

Corrosion prevention by Kemion's Corrosion Stop

Keeping Corrosion Under Control

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Corrosion is a tricky phenomenon that eats away the condition and value of machinery. Corrosion is a particularly burning question when it comes to feed manufacturing. Corrosion Stop guarantees to help with the problem.



The dilution ratio of the anti-corrosion agent varies with use. Three times the amount of water is added to the agent for normal cleaning. The substance is to be used undiluted, if the substance is used before winter preparation or for other protective purposes.

Corrosion in agriculture is particularly tricky when it comes to the machinery used in feed manufacturing. The surfaces of these particular machines get badly worn down due to acid and mechanical strains.

Of course, stainless steel gets worn out as well, but its life cycle certainly is adequate. The problem, however, is the price.

Galvanizing also slows down the corrosion, but it's not suitable for all objects. The problem has often been poor wear resistance when it comes to other anticorrosion agents and coatings. At worst, the corrosion prevention agents have been completely unsuitable for the food chain.

A Finnish cleaning and anti-corrosion agent Corrosion Stop offers a new type of solution for the problem. It's a cleaning and protective solution that doesn't even aim at preventing corrosion and mechanical wear during use.

The substance is used as a protective agent in washes after acid exposure as well as prior to longer preservation. One doesn't need to be concerned about the residue amongst the feed because according to the manufacturer all the ingredients have an approval.

Corrosion tests with formic acid

We used Corrosion Stop for a series of small-scale corrosion tests. The aim was to model conditions that formic acid based preserving liquids are used in.

As test pieces, we used S235 JR G2 flat bar that was six millimeters thick and cut into 100 x 100 millimeter pieces. We received a consignment of AIV 2 Plus solu-

tion from Taminco Finland Ltd. to be used during the acid exposure process.

Before the different tests, the edges of the test pieces were sharpened slightly round. Grease stains were cleaned with acetone and fiber cloths.

The equal quality of the test piece surfaces was ensured with soaking the pieces in sodium hydroxide for one week and in hydrochloric acid for two days. Between and after the handling, the samples were cleaned with water and dried.

Only pieces that had immaculate surfaces were chosen for the test runs. The two first test batches were formed from standards that had half of them left untreated while the other half was treated with tap water.

Three sets of samples were treated with a strong dose of AIV solution, which was allowed to affect for an hour. One of the acid treated test batches was formed from test pieces that had dried acid on the surface.

The two remaining test series were sprayed with Corrosion Stop solution with 1:3 dilution. After a half an hour of duration of action, the pieces were quickly rinsed with water. The idea behind the rinsing was to model the slight water strain on

the surfaces after the wash.

A part of the rinsed samples were allowed to dry, after which their surfaces were treated with a protective layer of Corrosion Stop solution. The samples that were treated with the protective coating formed the fifth test series.

Impressive results of the intense test

All the samples were exposed to varying weather conditions. The samples, however, weren't directly exposed to rain or the sun. Such as outdoors, the humidity and temperature did have an impact nonetheless.

The conditions corresponded largely to a covered, unheated machine shop. It rained a lot during the two-week exposure period, which kept the humidity levels high. Changes in the steel surfaces were already visible during the first few days.

The samples that were left dry, coped with the test period the best externally. Even though rust was detected in those samples around the edges as well.

The other pieces seemed to have suffered greatly from the damages caused by corrosion. The rust on the surfaces that were treated with Corrosion Stop seemed to appear in fact

SPECIFICATIONS Corrosion Stop

Substance type: Corrosion inhibitor for cleaning and protection.

Manufacturer: Kemion Oy, tel. +358 50 525 2638,

www.kemion.fi

Country of manufacture: Finland

Ingredients: pH adjusting agent, corrosion inhibitor, water

pH level: pH 9-10

Density: 1,2 kg/l

Freezing point: below -5° C

Dilution: normal wash 1:3, pressure wash 1:9, no dilution when used for protective treatment

Packaging size: 5 l and 20 l



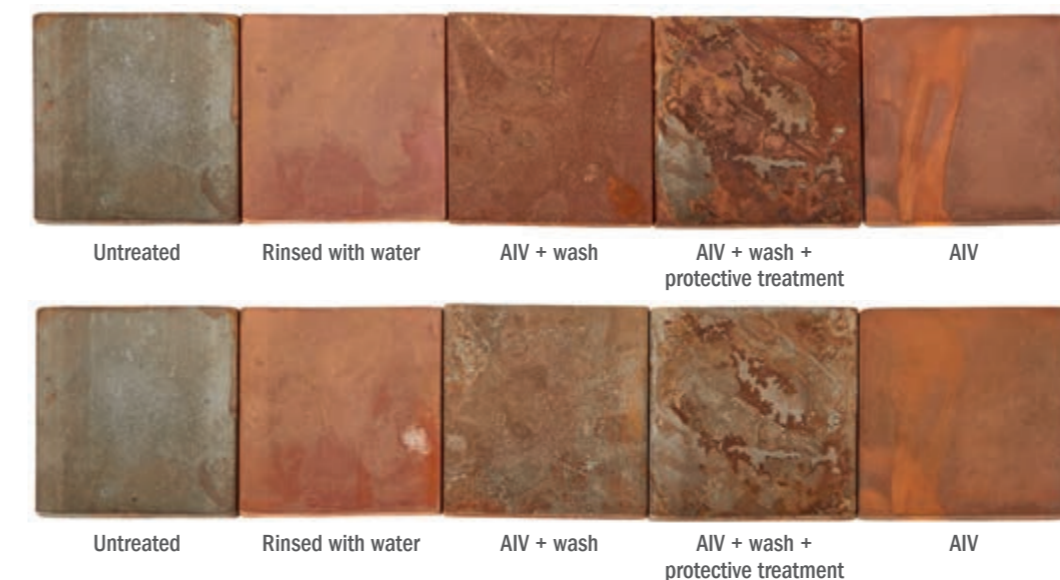
considerably darker than usual and somehow superficial.

The truth was revealed during the washing of the test samples. Only a fraction of the rust came off of the test pieces that were rinsed with water as well as AIV solution.

Instead, the test samples that were processed with Corrosion Stop even partly reverted back to the clear metal surface. Different damages to the surfaces were obviously present, but they were less severe in nature and scope.

When assessing the results, one has to bear in mind that the tests were done with undiluted AIV solution. Additionally, the steel used as test samples was fairly low-grade and it had been processed to be ideal for corrosion.

When the usability of the agent proved to be good, there simply was no room for complaints. Corrosion Stop could not prevent all the damages, but the product was able to slow down the corrosion process significantly. □



The test pieces that were photographed two weeks after the experiment looked pretty dismal. The whole truth was revealed only after the washes that water was used for. The test pieces in the bottom row indicate that the effectiveness of the agent is not completely perfect. It is however undeniable.



Glycerol based and mildly smelling Corrosion Stop is pleasant to handle and mixing the solutions doesn't cause problems. The ingredients are said to be approved for feed handling. One does not therefore need to worry about residue amongst feed.