Australian Standard®

Paints and related materials—Methods of test

Method 408.5: Adhesion—Pull-off test

PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee CH-003, Paints and Related Materials, to supersede the 1994 edition of the Standard.

METHOD

1 SCOPE

This test method provides a laboratory or field procedure for quantifying the adhesion of a coating by determining the greatest perpendicular force (in tension) that a given surface area of coating can bear before it is detached.

The test method can be used for all coatings on rigid materials but is particularly suitable for testing adhesion of coatings on concrete and masonry surfaces.

2 REFERENCED DOCUMENTS

The following document is referred to in this Standard:

AS	
3894	Site testing of protective coatings
3894.9	Part 9: Determination of adhesion
4638	Coated abrasives—Abrasive rolls
AS/NZS	
1580	Paints and related materials—Methods of test
1580.101.4	Method 101.4: Conditions of test—Temperature control

3 PRINCIPLE

This method uses pull-off adhesion testers to maximize tensile stress, in contrast to the shear stress applied by knife and cross-cut adhesion tests. The pull-off test is performed by securing a loading fixture normal to the surface of the coating with an adhesive. After the adhesive has cured, the testing apparatus is attached to the loading fixture and aligned to apply tension normal to the test surface. The force applied to the loading fixture is then gradually increased and monitored until either a plug of coating material is detached, or a specified value is reached. Failure will occur along the weakest plane within the system formed by the loading fixture, the adhesive, the coating system and the substrate. Measurements are limited by the strength of the adhesive bond and the cohesive strength of the substrate.