Portland Perrycott Limestone

Technical Data Sheet
Portland Perrycott Limestone
Perryfield Quarry
Corsham, Wilts
Contact : Portland Unit, Easton
Tel. 01305 820 207 Fax. 01395 820 275
email: sales@bath-portland.co.uk
website : www.hanson-quarryproducts.com
Grid Reference: SY689 703
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This data sheet was compiled by the Building Research Establishment (BRE). Where possible, data collected in earlier surveys has been used to help interpret the test results. The data sheet was compiled in March 2000 using the results of tests carried out to the proposed European Standards. The work was carried out by BRE as part of a Partners in Technology Programme funded by the Department of the Environment, Transport and the Regions and Hanson Bath and Portland Stone and does not represent an endorsement of the stone by BRE.

General

The Perryfield Quarry is one the a group currently being worked on Portland by Hanson Bath and Portland Stone. Perrycott is an unusual buff/white stone with a medium to fine grained texture. The ooliths having become compacted by ground pressure before consolidation. This, combined with the strong cement, gives rise to a very strong stone with large crystals of cement. This enables it to be cut relatively thinly and to take a good polish. It has been used for flooring and some decorative features. The maximum block size is 2000 x 2000 x 600mm.

Petrography

The stone is an dense oolitic limestone from the Portlandian formation (Jurassic). The stone is formed from ooliths in a micrite (fine grained calcium carbonate) matrix.

Expected Durability and Performance

It is important that the results from the sodium sulphate crystallisation tests are not viewed in isolation. They should be considered with the results from the porosity and water absorption tests and the performance of the stone in existing buildings. Stone from the Perrycot bed in Perryfield Quarry has not been used in many projects and so there is only limited experience of its performance. The test results show that it should have good resistance to frost and salt. There is evidence that it can become slippery when wet if a fine or polished finish is used.

Based on current research it seems likely that the stone would weather at a rate of between 1 and 2 mm per 100 years but it could be greater in severe exposures or on the edges of stonework and in areas which are heavily trafficked.

Test Results – Portland Perrycot Limestone (Perryfield Quarry)

Safety in Use		
Slip Resistance (Note 1)	79.3	Values > 40 are considered safe. Note: Polished surfaces are usually around 15-20 when wet.
Abrasion Resistance (Note 1)	23.7	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression (Note 2)	57.4 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending (Note 1)	6.9 MPa	Loaded perpendicular to the bedding plane ambient humidity

	N.D.	Loaded parallel to the bedding plane ambient humidity
Porosity and Water Absorption		
1) Porosity (Note 3)	14.84%	
2) Saturation Coefficient (Note 3)	0.63	
3) Water Absorption	4.08 % (by wt)	
4) Bulk specific gravity	2308kg/m^3	
Resistance to Frost		
Freeze/Thaw Test (Note 1)	N.D.	
Resistance to Salt		
Sodium Sulphate Crystallisation Test (Note 3)	9.6% Mean wt loss	

(Test methods Note 1 = prEn1341, Note 2 = prEn 1342, Note 3 = prEn 1341 /BRE 141, Note 4 = BRE 141)

Tests were carried out at BRE in 1996-97. N.D. = not determined