



CERTIFICATION BULLETIN 2012-05

Deletion of the Abrasion Resistance Test – CAN/ULC-S603.1-11, 4th Edition of the Standard for External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids

To: Subscribers to ULC's Certification Service for External Corrosion Protection Systems in accordance with CAN/ULC-S603.1 and others interested.

- EGHXC - Underground Tanks
 - EGYJC - Jacketed Underground Tanks
-

This Bulletin is a follow-up to ULC Standards Bulletin 2011-22, announcing the publication of the 4th Edition of the Standard for External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids, CAN/ULC-S603.1-11.

UL LLC in assessing the new and revised requirements of CAN/ULC-S603.1-11 has identified a major problem with implementation of the referenced ASTM G14 test method as described below, and has therefore made a certification decision to not conduct the Abrasion Test on certified products, in anticipation of successful balloting of the proposal submitted to the responsible ULC-S600A committee. However, if the committee instead chooses to identify the missing parameters, or replace it with another test method, the impact would potentially be a future recertification of products.

The previous edition of ULC-S603.1 (Sec 5.2.5 & Sec 8.2.9) referenced the ASTM G13 Standard Test Method for Impact Resistance of Pipeline Coatings (Limestone Drop Test). However, this method was withdrawn by ASTM without a recommended replacement, and so could no longer be used as a valid document reference in the standard for Certification compliance testing.

The ULC-S603.1 TC (S600A) recommended its replacement with the ASTM G14 Standard Test Method for Impact Resistance of Pipeline Coatings (Falling Weight Test). However, this method is basically an R&D type test intended to obtain a failure point using variable drop heights and coating thicknesses, and does not specifically contain minimum requirements that can be equivalently applied to Certifications. And, in reality, the method is an impact instead of an abrasion it was to replace.

Since it is not the Certification Organizations responsibility to arbitrarily determine this missing information, UL asked ULC Standards to seek from the S600A TC an Interpretation on the test intent (impact vs abrasion) and method clarifications (required drop height and sample specifications). The TC response provided no clarification or solution, other than suggesting a resolution was needed from the parallel UL1746 TC (STP 58), from which ULC-S603.1 originated.

After obtaining feedback from STP58 members on the Abrasion Test development, intent and action options, UL is submitting consistent UL1746 and S603.1 proposals (revisions) to resolve the problem based on the following rationale:

It's clear to UL that the original Abrasion and Impact tests were intended to simulate very different types of damage an external corrosion protection system could see in expected use conditions, specifically -

- Abrasion using the original ASTM G13 limestone drop test method simulated damage to the protection system from backfill material being dumped around/on the tank during installation in the pit, whereas,

.../2



- Impacts using the UL steel ball impact test method (2" dia / 1.18 lb from 6' high) simulated damage to the protection system during transport, such as truck/ground bumps; and installation, such as tool/pipe hits.
- Abrasion using the S600A TC replacement ASTM G14 falling weight test is not an equivalent by intent (impact vs abrasion), and does not contain details to consistently perform the test for Certifications.

Therefore, we are proposing that the Abrasion Tests [(UL1746 Sec 16.5 & Sec 28.7) (ULC-S603.1 Sec 5.2.5 & Sec 8.2.9)] be deleted for the respective Cathodic and Coated systems. Because the current Impact Tests [(UL1746 Sec 16.2 & Sec 28.10) (ULC-S603.1 Sec 5.2.2 & Sec 8.2.6)] conducted after different exposure conditions are considered more severe than the Abrasion Test (impact energy/area evaluated), and use a common pass/fail criteria (ASTM G62 Holiday Detection Test), we believe an Abrasion Test replacement is not necessary. We also believe these revisions do not reduce the level of safety.

Any questions concerning the above should be directed to Mr. Gunsimar Paintal, Regional Quality Manager & ULC Mark Program Owner, +416.288.2217.

Sincerely,

Underwriters Laboratories of Canada Inc.

A handwritten signature in blue ink, appearing to read 'G. Paintal'.

Gunsimar Paintal
Regional Quality Manager &
ULC Mark Program Owner

UL LLC.

A handwritten signature in blue ink, appearing to read 'Roland Riegel'.

Roland Riegel
PDE Flammable Liquids Containment Products