

Certificate of Test - Coating Adhesion

Trial Maintenance Coating System

CLIENT:	Dulux Protective Coatings Locked Bag 707 Milperra NSW 1891	PHONE:	(02) 9794 9423
CONTACT:	Ian Clark	FAX:	(02) 9794 9862
REPORT NO.	C10962	CTI JOB:	2519
TESTING OFFICER:	Fred Salome	REPORT DATE:	19 th April, 2010

PROJECT OUTLINE

CTI have been commissioned by Ian Clark of Dulux Protective Coatings to conduct adhesion tests on a trial application of a proposed maintenance coating system for remediation of rusted steel after preparation using wet abrasive blast cleaning.

TEST PROCEDURE

The trial had been conducted on a piece of angle iron, 100 x 150 mm, 1.5 m in length.

The panel had been step-coated with a three coat paint system consisting of Luxepoxy Clear Sealer, Durebild STE (Off-White) and Weathermax HBR (Pale Gold).

All coatings had been brush applied, and brush marks were clearly visible in the Durebild STE and the Weathermax HBR systems.



Coating adhesion testing was carried out in accordance with AS 3894.9, *Site testing of protective coatings, Method 9, Determination of Adhesion, Method C Pull-Off Adhesion*, at ambient temperature as prevailing in the non-air-conditioned work room, estimated to have between 16 and 25°C.

Duplicate aluminium test stubs, 20 mm in diameter, were attached to each of three stepped systems on Friday 16th April, 2010 using an epoxy adhesive (Everlok 45). The adhesive was left to cure for three days before test.

The test stubs were pulled off by CTI on April 19th, 2010 using a Positector Model AT-CM Pull-Off Adhesion Tester. The tensile force required to remove each stub was read directly off the instrument gauge, and both the stub and test surface were inspected to determine the mode of failure.

Measurements of the dry film thickness (DFT) of each system were made using an Elcometer 456 electromagnetic thickness gauge conforming to AS 3894.3.

RESULTS

Details of the coating system assessed are given in Table 1 below. All systems had been applied over previously rusted steel, prepared by wet abrasive blast cleaning.

Table 1 Trial Coating Systems Tested

Coating Systems	Description	Dry Film Thickness (µm)
System I (Stubs A/B)	Luxepoxy Sealer only	50 - 100
System II (Stubs C/D)	Luxepoxy Sealer Durebild STE	~ 300
System III (Stubs E/F)	Luxepoxy Sealer Durebild STE Weathermax HBR	350 - 400

The results of the adhesion testing are presented in Table 2 below.

Table 2 Pull-Off Adhesion Test Results

System	Description	Bond (MPa)	Mode of Failure
A	System I (sealer only)	9.5	100% Glue Failure
B		6.5	100% Glue Failure
C	System II (sealer plus intermediate)	9.5	100% Glue Failure
D		7.5	100% Glue Failure
E	System III (full three-coat system)	5.0	100% Glue Failure
F		7.5	100% Glue Failure

Failure in each case occurred at the glue/coating interface, attributed to the uneven surface of the coatings being tested.

These results indicate that the coating system adhesion exceeds the average glue failure value of 7.5 MPa.

Signature of Inspector

Report Date: 19 April, 2010



Fred Salome, B.Sc. (Hon)
 NACE Protective Coating Specialist
 NACE Certified Coating Inspector Level 3 Marine - No. 8662



NATA Accreditation No. 15328 – Type A Inspection Body to ISO/IEC 17020

This document is issued in accordance with NATA's accreditation requirements

