



# ULTRA

## DEL CARMEN BLUE-BLACK



**Carbajal de la Romana - La Baña - León - Spain**

Date of Test: 2008

EN 12326 - 1:2004

Roofing and External Cladding Slate

Dimensions and dimensional variation		Complies			
Nominal thickness and variation		Complies			
Mechanical Resistance	MoR	Transverse	55.88 MPa	Longitudinal	80.51 MPa
	Mean Failure Load	Transverse	511 N/mm	Longitudinal	684 N/mm
Carbonate content		Complies : 0.4%			
Durability / Water absorption		Complies with code A1 : 0.22%			
Durability / Freeze thaw cycling		Complies			
Durability / Thermal cycling		Complies with code T1			
Durability / Sulfur dioxide exposure		Complies with code S1			
Durability / Non - carbonate carbon content		Complies: 0.52%			
Release of dangerous substances		None in conditions of use as roofing or external cladding			
External fire performance		Deemed to satisfy			
Reaction to fire		Deemed to satisfy class A1			

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The following notes refer to the SSQ roofing slate test certificate shown opposite: where appropriate, **blue is good, red is bad!**

- 1 The CE marking. This shows that the product complies with the relevant European Directive which, in the case of roofing slate, means that it's been tested in accordance with EN 12326.
- 2 The address of the supplier.
- 3 The date the tests were carried out. Note: EN 12326 specifies that roofing slate is tested every two years.
- 4 The European Standard that the product has been tested to – which, of course, is EN 12326.
- 5 The products the standard refers to.
- 6 Confirmation that the roofing slates meet the dimensions advertised by the manufacturer and are within the tolerances stated.
- 7 Confirmation that the roofing slates meet the nominal thickness advertised by the manufacturer.
- 8
  - i) This indicates the strength of the slates. Samples are put under load until they break (see note 9), the data being used to calculate the Modulus of Rupture (MoR) both across their width and along their length. **Strong slates have an MoR above 60MPa.**
  - ii) The Modulus of Rupture test is also used to calculate the lower expected strength value which is then used to calculate the minimum thickness of the slate.
- 9 These are the average loads needed to break the samples across their width and along their length. These results are used to calculate the MoR (see the previous note).
- 10 This gives an indication of the amount of carbonate in the slate. There are three classifications: **up to 5% / 5-20% / over 20%** – **generally the lower the figure, the better the slate.** The result also determines how the Sulphur Dioxide Test is carried out (see note 14).
- 11 This gives an indication of the rock's water absorbency and how a slate may react when wet. Values **up to 0.6% are classed as A1**; values **over 0.6% are classed as A2.**
- 12 The Freeze / Thaw Test is only carried out if the slate is graded A2 in the Water Absorption Test. The test tries to predict the loss of strength caused as water in the slate freezes, damaging its structure. **A2 roofing slates are potentially a high risk in the UK.**
- 13 The Thermal Cycle Test relates to the stability of any pyrite in the slate, predicting its reaction and whether it will oxidise (rust). There are three classifications – **T1 / T2 / T3** – which indicate the extent of the damage this may cause to the slate. **T1 denotes the slate is free of oxidisable pyrite**; T2 indicates that colour runs may develop and **T3 indicates potential structural damage may result from the pyrite oxidising.**
- 14 The Sulphur Dioxide Test indicates how the slate will perform in an acidic environment, which is more typical in cities. Acidic deposition can dissolve carbonate in the slate causing material loss and structural weakness. Slate with a carbonate content of up to 20% is classified as either **S1 / S2 / S3**, a result that directly affects the thicknesses of the roofing slate that can be produced. **Slates with a carbonate content above 20% are tested in a different way and should be considered as probably not fit for purpose.**
- 15 This indicates the amount of carbon in non-carbonate form that's present in the slate eg: graphite, oil and other organic matter. The standard stipulates a **maximum limit of 2%** so **the lower the percentage beneath this the better.**
- 16 Release of Dangerous Substances. Self-explanatory.
- 17 External Fire Performance. Self-explanatory.
- 18 Reaction to Fire. Self-explanatory.

Reassuringly, all SSQ slates have been tested to EN 12326, carry the CE marking and have received A1, T1 and S1 classifications in the three key tests.

### Quick quality checklist

A brief summary to make sure you choose a good-quality roofing slate:

Look for	Result	Note	Item
CE marking	A must!	It's a legal requirement.	1
Strength (MoR)	> 60MPa	It's less likely to break.	8
Carbonate content	< 3 %	...and the lower the better.	10
Water absorption	A1	< 0.3%, and the lower the better.	11
Sulphur dioxide	S1	Avoid S2 and S3.	13
Thermal cycling	T1	Which means it won't rust. Avoid T2 and T3.	14
Proof	A proven history of successful use in the UK		