



HoldTight[®]
SOLUTIONS



VapCor Preservation Products

HOLDTIGHT[®] 102

SALT REMOVER / FLASH RUST PREVENTER THE ULTIMATE CHLORIDE REMOVER

Independent tests confirm that **HoldTight[®]102** removes ALL chlorides (and other contaminants). It then prevents flash rusting, a simple and obvious indication that the surface is clean and ready for coating.

Removing Soluble Salts with **HoldTight[®]102**

Using three different SSPC-approved tests for the presence of soluble salts, New York City Department of Transportation (NYCDoT) researchers concluded that **HoldTight[®]102** will effectively achieve zero or undetectable salt levels.

SSPC-TU 4 Field Methods for Retrieval and Analysis of Soluble Salts on Substrates sets out guidelines for testing for soluble salts in the field. NYCDoT conducted its tests at a Brooklyn site in accordance with these SSPC guidelines.

All test samples were taken using the ISO 8502-6 Bresle Sampling Method, as described in SSPC-TU 4, Section 3.3 - Adhesively Bonded Cell. Then, three different SSPC-approved test procedures were used to determine the soluble salt levels on the test samples before and after the application of **HoldTight[®]102** as recommended by the manufacturer. In principle any one of the three procedures would have been sufficient. NYCDoT staff used all three, however, as a multiple cross-check of the results and to confirm with a high degree of certainty that **HoldTight[®]102** would effectively remove chlorides.

The substrates tested were severely corroded steel coupons, approximately 2" thick, cut from bridge structures removed during repair operations. In each test the sample was first dry blasted. **HoldTight[®]102** was then used in a potable water wash down at 500 psi, 1-2 gpm, one part **HoldTight[®]102** was used with 50 parts water. (Note, the manufacturer recommends this 50:1 dilution of **HoldTight[®]102** as a starting point, especially with dry blasting. In practice, users report similar results with 100:1 to 200:1 dilutions depending on the condition of the surface and the method of surface preparation used. Typically, the more pressure and water used in surface preparation, the less **HoldTight[®]102** per unit of water needs to be used to achieve zero or undetectable levels of chlorides.) The three tests were as follows:

- **Kitigawa Tube method.** Prior to using **HoldTight[®]102**, soluble salt levels on the test samples ranged between 200 and 280 ppm, as measured by an ISO 8502-5 Chloride Ion Detection Tube. These soluble salt levels were reduced to **zero** after the **HoldTight[®]102** wash down. This ISO procedure for testing of soluble salts is explained in SSPC-TU 4, Section 4.3 - Field Detection of Chloride Ion by Kitigawa Tube.
- **Quantab Strip method.** Prior to using **HoldTight[®]102**, soluble salt levels on the test samples ranged between 200 and 260 ppm, as measured by Quantab Strips in the test procedure described in SSPC-TU 4, Section 4.4 - Field Detection of Chlorine Ion by Quantab Method. Soluble salts were **undetectable** after the **HoldTight[®]102** wash down.
- **Silver Dichromate (qualitative) method.** Soluble salts were also **undetectable** after the **HoldTight[®]102** wash down as determined by the ISO 8502-1 Field Test for Iron II Salts in

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Abrasive Blast Cleaned Surfaces (Field Test for Soluble Iron Corrosion Products) as described in SSPC-TU 4, Section 4.8 Qualitative Field Detection of Ferrous Ion.

Similar results have been reported by users of **HoldTight®102** in various other surface preparation methods and in our own lab tests:

- In water or wet abrasive blasting when **HoldTight®102** is used either in the blast water or in the wash down water or in both
- In ultra-high pressure (UHP) blasting when **HoldTight®102** is used, as in dry blasting, after the initial blast or stripping step in a wash down at a minimum pressure of 500 psi, 1-2 gpm)

HoldTight® 102 prevents flash rusting: the easy way to determine surface cleanliness.

Simply put, if flash rust occurs after surface preparation -- even by a method intended to reduce or remove salts -- you cannot be sure the surface is clean enough to coat. After working with the water* to remove contaminants, **HoldTight®102** then rapidly evaporates. It literally lifts the remaining water off the surface, quickly drying the surface before oxygen in the air has a chance to react with the metal and the water to cause rust. But if Δ hygroscopic \cong (Awater-attracting \cong) contaminants of any kind remain on the surface, even this quick drying action would not prevent flash rusting. That's because those Δ suckers \cong pull moisture out of the air, then they react with the air and new moisture to cause rust.

So, if the surface rusts, you may or may not have contaminants. Even if you test for chlorides and find none, the results may only apply to the specific area of the test. Contaminants may not be spread uniformly across the surface. The fact is that rust, no matter what its cause, is typically inconsistent. On the other hand, if the surface does not rust, you can be very confident that it is both contaminant- and moisture-free. Over time, of course, contaminants carried in the air re-contaminate the surface and then pull moisture out of the air to cause rust. Then you lose your window for coating. With **HoldTight®102** that window is usually 2 to 5 days.

* **HoldTight®102** works with water, in part by dramatically reducing surface tension -- causing the water to spread much more evenly over the surface, to literally wet the surface more efficiently. This wetting action combined with the force of the water under pressure results in much more efficient cleaning than water alone, even water under very high pressure. Heating the water also reduces surface tension somewhat, for example, raising water temperature from 20 C (68 F) to 100 C (212 F) reduces surface tension from 72.8 dynes/cm to 58.9. But at a 1:50 ratio, **HoldTight®102** reduces surface tension to 23.4 dynes/cm.

This information is, to the best of our knowledge, correct at the date of the printing. Always consult HoldTight Solutions Inc., for the latest changes. Since the conditions of application and service, including equipment used, are beyond our control, we accept no liability on the basis of the information and suggestions here or elsewhere. Please refer to the Material Safety Data Sheet for handling and storage information.

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