



— Ulveston Marble  
— Mottled

## **Technical Data Sheet**

### **Ulveston Marble – Mottled**

The Rare Stone Group

Hodgestone, Baycliff, Ulverston, Cumbria

Contact : The Rare Stone Group

Tel. 01623 623 092 Fax. 01623 622 509

email: enquires@rarestonegroup.co.uk

website : www.rarestonegroup.co.uk

Grid Reference: SD 288 723

Compiled March 2000

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 September 1999 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 the Rare Stone Group and does not represent an endorsement of the stone by BRE.

### **General**

The quarry is at Baycliff that is just off the A5087. It is an old aggregates quarry which was last worked in the 1950s. It was reopened in November 1981 when, for the first time, the stone was extracted for building purposes rather than crushing. The total depth of the quarry face is around 12m, The first 3 to 4.5m is overburden from which a walling stone can be extracted. There are then several 1.2m beds of the building stone laid down over one another. One stone is an oatmeal or dark cream colour and is known as 'Fawn' whilst the other is a light mottled brown and is known as 'Mottled'. There is very little shell evident in either stone. Both stones can be obtained at depths of 830mm on bed. There are large reserves of stone.

### **Petrography**

Ulverston Marble is a limestone of Carboniferous age. It is not a marble in the geological sense, However, the stone is very dense and takes a polish and as a result it is known as a 'marble'.

### **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 Ulverston has been used in a range of locations.

The porosity indicates a dense stone that will have good resistance to weathering. The sodium sulphate crystallisation result also indicates that the stone will have very good resistance to salt damage and that it will perform well in all but the most exposed locations. The strength is towards the upper end of the range for limestones and so the overall performance should be good.

**Test Results – Ulverston Marble – Mottled**

<b>Safety in Use</b>		
Slip Resistance <sup>(Note 1)</sup>	35	Values > 40 are considered safe. Note: Polished surfaces are usually around 15-20 when wet.
Abrasion Resistance <sup>(Note 1)</sup>	N.D.	Values <23.0 are considered suitable for use in heavily trafficked areas
<b>Strength under load</b>		
1) Compression <sup>(Note 2)</sup>	100 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending <sup>(Note 1)</sup>	N.D.	Loaded perpendicular to the bedding plane ambient humidity

	N.D.	Loaded parallel to the bedding plane ambient humidity
<b>Porosity and Water Absorption</b>		
1) Porosity <sup>(Note 3)</sup>	2.6%	
2) Saturation Coefficient <sup>(Note 3)</sup>	0.63	
3) Water Absorption	0.6 % (by wt)	
4) Bulk specific gravity	2638kg/m <sup>3</sup>	
<b>Resistance to Frost</b>		
Freeze/Thaw Test <sup>(Note 1)</sup>	N.D.	
<b>Resistance to Salt</b>		
Sodium Sulphate Crystallisation Test <sup>(Note 3)</sup>	-0.01% Mean wt loss	

(Test methods Note 1 = EN1341, Note 2 = EN 1342, Note 3 = EN 1341 /BRE 141, Note 4 = BRE 141, Note 5 = Based on earlier BRE data)

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