

Clean Angular Stone

Type 4/20

Specification for open graded subbase for use as storage below pervious pavements (also Type C filter material for filter drains and soakaway backfill in accordance with SWH Clause 505) Type 4/20.

Material to BS EN 13242 or BS EN 12620

Material to comprise crushed rock, concrete or blast furnace slag or similar approved.

Crushed rock from granite, basalt, gabbro

Concrete with more than 90% fractures faces.

Materials NOT permitted/NOT recommended:

Crushed gravel

Limestone

River gravel

Single size aggregate

Rounded aggregate

Properties	Test Method	Value	Comments
Grading	BS EN 13242	Grading 4/20 (Preferred) or 4/40, Gc 80/20, GTc 20/15	Aggregate size in mm
Fines Content	BS EN 13242	f_4	Mass fraction of passing 0.063mm sieve <4%
Shape	BS EN 13242	FI_{20}	Flakiness Index <20
Resistance to Fragmentation	BS EN 13242	LA_{30}	Los Angeles coefficient <30
Durability:			
- Water absorption to BS EN 1097-6:2000, Clause 7	BS EN 13242	WA_{24}^2	Water abs 24h <2%
- For $WA > 2\%$, magnesium sulfate soundness	BS EN 13242	MS_{18}	Magnesium Sulfate loss (by mass) <18%
Resistance to Wear	BS EN 13242	M_{DE}^{20}	Micro Deval Coefficient <20
Acid-soluble sulfate content:			
- Aggregates other than air-cooled blast-furnace slag	BS EN 13242	$AS_{0.2}$	Less than 0.2% by mass
- Air-cooled blast-furnace slag	BS EN 13242	$AS_{0.1}$	Less than 0.1% by mass
Total Sulfur:			
- Aggregates other than air-cooled blast-furnace slag	BS EN 13242	$\leq 1\%$ by mass	
- Air-cooled blast-furnace slag	BS EN 13242	$\leq 2\%$ by mass	
Volume Stability of blast-furnace and steel slags:			
- Air-cooled blast-furnace slag	BS EN 13242	Free from dicalcium silicate and iron disintegration in accordance BS EN 13242:2002, 6.4.2.2: V_s (expansion by volume less than 5%)	
- Steel slag	BS EN 13242		
Leaching of contaminants	BS EN 13242	Blast furnace slag and other recycled materials should meet the requirements of the Environment Waste Acceptance Criteria for inert waste when tested in accordance with BS EN 12457-3	

If compaction is required should be in 150mm layers with 4 passes of a smooth wheeled roller max weight of 1000kg/m width **without vibration**.

Aggregate gradings for sub-base materials to BS EN 12620

Recommended grading is 4mm to 20mm Type 4/20. Other gradings may be used such as 4/40, if they meet all the requirements.

NOT to use single size aggregate.

Sieve Size (mm)	Percentage Passing (%)	
	Coarse aggregate 4/40	Coarse aggregate 4/20
80	100	-
63	98-100	-
40	90-99	100
31.5	-	98-100
20	25-70	90-99
10	-	25-70
4	0-15	0-15
2	0-5	0-5

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