

# Australian Standard®

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## Methods of testing soils for engineering purposes

### Method 2.3.1: Soil moisture content tests— Establishment of correlation—Subsidiary method and the standard method

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**1 SCOPE** This method provides a means of establishing a line correlation between one of the subsidiary methods of moisture content determination (AS 1289.2.1.2, 2.1.4, 2.1.5, 2.1.6) and the standard oven drying method (AS 1289.2.1.1) for a specific soil type.

For numerous soils the line of best fit is of the linear type given by this procedure, but for some soils the best relationship can be other than this linear form, in which case this method does not apply.

**2 REFERENCED DOCUMENTS** The following documents are referred to in this Standard:

AS

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| 1289       | Methods of testing soils for engineering purposes  |
| 1289.2.1.1 | Method 2.1.1: Soil moisture content tests—Determination of the moisture content of a soil—Oven drying method (standard method)             |
| 1289.2.1.2 | Method 2.1.2: Soil moisture content tests—Determination of the moisture content of a soil—Sand bath method (subsidiary method)             |
| 1289.2.1.4 | Method 2.1.4: Soil moisture content tests—Determination of the moisture content of a soil—Microwave-oven drying method (subsidiary method) |
| 1289.2.1.5 | Method 2.1.5: Soil moisture content tests—Determination of the moisture content of a soil—Infrared lights method (subsidiary method)       |
| 1289.2.1.6 | Method 2.1.6: Soil moisture content tests—Determination of the moisture content of a soil—Hotplate drying method (subsidiary method)       |

**3 PROCEDURE** The procedure shall be as follows:

- (a) Select not less than 10 samples of the particular soil type so that the expected range of moisture contents is spanned. Split each sample to provide two subsamples.
- (b) For each sample, determine to the nearest 0.1 percent, the moisture content of one subsample using the standard method (AS 1289.2.1.1), and the moisture content of the other subsample using the particular subsidiary method.
- (c) Calculate the least square regression of  $Y$  (moisture content—standard method) on  $X$  (moisture content—subsidiary method) of the form  $Y = A + BX$ .  
Calculate the standard error of estimate,  $S_{YX}$ , of the regression line.
- (d) Plot the regression line calculated in Item (c). Plot parallel lines at a vertical distance of  $2S_{YX}$  from the regression line (these represent about 95 percent confidence limits).

NOTE: A method of regression analysis is set out in Appendix A.