

UKCSA REQUIREMENTS: CAPILLARY ABSORPTION TEST (CAT)



Capillary Absorption Test (CAT) Requirement

When sampled and tested in accordance with Appendix 2 (of the UKCSA's "Technical Manual for Cast Stone" and BS 1217 2008) with an immersion time of 10 minutes, the mean coefficient of water absorption due to capillary action of the three samples shall not exceed 1.0 mg/mm² with no individual value exceeding 1.3 mg/mm².

It should be noted that the research project undertaken in conjunction with The University of Dundee has identified that the overall durability of a product is more likely to be indicated by the compressive strength than the CAT figure. The CAT figure is more useful in determining whether a water proofing/damp proofing additive has been included.

Sampling

Select three samples of cast stone product (when tested these must be at least 17 days old). The sawing of specimens shall not be permitted. Capillary absorption testing shall be carried out on a minimum of a quarterly basis.

Sample Conditioning

Condition the samples in accordance with one of the following procedures. Conditioning by immersion of the samples in water is not permitted.

Products under 14 days old:

After the initial production curing, store the samples until minimum 14 days old in a room, or externally covered with polythene or other weather-proof material protected from severe frosts, making allowance for the free flow of air circulation around each specimen.

Products greater than 14 days old:

Store the samples for two days in a room, or externally covered with polythene or other weather-proof material protected from severe frosts, making allowance for the free flow of air circulation around each specimen.

Test Method

Measure the visual face of each product by suitable means and record the area of each in square millimetres to the nearest 10 mm². Record as A₁, A₂, A₃.

At not less than 14 days old, dry the three products in a well ventilated oven or ovens at 70 ± 5 °C for at least 72 hours and allowed to cool to room temperature 15 – 25 °C in an airtight enclosure. Weigh and record the mass of each unit to the nearest 0.1% of the product weight and record as W₁, W₂, W₃.

Place each product, supported on suitable spacer devices, into a tray and fill with cold water so that the visual face under test is under a maintained 5 ± 1 mm head of water. After 10 ± 0.5 min, remove each product; remove excess water with a damp rag and within 30 s of the removal, reweigh and record the masses as above. Record as X₁, X₂, X₃.

Calculate the capillary absorption C₁, in mg/mm², to the nearest 0.1 mg/mm².

$$C_1 = \frac{1000 (X_1 - W_1)}{A_1}$$

Similarly repeat the calculation for the other samples C₂ and C₃, substituting the relevant values of X and W.

Finally calculate the mean value C (in mg/mm²) as:

$$C = \frac{C_1 + C_2 + C_3}{3}$$

Record the mean value to one decimal place.