

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 3894.9—2003

Site testing of protective coatings

Method 9: Determination of adhesion

RECONFIRMATION NOTICE

Technical Committee CH-003 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 25 September 2013.

The following are represented on Technical Committee CH-003:

Australasian Corrosion Association
Australian Paint Approval Scheme
Australian Paint Manufacturers' Federation
Australian Pipeline Industry Association
Water Corporation Western Australia

NOTES

Australian Standard™

Site testing of protective coatings

Method 9: Determination of adhesion

PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee CH-003, Paints and Related Materials. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

FOREWORD

The measurement of a coating's ability to adhere or bond to the surface to which it has been applied and the intercoat adhesion between subsequent layers of previously applied coatings are major factors when determining a maintenance schedule or writing a maintenance specification for a structure.

The onsite measurement of adhesion will over a period help to determine the degree of urgency or programming of a maintenance processes when protecting a structure from atmospheric or other corrosive elements in it's own environment.

METHOD

1 SCOPE

This Standard provides a method for evaluating and testing the adhesion of existing coating systems to their substrate while in their service environment.

2 DEFINITIONS

For the purpose of this Standard, the definitions in AS 2310 apply.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1580 Paints and related materials—Methods of test

1580.408.4 Method 408.4: Adhesion (cross-cut)

1635 Methods of test for pressure-sensitive adhesive tape

1635.3.1 Part 3.1: Adhesion strength

AS	
3894	Site testing of protective coatings
3894.3	Part 3: Determination of dry film thickness
3894.7	Part 7: Determination of surface temperature
AS/NZS	
2310	Glossary of paint and painting terms
4530	Coated abrasive—Cloth rolls

4 APPLICATION

4.1 General

Three methods of assessing the adhesion or bonding of a coating system to its substrate are referred to as Methods A, B and C described in Clauses 5, 6 and 7. Methods A and B are qualitative and Method C is quantitative.

Because Methods A and B are analogous, the reliability of the test results will be confirmed if both methods are conducted and compared at the same time.

Because Method C, Pull-off, may take several days for the test to stabilize under field conditions, it is not recommended that the test be used for routine quality control.

All three test methods will damage the coating system. A repair specification should be available to repair the coating if it is to be placed back into service.

Because the adhesion, hardness and flexibility of most coatings will vary with changes in temperature, testing is best performed within the temperature range of 15–25°C. Should the operating temperature or the temperature at the time of testing be outside this range, the manufacturer's advice should be sought.

If adhesion fails between coats (inter-coat adhesion) in a multi-coat system, the adhesion of the coating system to the substrate cannot be determined with reliability.

4.2 Sampling plan

This method recommends a number of randomly selected locations to be tested. It is further recommended that either Method A or B be conducted depending on the film thickness (see Clause 6.1).

For structures—

- (a) 10 m² or less 1 test site;
- (b) greater than 10 m² and less than 30 m² 2 test sites;
- (c) greater than 30 m² and less than 100 m² 3 test sites; and
- (d) exceeding 100 m² 3 test sites plus 1 test site for each additional 100 m².

5 METHOD A—KNIFE TEST

5.1 Principle

The previously applied coating is cut through to the substrate surface in the manner described and the ease with which the coating can be removed is determined.