# Swaledale Fossil Limestone

**Technical Data Sheet**
**Swaledale Fossil Limestone**
Barton near Scotch Corner
Compiled September 1997

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 1997 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 and Cumbria Stone Quarries Ltd and does not represent an endorsement of the stone by BRE.

## General

The quarry is just to the east of Scotch Corner in North Yorkshire off the minor road leading to Middleton Tyas. There are several quarries nearby which were worked for road making and lime burning.

## Petrography

Swaledale Fossil LImestone is a light coloured Crinoidal Limestone of early Carboniferous age. The stone can range in colour from blue to beige and contains many large fossils. It is dense and easily takes a polish which enhances the fossils. There are seven beds of stone under approximately 1.2m of overburden, they range in depth from 200mm to 1.2m, but the beds are not well defined and are unpredictable. The largest bed can provide stone from between 380mm and 600mm on bed.

## Expected Durability and Performance

It is important that the results from the 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. Dense Carboniferous limestones are traditionally acknowledged as generally being a very durable building and paving stone and have been used extensively in many towns and cities in the UK. Swaledale Fossil Limestone appears to be a durable stone that will have good resistance to acid rain or air pollution. In addition, the low weight lost in the sodium sulphate crystallisation test indicates good resistance to salt damage (for example in coastal locations or from de-icing salts); the stone should also have good frost resistance. The compressive strength of the stone is high for a limestone and is comparable with many sandstones. The high density and compressive strength indicate that the stone should be suitable for use in heavily trafficked areas.

Overall, should be suitable for use in most aspects of construction including flooring, paving, load bearing masonry and cladding including areas where a long service life is needed.

**Test Results- Swaledale Fossil Limestone**

| | | |
|---|---|---|
| **Safety in Use** | | |
| Slip Resistance (Note 1) | Not Determined | Values > 40 are considered safe |
| Abrasion Resistance(Note 1) | Not Determined | Values <23.0 are considered suitable for use in heavily trafficked areas |
| **Strength under load** | | |
| 1) Compression(Note 2) | c.95 MPa | Conditions of testing not known |
| 2) Bending (Note 1) | Not Determined | Loaded perpendicular to the bedding – ambient humidity |
| **Porosity and Water Absorption** | | |
| 1) Porosity (Note 3) | 1.2 – 2.6% | |

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|---|---|---|
| 2) Saturation Coefficient (Note 3) | 0.77 – 0.80 | |
| 3) Water Absorption | 0.4% (by wt) | |
| 4) Bulk specific gravity | 2650 kg/m$^3$ | |
| **Resistance to Frost** | | |
| Freeze/Thaw Test (Note 1) | Not Determined | |
| **Resistance to Salt** | | |
| Sodium Sulphate Crystallisation Test (Note 14 | Mean: 0% | |

(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 1997, some data from earlier surveys has also been included)