

ARDROX[®] 1218

INHIBITED ACID RUST AND SCALE REMOVER

1 General description

Ardrox[®] 1218 is a blend of phosphoric acid and inhibitors. It will remove rust, heat treatment scale and welding scale from ferrous metals. Corrosion products on aluminium, copper and zinc alloys may also be removed.

Ardrox[®] 1218 is especially suitable for use on chromium plated ferrous materials and ferrous surfaces which require very close tolerances.

Approvals & conformance

✓ SAE	ARP 1755B
✓ US Department of Defence	MIL-C-10578
✓ Airbus	CML 10BDB1
✓ CFM International	CFM56 CPM – CP2438
✓ GE Commercial Engines	SPM 70-80-04, Ref.C04-121
✓ Pratt & Whitney	SPM 70-12-00, SPMC 21
✓ S.N.E.C.M.A.	DMR 70-620

Ask your Chemetall representative for a complete list of approvals.

2 Physical and chemical properties

Property	Unit	Typical Value
Appearance	-	Clear, colourless, viscous liquid
Density	g/ml	Approx. 1.26 @ 20 °C / 68 °F

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

3 Application

Use Ardrox[®] 1218 as per the instructions of the relevant OEM manufacturer's specifications and / or manuals.

Ardrox[®] 1218 is normally diluted with water to a concentration between 10 and 50% v.v. The actual concentration required will depend on the amount of soils to be removed from the parts. Ardrox[®] 1218 can be used at temperatures from ambient to 60°C (140°F). At higher temperatures the rate of removal of rust etc. will be greatly increased.

If parts to be treated have any oil or grease on them they should be cleaned prior treatment with the use of an approved cleaning agent from the Ardrox[®] 5 series (solvent cleaner) or the Ardrox[®] 6 series (aqueous detergent cleaner).

After treatment in the Ardrox[®] 1218 the parts should be thoroughly rinsed in hot water. The parts should then be dried as quickly as possible on order to prevent corrosion. A dewatering / short or long-term corrosion protection from the Ardrox[®] 3 series may also be used to protect the parts.

4 Effects on materials & equipment materials

Ardrox® 1218 is inhibited against attack on ferrous metals. Copper, zinc and aluminium alloys are all, to some extent, attacked by Ardrox® 1218 solutions.

Stainless steel, high density polyethylene, polypropylene and rigid PVC may be used for tank construction.

5 Shelf life, storage and disposal

Please refer to the corresponding Material Safety Data Sheets for details on shelf life, storage and disposal.

6 Labor and environmental protection

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

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.

7 General information

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

Method of control

Chemicals required

- ✓ Indicator solution No.2 (phenolphthalein)
- ✓ Indicator solution No.42 (bromophenol blue)
- ✓ Testing solution No.1 (0.1 N sodium hydroxide solution)

Procedure and calculations

Restore the volume of the tank to its original level, if necessary by adding water. Thoroughly mix and take a sample of 50 ml to 100 ml. After allowing to cool to ambient, pipette 10 ml into a 100 ml volumetric flask and allow the pipette to drain for approx. 30 min. Make up to the mark with distilled water. Pipette 10 ml aliquots of this solution into two Erlenmeyer flasks and add 50 ml distilled water. To one flask add a few drops of Indicator No.2 and titrate against testing solution No.1 until the colour has changed from colourless to pink. Note the consumption of sodium hydroxide solution as V1 in ml. To the other flask add a few drops of indicator No.42 and titrate against testing solution No.1 until the colour has changed from yellow to blue. Note the consumption of sodium hydroxide solution as V2 in ml.

The titration value (TV) is calculated as follows:

$$TV \text{ (ml)} = V1 \text{ (ml)} - V2 \text{ (ml)}$$

On a highly contaminated solution, the indicator colour change may be difficult to see. In this case, it is recommended that the titrations are carried out using a pH meter, taking the end points at pH 4.5 and 9.0. The titration value is calculated as follows:

$$\text{TV (ml)} = \text{consumption NaOH until pH 9.0 (ml)} - \text{consumption NaOH until pH 4.5 (ml)}$$

Replenishment

For each 1.0 ml that TV is lower than that given in the table below for the strength required, add 22.8 litres of Ardrox[®] 1218 for each 1000 litres of solution present:

Concentration (%v/v Ardrox [®] 1218)	Titration value (ml)
10	6.1
25	13.8
50	27.5
75	41.2

If your required bath concentration is not depicted in the table above, you can calculate your bath concentration by using an approximated coefficient:

$$\text{Concentration Ardrox[®] 1218 (%v/v)} \approx \text{TV (ml)} \times 1.8$$

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