



**Transport**  
Roads & Maritime  
Services

# Test method T1012

## Zinc coating on galvanised wire

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 T1012 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

# Test method T1012

## Zinc coating on galvanised wire

### 1. Scope

This test method deals with the determination of the weight of the zinc coating on hot dip galvanised wire. The method is derived from the Australian Standard K53-1960.

### 2. Reagents Required

- (a) Antimony trichloride solution.  
Dissolve 20 g of antimony trioxide ( $\text{Sb}_2\text{O}_3$ ) or 32g of antimony chloride ( $\text{SbCl}_3$ ) in 1000 mL of hydrochloric acid (Density not less than 1.14 nor more than 1.19 g per mL).
- (b) Hydrochloric acid - concentrated (Density not less than 1.14 nor more than 1.19 g per mL).

### 3. Apparatus

A measuring cylinder or some such container sufficiently deep to immerse the test specimen in the antimony trichloride solution.

### 4. Test Specimens

- (a) Select samples for test not less than 300 mm long, but with the mass of each specimen in grams not less than its diameter in mm multiplied by 4.
- (b) Select a reasonably straight test specimen or straighten the specimen by hand. Clean the specimen by dipping in a suitable organic solvent which does not attack the zinc coating. Wipe the specimens dry with a soft clean cloth.
- (c) If the specimen is too long for test it may be bent in the shape of a "U" or cut into suitable lengths.

### 5. Procedure

- (a) Determine the mass of each test specimen to the nearest 0.01 g.
- (b) Strip the zinc coating from each specimen by complete immersion in any convenient volume of solution made by adding 5 mL of antimony trichloride solution to each 95 mL of hydrochloric acid.
- (c) The time for stripping will vary with the coating thickness but should not exceed one minute. Do not immerse more than 3 specimens in each 100 mL of solution.

**Note 1:** The same solution may be used repeatedly without further addition of antimony trichloride solution provided the time of stripping does not exceed one minute.

**Note 2:** The temperature of the solution must not at any time exceed 38°C.

- (d) When the evolution of hydrogen has ceased or when only a few bubbles are being evolved remove the specimens from the acid, scrub under running water and dry by wiping with a clean soft cloth. Heat to 100°C and cool.
- (e) Determine the diameter of the wire to the nearest 25  $\mu\text{m}$  by taking the average of two measurements at right angles to each other.
- (f) Determine the mass of the stripped specimen to the nearest 0.01 g.

## 6. Calculation and Reporting

- (a) The original mass minus the stripped mass divided by the mass of the stripped specimen will give the ratio of the coating to iron in the specimen under test.

The mass of Coating per unit area of stripped wire =  $1955 d \times v \text{ g / m}^2$

where d = Diameter in mm of stripped wire

v = the ratio  $\frac{\text{OriginalMass} - \text{StrippedMass}}{\text{StrippedMass}}$

Report the mass of the zinc coating per unit area in  $\text{g/m}^2$