

Ultra Tuff Testing

ADHESION

Ultra Tuff Testing: Certificate of Test No. 2618
Adhesion-Pull Off Test

Sample Preparation:

Concrete samples were prepared as follows:

Sample A: 1 coat Ultra Tuff Primer/1coat Ultra Tuff w/o aggregate, with pigmentation

Sample B: 1 coat Ultra Tuff Primer/2coats Ultra Tuff w/o aggregate, with pigmentation

Sample C: 1 coat Ultra Tuff Primer/2 coats Ultra Tuff Standard

Sample D: 1 coat Ultra Tuff Primer/2 coats Ultra Tuff Standard

Adhesion-Pull-Off-Test: ASTM D4541-95/AS1580.408.5

Tests externally performed by NATA accredited laboratory using Elcometer direct tension pull-off tester, Model 106, in accordance with AS1580.408.5 – 1994, Adhesion-Pull-Off Test and ASTM D4541-95, Standard Method for Pull-off Strength of Coatings using Portable Adhesion Testers. Test dollies attached using “Araldite Super Strength” epoxy resin adhesive, allowed to cure for 24 hours prior to test

Mean result of 19 tests

Adhesion Strength

(kg/cm ²)	(Mpa)	PSI	Mode of Failure
7	0.7	100	90% cohesive (concrete substrate) 10% primer/concrete substrate interface

Sample A:

Adhesion Strength

(kg/cm ²)	(Mpa)	PSI	Mode of Failure
8	0.8	110	95% cohesive (concrete substrate) 5% primer/concrete substrate interface

Sample B:

Adhesion Strength

(kg/cm ²)	(Mpa)	PSI	Mode of Failure
7	0.7	100	92% cohesive (concrete substrate) 9% primer/concrete substrate interface

Sample C:

Adhesion Strength

(kg/cm ²)	(Mpa)	PSI	Mode of Failure
7	0.7	100	91% cohesive (concrete substrate) 9% primer/concrete substrate interface

Sample d:

Adhesion Strength

(kg/cm ²)	(Mpa)	PSI	Mode of Failure
6	0.6	110	100% cohesive (concrete substrate)

The results show that around 100 psi of force is required to dislodge the coating from the concrete substrate. In most cases the concrete broke away before the coating failed. The results show that a very significant amount of PULLING force is required to dislodge the coating and in most cases the concrete broke off before the coating failed.

Test A: (5 trials) Ultra Tuff w/o aggregate applied with 1 coat of Ultra Tuff primer performed the best with a mean of 110 PSI being required to break off the concrete. In essence, this combination performed far better than the concrete substrate.

Test B: (5 trials) Ultra Tuff w/o aggregate and 2 coats of Ultra Tuff Primer required 100 PSI to break off the concrete. Again, the concrete gave way before the coating.

Test C: (5 trials) One coat of Azco seal and 2 coats of Ultra Tuff standard (w/aggregate) required 100 PSI to break off the concrete. Again, the concrete broke away before the coating.

Test D: (4 trials) One coat of Ultra Tuff primer and 2 coats of standard (w/aggregate). Ultra Tuff required 90 PSI to break off the concrete. In this series of tests there was a 100% failure of the concrete at a mean of 90% PSI. Obviously, the coating can withstand a higher PSI.