

BONDERITE® S-AD 213 US

Known as BONDERITE S-AD 213 SF/RODINE 213 SF
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Product description

BONDERITE® S-AD 213 US provides the following product characteristics:

Technology	Additive
Product type	Additives
Application	Acidic cleaning baths

BONDERITE® S-AD 213 US is an organic, liquid, cationic corrosion inhibitor especially designed to inhibit the attack of hydrochloric acid on iron and steel during industrial cleaning operations. It also inhibits acid attack on copper and brass. It does not contain arsenic, chlorinated hydrocarbons, alkylphenol ethoxylate (APE) surfactants, significant amounts of highly toxic components or lead compounds.

The addition of BONDERITE® S-AD 213 US inhibitor to hydrochloric acid solution provides maximum protection for equipment during:

- The removal of lime deposits or water scale from power plant boilers and piping systems and from evaporating equipment.
- The removal of scale and deposits from equipment in refineries, utility companies, paper mills, chemical plants and other industries.

Direction for use

Preliminary statement:

Prior to use it is necessary to read the **Material Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed. Please also refer to the local safety instructions and contact Henkel for analytical support.

Materials:

BONDERITE® S-AD 213 US

Bath make-up:

For each 1000 gallons of either 5 or 10 % by weight* hydrochloric acid solution, not less than the following amount of BONDERITE® S-AD 213 US inhibitor should be used:

- 1 gallon for a cleaning temperature of 150° F.
- 2 gallon for a cleaning temperature of 175° F.
- 3 gallon for a cleaning temperature of 200° F.

* A 5% by weight hydrochloric acid solution contains 14.1% by volume of 20° Bé hydrochloric acid.

Operating data:

The exceptional strength and heat stability of BONDERITE® S-AD 213 US in hydrochloric acid give the user a considerable safety factor in relation to temperature, acid strength, and time.

BONDERITE® S-AD 213 US inhibitor may be added to either the diluted or concentrated hydrochloric acid. In either case, the BONDERITE® S-AD 213 US inhibitor should be thoroughly mixed with the acid by stirring or agitation. It is storage stable, even in concentrated hydrochloric acid.

The hydrochloric acid solution inhibited with BONDERITE® S-AD 213 US inhibitor is best circulated through the equipment to be cleaned. When circulation cannot be accomplished, the equipment should be filled with the inhibited acid and allowed to react for sufficient time to remove the objectionable deposits. To estimate the proper acid concentration and cleaning time, samples of the deposits to be removed can be tested in the laboratory prior to cleaning. If heating of the equipment to be cleaned or acid solution is desired to speed the cleaning action, it should be done prior to the start of the cleaning operation.

Waste disposal information:

Aquatic Toxicity Statement and Recommended Container Decontamination: BONDERITE® S-AD 213 US has significantly less human toxicity and lacks the NPE surfactants, volatile components and the hazardous flash points of similar products (please refer to MSDS). However, it is expected to retain the significant acute aquatic toxicity associated with similar types of products. BONDERITE® S-AD 213 US is highly soluble in plain water or hydrochloric acid solutions, thus empty containers can easily be rinsed with water and/or acid solution and added to the process or its waste stream. We recommend at least 3 rinses consisting of 5 gallons or more each. This should reduce the waste in the container to less than 0.05% of the original contents and thus help prevent possible harmful release to aquatic environments.

Applicable regulations concerning disposal and discharge of chemicals should be consulted and followed.

Disposal and component information for BONDERITE® S-AD 213 US is given on the Material Safety Data Sheet for the product.

The industrial cleaning bath is acidic and contains hydrochloric acid and organic inhibitor components. Waste treatment and neutralization is required.

The industrial cleaning bath and sludge can contain ingredients other than those in the chemical as supplied and analysis of the solution and/or sludge is required before waste treatment and disposal.

Classification:

Please refer to the corresponding **Material Safety Data Sheets** for details on:

- Hazardous Information**
- Transport Regulations**
- Safety Regulations**



Storage:

BONDERITE® S-AD 213 US inhibitor will freeze at temperatures below 0° Fahrenheit. If frozen, warm and mix before using.

Additional information**Disclaimer**

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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