



Thornback
Purbeck
Limestone

Technical Data Sheet

Thornback Purbeck Limestone

Lander's Quarry

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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 Landers Quarry and does not represent an endorsement of the stone by BRE.

General

The quarry is on the B3069 near Langton Matravers. It was opened in 1920. The quarry has a number of different beds. The stone is used for walling, door and window surrounds, flooring, paving and many other uses. The depth of the stone varies between beds but most are between 300mm and 380mm but the Thornback is around 225mm. The maximum size quarried is 1600 x 800 x 225mm and the maximum block size supplied is around 500 x 200 x 150mm. There are good reserves.

Petrography

The stone worked at the quarry is Purbeck Limestone from the Middle Purbeck division of Jurassic age. The stone varies in colour with the Thornback being grey-buff in colour with numerous pieces of blue-grey coloured shell.

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 this area is traditionally used as walling and paving. The crystallisation test results show the stone to be Class A which BRE Report 141 suggest is suitable for all uses and that it should have good resistance to both salt and frost. 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. The strength is at the top end of the range for limestones.

Test Results – Thornback Purbeck Limestone (Landers Quarry)

Safety in Use		
Slip Resistance ^(Note 1)	71	Values > 40 are considered safe.
Abrasion Resistance ^(Note 1)	24.5	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression ^(Note 2)	119.9 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending ^(Note 1)	15.8 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)	5.8%	
2) Saturation Coefficient ^(Note 3)	0.51	
3) Water Absorption	1.07 % (by wt)	
4) Bulk specific gravity	2553kg/m ³	
Resistance to Frost		
Freeze/Thaw Test ^(Note 1)	N.D.	
Resistance to Salt		
Sodium Sulphate Crystallisation Test ^(Note 3)	-0.07% Mean wt loss	

(Test methods Note 1 = EN1341, Note 2 = EN 1342, Note 3 = EN 1341 /BRE 141, Note 4 = BRE 141)

Tests were carried out at BRE in 1997. N.D. = not determined