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AS 2205.5.1-1997

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF DESTRUCTIVE TESTING OF WELDS IN METAL

PART 5: METALLOGRAPHIC TESTS

AS 2205.5.1
METHOD 5.1: MACRO TEST—CROSS-SECTION
EXAMINATION

1 SCOPE. This Standard sets out the method for the macro test of a welded joint. The test reveals the weld shape, the extent of penetration, and the soundness of a welded joint.

2 REFERENCED DOCUMENTS. The documents below are referred to in this Standard.

- AS
- 1863 Coated abrasives (technical products)
- 2205 Methods of destructive testing of welds in metal
 - Part 1: General requirements for tests (AS 2205.1)
 - Part 6: Hardness test—Weld joint hardness test (AS 2205.6.1)
- 2243 Safety in laboratories
 - Part 1: General (AS 2243.1)
 - Part 2: Chemical (AS 2243.2)

3 PRINCIPLE. A cross-section of a welded joint is prepared in a specified manner and then examined visually.

4 PREPARATION OF TEST SPECIMEN. The test specimen shall be prepared in accordance with the requirements of AS 2205.1 and the following:

- (a) The test specimen shall be de-greased from the weld zone as specified in the relevant application Standard to the dimensions indicated in Figure 1.
- (b) The test specimen shall be prepared, polished, and etched, using an approved method and etching solution (see Appendix A for details of an approved method and recommended etchants).

5 PROCEDURE. The test specimen shall be examined visually. If necessary this may be done with the aid of magnifying equipment.

NOTE: In some cases imperfections may be better observed before the etching solution is applied.

6 REPORTING OF RESULTS. The test results shall be reported as follows:

- (a) Identification of this and any relevant application Standard(s), i.e. AS 2205.5.1, Macro test—Cross-section examination, and(if applicable).
- (b) Identification of test specimens by any markings, e.g. 'Specimen A'.
- (c) Type of material, and if known, Standard number and grade.
- (d) Any special features of test specimen before testing, e.g. any visible imperfection.
- (e) Location of weld zone from which test specimen was cut.
- (f) Etchant used.
- (g) Appearance of etched surface including presence and type of imperfections.
- (h) Illustration of the etched surface, i.e. sketch or photograph.

