

Australian/New Zealand Standard™

Masonry units, segmental pavers and flags— Methods of test

Method 2: Assessment of mean and standard deviation

1 SCOPE

This Standard sets out the method for evaluating the mean and unbiased standard deviation of a set of test results.

2 REFERENCED DOCUMENT

The following document is 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

3 GENERAL

When the mean and unbiased standard deviation of a set of test results are to be determined, they shall be calculated in accordance with this Standard. It shall be permissible to reject abnormal test results before calculation of the mean and standard deviation. A result may be assessed as being abnormal only if a specific reason for its abnormality is clearly evident. The reason for its rejection shall be reported.

Individual results shall not be rounded before use in calculations.

4 DEFINITIONS

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

5 MEAN

The mean (X_m) of a group of test results $X_1...X_i...X_n$, where n is the number of results under consideration, shall be calculated from the following equation:

$$X_m = \frac{X_1 + ... X_i + ... X_n}{n} \quad \dots 1$$

6 UNBIASED STANDARD DEVIATION

The unbiased standard deviation (X_s) of a group of test results $X_1...X_i...X_n$, where n is the number of results under consideration, shall be calculated from the following equation:

$$X_s = \sqrt{\frac{\sum X_i^2 - nX_m^2}{n-1}} \quad \dots 2$$

NOTE: Some calculators are programmed to determine the standard deviation as distinct from the unbiased standard deviation. If such a calculator is used the standard deviation should be corrected by multiplying by $\sqrt{\frac{n}{n-1}}$ where n is the number of results.

7 COEFFICIENT OF VARIATION

The coefficient of variation (V) shall be calculated from the following equation:

$$V = \frac{X_s}{X_m} \quad \dots 3$$