



# Test method T1022

Determination of the organic matter in  
soils (Peroxide method)

NOVEMBER 2012



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## Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		Reformatted and Revision Summary Added	D. Dash	June 2001
Ed 2/ Rev 0	All	Reformatted RMS template	J Friedrich	November 2012

Note that Roads and Maritime Services is hereafter referred to as 'RMS'.

The most recent revision to Test method T1022 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

# Test method T1022

## Determination of the organic matter in soils (Peroxide method)

### 1. Scope

This test method sets out the procedure for the determination of the percentage by mass of humus and colloidal organic matter in soils.

The method depends upon the ability of 6 percent hydrogen peroxide to oxidize humus and other colloidal organic matter commonly found in soils. It is not primarily intended to measure the amount of coarse or undecomposed organic matter present. Results will be affected by any reducing inorganic matter present in the sample.

The test method is derived from Country Roads Board Test Method CBR 171.01.

### 2. Apparatus

- (a) 600 mL beaker with a watch-glass cover
- (b) Hot-plate with variable heater controls.
- (c) Balance of at least 250 g capacity, accurate and readable to 0.01 g within the operating range.
- (d) Buchner funnel and flask.
- (e) Whatman No. 44 filter papers to fit the Buchner funnel.
- (f) Measuring cylinder (100 mL).
- (g) Mortar and pestle.
- (h) A thermostatically controlled oven with good air circulation, capable of maintaining a temperature within the range of 105°C to 110°C.

### 3. Reagents

- (a) Hydrogen peroxide, 20 vols (60g/kg).

### 4. Preparation of Sample

- (a) Reduce the bulk sample by quartering or riffing to obtain a test portion of about 250 g. Allow the sample to dry in air.
- (b) Reduce the dried soil to a powder with a mortar and pestle.
- (c) Take a portion of approximately 20g of the powder and determine its mass(s) to 0.01 g.
- (d) Place the sample in a 600 mL beaker. Add 100 mL of hydrogen peroxide and stir the mixture by swirling.
- (e) Cover the beaker and place it on a hot-plate. Maintain the contents at a temperature of 60°C±3°C for about two hours stirring occasionally.
- (f) Add a further 10 mL of hydrogen peroxide.
- (g) If step (f) causes a further evolution of gas, add 100 mL more hydrogen peroxide and allow the mixture to stand at 60 ±5°C for a further 2 hours.
- (h) Repeat steps (f) and (g) until no further gas is evolved.
- (i) Filter the contents of the beaker through a No. 44 Whatman filter paper on a Buchner funnel.
- (j) Wash the residue with hot distilled (or deionized) water.
- (k) Dry the residue at a temperature between 105°C and 110°C to constant mass (R).

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**5. Calculating and Reporting**

- (a) Calculate the organic matter content (P) as follows:

$$P = \frac{S - R}{S} \times 100$$

Where S = mass of sample (g)

R = mass of residue (g)

- (b) Report the value of P as a percentage by mass of organic matter present in the air dry sample (Hydrogen Peroxide method) to the nearest 0.1%.