

Scope

ARDROX 1873 is a concentrated liquid mixture of sequestrants and surfactants. It is mildly acidic.

ARDROX 1873 has been formulated specifically to descale ferritic chromium steels, for example jet engine turbine discs. During service these parts become covered with hard adherent black scale, which must be removed during overhaul periods to enable penetrant inspection processes to be carried out. If ARDROX 1871 is not available, this product may also be used for descaling nickel and cobalt heat resisting alloys e.g. "Nimonic" alloys but it may not be as effective as ARDROX 1871 for this purpose.

Chemicals required

ARDROX 1873

Nitric acid

Testing chemicals required

Testing solution No.32 (1N sodium hydroxide solution)

Method of use

ARDROX 1873 is used diluted with water at a concentration of 1 part by volume product plus 4 parts by volume water (20% v/v). After mixing thoroughly, the working bath is adjusted to pH3.1 with nitric acid. (About 10 ml concentrated nitric acid per litre of bath). The operating temperature is 80° to 85°C.

During use the bath pH will tend to rise but it should not be allowed to exceed 3.5. Parts should be free from oil and carbonaceous deposits.

ARDROX 1873 is normally used in conjunction with ARDROX 185 and ARDROX 188 and a typical process cycle would be:

- 1) ARDROX 185 200 g/l at 85°C.
- 2) ARDROX 188 160 g/l at 95° - 100°C.
- 3) ARDROX 1873 at 80° - 85°C.

Immersion times should be approximately 15 minutes for each stage.

Since ARDROX 1873 solutions are acidic and ARDROX 188 solutions are alkaline, each process stage must be followed by a thorough water rinse. Should complete cleaning not be achieved, stages 2 and 3 may be repeated as required. When dealing with heavy scale it is better to use several cycles of approximately 15 minutes rather than giving extended immersion times.

Method of control

Restore the volume of the tank to its original level, if necessary, by adding water. Thoroughly mix and take a sample of 50-100ml. After cooling to ambient, pipette 50ml into a 100ml beaker. Using a pH meter, adjust to pH3.9. Titrate the solution with Testing solution No 32 to a pH value of 11.0. Note the volume used as (V)ml.

Measured strength (%v/v ARDROX 1873) = $V \times 2$

A 20%v/v solution should require 10ml of Testing solution No.32. For each ml that the titration value falls below 10ml, add 20 litre of ARDROX 1873 for each 1000 litre of working solution. Stir thoroughly and then adjust the pH of the solution to 3.0-3.2 by addition of concentrated nitric acid.

Effects on materials

When ARDROX 1873 is used in the prescribed manner no significant corrosion will occur on ferritic stainless steels and nickel and cobalt heat resisting alloys.

Technical information

Appearance: Clear, pale yellow liquid.

Density: 1.16 g/ml @ 20°C.

pH: 4.3

These are typical values only and do not constitute a specification.

Protect from freezing conditions.

Equipment materials

Molybdenum stabilised stainless steel e.g. BS 1449, Part 2, Grade 316S16L is suitable for the construction of tanks and heating element sheaths.

Safety guidance

Before operating the process described it is important that this complete document, together with any relevant Safety Data sheets, be read and understood.

General information

Chemetall PLC supplies a wide range of chemical products and associated equipment for cleaning, sanitising, descaling, paint and carbon removal, metal protection and non-destructive testing. Sales Executives are available to advise on specific problems and applications.

Labour and environmental protection

All local and national regulations on the transport, storage, use and waste treatment of chemicals in concentrated or diluted form and as working solutions must be obeyed.

Further specific information on the products can be found in the EC Safety Data Sheets supplied. The user should also pay strict attention to information and hazard symbols shown on product labels.

Waste disposal

All waste waters must be treated in accordance with national legislation and local regulations prior to discharge to the sewer.

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