soil (UCS)	BSEN ISO 17892-7-2018	(D) Diameter>34mm For Remould Mass of 2kg - 14kg depending on upper grain size														
1D Consolidation (Oedometer)	BSEN ISO 17892-5-2017	(D) Diameter >35mm (H) Height 0.4D - Typically (D) Diameter = 50mm or 75mm and (H) Height = 20mm														
Constant or Falling Head Permeability in a Triaxial Cell	BSEN ISO 17892-11-2019	Intact or Remoulded Sample D:H ≥ 1.0 (D & H must have at least 6 x the upper grain size)														
Water Content Rock	ISRM	lump of around 1kg														
Point Load Rock (PL)	ISRM	(D) Diameter ≥ 30 (preferred Diameter 50mm) / Axial Test 0.3 < (L) Length : (D) Diameter <1.0 / Diametral Test (L) Length : (D) Diameter >1.0 / Block Test 0.3 <(D) Diameter : (W) Width <1.0														
Uniaxial Compressive Strength Rock (UCS)	ISRM	(D) Diameter ≥ 54mm Maximum Grain Size ≤ (D) Diameter/10														