

### Scope

Ardrox 1618 is a concentrated mixture of surfactants, sequestrants and caustic alkali.

Ardrox 1618 is particularly effective in cleaning the ferrous parts of internal combustion engines that have become heavily contaminated in service, e.g. valves, cylinder heads. It will remove carbon, paint, rust and lead deposits from such components. It is also used in decarbonising other components such as rubber moulds.

### Chemicals required

Ardrox 1618

### Testing chemicals and equipment required

250ml beaker

50ml graduated burette

250ml graduated volumetric flask

250ml Erlenmeyer flasks (x2)

10ml pipette

25ml pipette

Glass funnel

Active carbon

Filter papers (Whatman No.1)

Indicator Solution #13 (thymol phthalein)

Testing Solution #9 (0.1N sulfuric acid)

### Method of use

Ardrox 1618 is used diluted at a concentration of 1 part by volume product plus 3 parts by volume water. The operating temperature is 80-90°C. Immersion times will vary depending on the intended use of the product.

Ardrox 1618 will remove oil and grease, but when it is used for decarbonising and derusting it is desirable to remove such contaminants with a prior cleaning process such as Ardrex 6333 or Ardrex 6514. This will prolong the life of the Ardrox 1618 bath.

Components should be thoroughly water rinsed before drying. The use of a dewatering protective such as Ardrex 3961 or Ardrex 3962 will prevent the clean components from further rusting.

## Method of control

Allow the solution level to drop below the normal operating level and mix. Take a sample and allow it to cool to ambient temperature. Add active carbon, stir and allow to stand for 30 minutes with occasional stirring.

Using a filter paper in a glass funnel, filter the carbon-treated sample until about 100ml of filtrate is obtained. Pipette 25ml of this filtrate into the 250ml graduated flask, make to 250ml with distilled water and thoroughly mix. Pipette 10ml of this solution into each of the two 250ml conical flasks, add about 25ml of water and 5-6 drops of Indicator Solution #13.

Titrate each sample with Testing Solution #9 to the end-point (complete discharge of the blue coloration giving a solution that is yellow-green). The two titres should not differ by more than 0.1ml.

Average the two titrations and calculate the bath concentration;

Titration average x 1.425 = Ardrox 1618 concentration in % v/v: call this CF.

$$\text{Quantity of Ardrox 1618 required} = \frac{(CR - CF) \times TV}{100 - CR}$$

where CR = concentration required,

CF = concentration found,

TV = volume of Ardrox 1618 in tank.

Sometimes the concentration found will exceed the concentration required, i.e. the bath is stronger than required. The amount of water needed to reduce the bath strength to its required value can be calculated as follows:

$$\text{Volume of water required} = \frac{CF \times TV}{CR} - TV$$

## NOTE

If after correcting the concentration of the bath to its correct value, the solution is below the working level, bring the solution to the working level by addition of the appropriate volumes of Ardrox 1618 and water.

## Effects on materials

When Ardrox 1618 is used in the prescribed manner no significant corrosion is likely to occur on ferrous metals. It will attack aluminium, zinc and tin rapidly and is therefore not suitable for use on these metals. Cadmium, copper and its alloys are slowly attacked. Polythene, PVC and PTFE are substantially unaffected but Ardrox 1618 will degrade many plastics and paints. Glass and ceramic will be etched.

## Technical information

Appearance: slightly viscous, straw coloured liquid,

Density: 1.38g/ml at 20°C,

Flash point: non-flammable.

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

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## Equipment

Mild steel or stainless steel are suitable materials for tank construction but it should be at least 6mm thick welded inside and out. Heaters must be of stainless steel or Inconel.

## 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, desiccating, 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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