

# Technical Data Sheet

## Copp-Crag Sandstone

### General

The Quarry is at Byrness and is operated by Dunhouse Quarry Ltd.. It is part of the Lower Carboniferous group of sandstones. The bed height is greater than 2m and maximum block size is 2 x 2.5 x 1.5 m with a maximum supplied size of 1.5 x 2 x 1.5 m. There are suitable reserves and material can be supplied in a variety of formats.

### Petrography

Copp-Crag is a yellow-brown fine grained, non-calcareous sandstone.

### Expected Durability and Performance

It is important that the results from individual tests are not viewed in isolation. They should be considered together and compared to the performance of the stone in existing buildings and other uses. Sandstone is traditionally acknowledged as generally being a very durable building and paving stone and has been used extensively in many towns and cities in the UK. **Copp-Crag sandstone** appears to be a **durable** stone that will have **moderate** resistance to acid rain or air pollution. In addition, the **slight** weight lost in the sodium sulphate crystallisation test indicates **moderate** resistance to salt damage special consideration may be required for locations with harsher environments (for example in coastal locations or from de-icing salts). From the frost test the stone should also have **good** frost resistance. The compressive and flexural strength of the stone is **in the lower end of the range** for sandstones. The density and compressive and flexural strength indicate that the stone should be suitable for use in **medium** trafficked areas.

Overall, **Copp-Crag** should be suitable for use in **general use in all** aspects of construction including flooring, paving, load bearing masonry and cladding. Special consideration should be taken in uses with a very severe environment or where a long service life is needed.

### Test Results - Copp Crag

Safety in Use		
Slip Resistance <sup>(Note 1)</sup>	84	Wet Values > 40 are considered safe.
Abrasion Resistance <sup>(Note 1)</sup>	Not Tested	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression <sup>(Note 2)</sup>	89.4 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending <sup>(Note 1)</sup>	4.1 MPa	Loaded perpendicular to the bedding plane ambient humidity
	Not Tested	Loaded perpendicular to the bedding plane ambient humidity
Porosity and Water Absorption		
1) Porosity <sup>(Note 3)</sup>	17.8%	
2) Saturation Coefficient <sup>(Note 3)</sup>	0.57	

3) Water Absorption	4.6 % (by wt)	
4) Bulk specific gravity	2186kg/m <sup>3</sup>	
<b>Resistance to Frost</b>		
Flexural strength after Freeze/Thaw Test <sup>(Note 1)</sup>	3.6 MPa	Loaded perpendicular to the bedding plane ambient humidity
<b>Resistance to Salt</b>		
Sodium Sulphate Crystallisation Test <sup>(Note 3)</sup>	-0.99% Mean wt loss	
<b>Resistance to Acidity</b>		
Acid Immersion Test <sup>(Note 4)</sup>	Pass	

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