

Australian/New Zealand Standard™

**Masonry units, segmental pavers and flags—
Methods of test****Method 6: Determining potential to effloresce**

This Standard incorporates Amendment No. 1 (August 2004). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

1 SCOPE

This Standard sets out the method for determining the potential of masonry units, segmental pavers and flags to effloresce.

NOTE: Care should be taken in the interpretation and application of test results. The atmospheric environment in which units are used is a major factor affecting their performance. Extreme variations in humidity levels in the testing laboratory may also affect the result.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS

4456	Masonry units, segmental pavers and flags—Methods of test
4456.0	Part 0: General introduction and list of methods
4456.1	Method 1: Sampling for testing

3 DEFINITIONS

For the purpose of this Standard, the definitions given in AS/NZS 4456.0 apply.

4 PRINCIPLE

A specimen is placed with one end in a dish of water, allowed to soak for 7 days, followed by air drying for 2 days. The specimen is then compared and assessed with respect to a matching specimen, which has not undergone the soaking, for the development of efflorescence above the waterline on each external face.

5 APPARATUS

Five individual dishes shall be used, each of such dimensions that during the test the specimen is not closer than 25 mm to the sides of the container.

6 PREPARATION OF TEST SPECIMENS

Specimens accumulated from continuous sampling shall be deemed to meet the requirements of this Standard, provided that the number of specimens accumulated is at least 10. For assessment of an individual lot, 10 units shall be selected in accordance with AS/NZS 4456.1. The 10 specimens shall be sorted into 5 pairs so that both specimens of

each pair will have the same appearance, as close as possible. Each pair shall be given an identifying mark.

Where the dimensions of masonry units, segmental pavers or flags do not exceed 400 mm they shall be tested as whole units. Where at least one dimension exceeds 400 mm specimens may be prepared from units as follows:

- (a) Cut from units with a dry saw. The cut surfaces shall be clean, smooth and planar, and opposite faces shall be parallel to one another.
- (b) Specimens so prepared shall be taken from the units in such a manner that they are representative of the units used in practice, and oriented for testing in the same orientation as would entire units. They shall contain at least one side that is normally, in service, exposed to air.
- (c) Specimens so prepared shall measure a minimum 190 mm in length, 100 mm in width and 30 mm in thickness. The external dimensions shall be recorded and included in the report.

Any adhering material that might be mistaken for efflorescence shall be removed by brushing.

7 PROCEDURE

The procedure for each specimen shall be as follows:

- (a) Ensure that the room where the test is conducted is well ventilated, but free of draughts.
- (b) Place one specimen from each of the 5 pairs on end in its individual container. Bring the level of distilled water to 25 ± 5 mm.
- (c) Allow the water to soak up through the specimen for 7 days, replenishing as necessary to maintain the water level. The level of distilled water in the container shall be maintained at 25 ± 5 mm.
- (d) Store the second specimen from each of the five pairs in the test room without contact with water.
- (e) At the end of 7 days remove the five specimens from their containers and allow them to dry in air for 2 days.
- (f) Mark the 25 mm waterline.
- (g) After drying, examine and compare each pair of specimens, observing all external faces of each specimen from a distance of 3 m under good lighting by an observer with normal vision.
- (h) Assess the development of efflorescence above the waterline, on the external faces only, in accordance with Clause 8.

NOTE: The internal surfaces of hollow or cored units are not to be included in this assessment.

8 INTERPRETATION OF RESULTS

Above-water surface deposits (efflorescence) may take the form of either—

- (a) loose crystalline salts; or
- (b) amorphous (non-crystalline) salts.

A brief description of any efflorescence present at the completion of testing shall be given. The development of each different type of efflorescence shall be visually estimated as 'nil', 'slight', 'moderate', 'heavy' or 'severe' in accordance with the following definitions for each pair of specimens:

- (i) *Nil*—no observable efflorescence.
- (ii) *Slight*—not more than 10% of the total external above-water surface covered by a deposit of salts.
- (iii) *Moderate*—more than 10% of one external above-water surface but not more than 50% of the total external above-water surface covered by a deposit of salts.
- (iv) *Heavy*—a deposit of salts covering more than 50% of the total external above-water surface.
- (v) *Severe*—any efflorescence that is accompanied by powdering or flaking of the surface of the specimen.

The classification of the sample shall be based on the worst classification for the 5 pairs.

9 RECORDING

The following information shall be recorded:

- (a) Reference to this test method, i.e., AS/NZS 4456.6.
- (b) Description of the marking, location and identification of the lot.
- (c) Sample and specimen identification.
- (d) Date of sample and test.
- (e) Work sizes for the lot.
- (f) Date of manufacture, if known.
- (g) Dimensions, to the nearest millimetre, of the specimens and orientation in the water bath.
- (h) For each specimen, the description of the type and classification of efflorescence.
NOTE: Interpolative terms such as 'slight to moderate' may be used where appropriate.

10 REPORT

If a report is prepared, it shall include the following information:

- (a) Reference to this test method, i.e., A/NZS 4456.6.
- (b) Description of the marking, location and identification of the lot.
- (c) Sample and specimen identification.
- (d) Date of sample and test.
- (e) Work sizes for the lot.
- (f) Identification and date of manufacture, if known.
- (g) Dimensions, to the nearest millimetre, of the specimens and orientation in the water bath.
- (h) For each specimen, the classification of potential to effloresce and the type of efflorescence.
- (i) Classification for the sample.

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