



## FEATURES & BENEFITS

- **Fast and easy way to check for embedded iron on austenitic stainless steel**
- **Hypersensitive test, reveals even small traces of free iron**
- **Determines whether or not the surface needs to be pickled**
- **Conform ASTM A380**
- **Harmless for transport**

## PRODUCT DESCRIPTION

The FERROXYL TEST KIT is designed to determine whether austenitic stainless steel needs to be pickled or whether it has been pickled satisfactorily.

If the structure of austenitic stainless steel is contaminated with metallic iron (embedded iron) on the surface, the properties of the stainless steel will be adversely affected. The presence of embedded iron in the stainless steel surface disturbs the chromium oxide film, reducing the corrosion resistance locally.

When embedded iron is not removed, serious (pit) corrosion may set in.

This ferroxyl test for free iron is a hypersensitive test and should be used when even the traces of free iron or iron oxide might be objectionable. The test can be used on stainless steel to detect iron contamination from sources including, but not limited to, iron-tool marks, residual iron salts from pickling solutions, iron dust, atmospheric exposure, iron deposits in welds, embedded iron and iron oxide.

## PRINCIPLE OF THE MEASUREMENT

The test is based on a reaction of potassium ferricyanide with iron in a strongly acid medium. The excess iron dissolves in this strongly acid medium as ferrous ion to form a blue complex, known as Prussian Blue.

When during this test, this blue colouration manifests itself, it means that the surface of the stainless steel does not yet have the correct structure and has been insufficiently pickled.



*Example of pit corrosion caused by the presence of embedded iron*





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When the blue colouration does not appear, this means that the structure has been restored and indicates that the surface has been satisfactorily pickled.

The test conforms to ASTM A380.

## DIRECTIONS FOR USE

1. Place 5 measuring scoops Ferroxyl Reagent I in the mixing bottle. Augment this with 25 ml Ferroxyl Reagent II to the scale mark. Close the bottle and agitate until all Ferroxyl Reagent I is dissolved. Transfer the solution to the drop bottle.
2. Moisten a filter paper with this solution (approx. 5 drops) and place this filter paper on the surface to be tested.
3. Wait approximately 15 seconds.
4. When a blue colouration appears, it is evidence of surface iron contamination.
5. Finally, after removing the filter paper, rinse the surface tested with demineralised water.

The Ferroxyl solution described above cannot be kept for more than a few hours. This means that fresh solution must be prepared for every test.

## CONTENTS OF THE KIT

### Equipment:

- 1 plastic measuring scoop
- 1 plastic mixing bottle 100 ml
- 1 transparent measuring tube 25 ml
- 1 transparent drop bottle 30 ml
- 1 pack with 100 filter papers  $\varnothing$  11 cm
- 1 demineraliser bottle 177 ml

### Reagents:

- Ferroxyl Reagent I - 30 grams
- Ferroxyl Reagent II - 250 ml



**With the contents of the kit, a solution can be made 10 times and a total of approximately 100 tests can be performed.**



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