



Transport
Roads & Maritime
Services

Test method T220

Iron unsoundness in metallurgical slag

OCTOBER 2012



Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		Reformatted and Revision Summary Added	D.Dash	May 1999
		Date on Test Method Revised to Agree with Date on Revision Summary	D.Dash	Feb 2001
Ed 2/ Rev 0	All	Reformatted RMS template	J Friedrich	October 2012

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

The most recent revision to Test method T220 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

Test method T220

Iron unsoundness in metallurgical slag

1. Scope

This test method sets out the procedure for the determination of iron unsoundness in metallurgical slag. The test method conforms to the method set out in Australian Standard 1141.37.

2. General

Term	Definition
Term	
Iron unsoundness	Is a measure of the presence of sulphur as iron or manganese sulphide in metallurgical slag
Cracking	Is the development of any visible crack
Disintegration	Is the physical breakdown of the aggregate particles
Shaling	Is the development of fretting of the aggregate particles such as that which develops in shale
Checking	Is the craze cracking of the surface of the aggregate particle

3. Apparatus

A container for the water in which the test sample is immersed. The capacity of the container shall be at least twice the volume occupied by the test sample.

4. Test Portion

- (a) Take at random from the sample, a test portion of not less than 50 pieces of aggregate
- (b) Take a duplicate test portion and reserve for retest

5. Procedure

- (a) Immerse the pieces in water at room temperature for a period of 14 days
- (b) At the end of this period, remove the pieces from the water and examine them
- (c) If any of the pieces exhibits cracking, disintegration, shagging or checking, repeat (a) and (b) on the duplicate sample obtained in 4 (b)
- (d) Record the total number of pieces exhibiting cracking, disintegration, shaling or checking

6. Calculations

Calculate the quantity of sample showing iron unsoundness as a percentage of the total number of pieces tested.

$$I = \frac{a + b}{A + B} \times 100\%$$

Where

- I = Percentage of particles exhibiting iron unsoundness
a = Number of pieces of aggregate showing iron unsoundness in the first test portion
b = Number of pieces of aggregate showing iron unsoundness in the second test portion
A = Total number of pieces in first test portion
B = Total number of pieces in second test portion

7. Reporting

- (a) If none of the pieces of aggregate exhibits iron unsoundness, report the sample as free from iron unsoundness.
- (b) If any of the pieces of aggregate exhibits iron unsoundness, report the percentage of aggregate particles showing iron unsoundness.

8. Techniques

Slag liable to iron unsoundness can be distinguished by its reddish surface or at higher iron contents by its very dark appearance and magnetic properties.