# Procedure for Adhesion Testing on Stone Dressed Bimagrip Resin

## General:

This test method follows the general guidelines of ASTM D4541 "Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers". The test method is modified for performing the adhesion tests on the Bimagrip LS anti-skid wearing surface for coatings that have been dressed with aggregates.

## Equipment:

A portable adhesion tester, such as the Elcometer Adhesion Tester Model No. F106-3 or a Defelsko PosiTest Pull-Off Adhesion Tester, or other similar adhesion tester shall be utilized. The Adhesion tester shall be calibrated as per the manufacturer's specifications and the test conducted within the time frame for which the calibration is certified.

A 14mm or 20mm test dolly shall be used as supplied by the manufacturer of the adhesion tester. The test dollies shall be secured to the dressed Bimagrip surface using Araldite slow cure epoxy or Loctite907 Epoxi-patch adhesive. Various grit size sandpapers shall be used to roughen up the surface of the epoxy resin deposited over the stone dressing as well as the surface of the test dolly.

## Procedure:

Locate one test area, for each 200 square metres (2,152 sq. ft.) of coated wearing surface on which to perform the testing. Three pull tests shall be performed on each test area. It may be wise to select locations that will be removed from where heavy traffic flow is expected as repairs may have to done to these surfaces after completion of the pull tests.

The test area for performing the adhesion test shall have an acceptable surface profile regarding smoothness and flatness of the stone dressing. A puddle, similar to a puck, about twice the diameter of the test dolly shall be formed over each pull test location with the epoxy glue. The puddle shall be made as level as possible and fully cover the tips of the aggregate dressing. The epoxy puddle shall be allowed to cure for a minimum 72 hours.

Apply the dollies per ASTM D4541 Annex Al (page 6). A minimum of 3 dollies shall be glued to each test surface area. Prior to gluing each dolly, slightly roughen the epoxy surface with medium grit sandpaper making the top of the puddle as level as possible. Slightly roughen the faying surface of the dolly to be applied with medium grit sandpaper. The dollies shall then be glued to the epoxy over the test surface using the appropriate slow cure epoxy.

After a minimum cure time of 7 days for the slow cure epoxy, the dollies can be pulled from the test surface and the results analyzed.

Perform the physical testing per ASTM D4541 Annex A1 (page 6).

**Report:**
Record the test results indicating the location of test area, the date of application of the Bimagrip, the date of application of the epoxy puck, the date of the pull test, the individual tension test readings and the location of the failure plane. Calculate the mean value of the pull test results for each test area. A picture of the each test dolly and each test area should also be included.

**Acceptance:**
Derive the mean adhesion test value obtained from the 3 test pulls for each test area. This value shall be equal to or above 7 MPa (1,015 psi) for the coating system to be acceptable. Should the average of the 3 pull tests be below the acceptable value, three additional pull tests shall be performed on the test area. If the average of the six pull tests average is above 7 MPa (1,015 psi), the coating system will be acceptable. If the average of the 6 adhesion tests is below 7 MPa (1,015 psi), a Non Conformance Report shall be submitted along with a corrective action plan.

Note that test results where the failure is in the epoxy resin above the plane of the aggregate may be discarded if the pull test result is lower than the acceptable value, as the failure is not in the Bimagrip layer. The test may be repeated to obtain the minimum number of test pulls.