



# D-OX 560

## 1. DESCRIPTION

**D-OX 560** is a non-chromated liquid desmutter and deoxidiser especially recommended for use in areas where chromated materials cannot be used because of sewage disposal limitations.

**D-OX 560** gives rapid desmutting and deoxidising on all wrought and extruded aluminium alloys.

## 2. UNIQUE CHARACTERISTICS

- 1 **D-OX 560** is a non-chromated desmutter and deoxidiser that is comparable to chromated desmutters and deoxidisers, and especially recommended where pollution laws require a non-chromated material.
- 2 **D-OX 560** has been formulated to prevent pitting of the base metal, common to non-chromated desmutters and deoxidisers.
- 3 **D-OX 560** is controlled by a simple titration.
- 4 **D-OX 560** is formulated as a liquid to reduce insolubles in the solution and facilitate handling.

## 3. CHEMICAL PROPERTIES

### ACIDITY

**D-OX 560** is an acidic material, having a pH of nearly 1 when made up at normal use concentration of 10% v/v.

### OXIDISING NATURE

**D-OX 560** contains an oxidising agent. The normal precautions applicable to handling oxidising materials should be observed with this product.

### ABSENCE OF CHROMIUM COMPOUNDS

**D-OX 560** does not contain any chromium compounds. **D-OX 560** may be used where chromated materials are forbidden by water pollution laws.

#### **4. SAFETY PRECAUTIONS**

Rubber gloves should be worn when handling **D-OX 560** due to the presence of strong mineral acids.

#### **5. WHEN TO USE**

**Desmutting**            **D-OX 560** is primarily designed for general use where rapid, thorough desmutting of aluminium is required after alkaline etching.

**Deoxidising**         **D-OX 560** is satisfactory for most deoxidising operations. A chromated product should be used in the case of critical deoxidising requirements unless the presence of chromium compounds cannot be tolerated.

#### **6. PREPARATION OF THE WORKING SOLUTION**

(a) Desmutting after caustic etch or bright dip

The immersion time required to desmut depends upon the alloy involved and the amount of smut present. Immersion times usually run from 1 to 3 minutes for a fresh bath, but are somewhat longer for a used bath. Agitation will cut the time required. Work should not be treated for any unnecessarily long time as this depletes the solution needlessly. Work that falls to the tank bottom should be removed as soon as possible. Work should be rinsed thoroughly and immediately after desmutting. A running cold water rinse is recommended.

(b) Deoxidising

**D-OX 560** is used at 10% v/v for 5 minutes at room temperature.

Aluminium should be cleaned in an etching or non-etch cleaner, then deoxidised in **D-OX 560**.

A used **D-OX 560** bath made up at 10% v/v should continue to be satisfactory until its titration is reduced to approximately 6 to 8% v/v. Its action, even at this reduced level, may still be satisfactory although slower.

#### **7. TANK CONSTRUCTION**

Stainless steel tanks of the 300 series (type 316 is best) are preferred. Tanks with rigid plastic (polyvinyl chloride, polyethylene) lines are satisfactory. Mild steel tanks or stainless tanks of the 200 or 400 series are not acceptable.

The rinse tank following the **D-OX 560** desmutting bath should be made of the material previously recommended for the **D-OX 560** tank.

## **8. DISPOSAL OF D-OX 560**

As **D-OX 560** contains no chromium compound, waste disposal problems have been greatly reduced. However, because of the pH of the product the following steps are necessary.

- (1) Adjustment of pH to 6.8 - 10.0.
- (2) Settling to reduce the suspended solids to the acceptable level of the local authorities.

**D-OX 560** does also contain iron, which may be restricted in effluent in some areas.

## **9. SOLUTION CONTROL - PROCEDURE NO. 1 (acid titration)**

The concentration of **D-OX 560** can be determined by the following method;

### Reagents

- (1) Phenolphthalein Indicator Solution.
- (2) 1N Sodium Hydroxide.

### Equipment

- (1) 10 ml graduated dropper pipette.
- (2) 250 ml flask

### Procedure

- (1) Withdraw a 4.6 ml sample of **D-OX 560** solution to be tested and placed in flask.
- (2) Add 50 ml of water.
- (3) Add 5 drops of Phenolphthalein Indicator.
- (4) Titrate with 1.0N Sodium Hydroxide, until a pink end point is obtained.
- (5) Each 1 ml of 1N Sodium Hydroxide is equal to a 2% v/v solution **D-OX 560**.

## **10. SOLUTION CONTROL - PROCEDURE NO. 2 (oxidant titration)**

The concentration of **D-OX 560** can also be determined by the following method which is the more accurate determination of bath activity:

### Reagents

- (1) Potassium Iodide Crystals or solution.
- (2) 50% Sulphuric Acid.
- (3) 0.1N Sodium Thiosulphate solution.
- (4) Iodine Indicator Powder (or starch solution).

### Equipment

- (1) 10 ml graduated dropper pipette.
- (2) 250 ml flask.

## **10. SOLUTION CONTROL — PROCEDURE NO. 2 (continued)**

### Procedure

- (1) Withdraw a 20 ml sample of the **D-OX 560** solution to be tested and place in flask.
- (2) Add 1/4 teaspoon of Potassium Iodide crystals, and swirl.
- (3) Add 25 mls of 50% Sulphuric Acid and 100 ml water and swirl the flask to mix. Solution will be brown-red.
- (4) Titrate with 0.1N Sodium Thiosulphate, until the solution turns yellow. Then add 1/4 teaspoon of Iodine Indicator Powder and solution will be blue-black in colour.
- (5) Titrate this solution with 0.1N Sodium Thiosulphate, until it turns colourless.
- (6) Each ml of 0.1N Sodium Thiosulphate equals 1.3% v/v concentration of **D-OX 560**.

## **11. PACKAGING**

**D-OX 560** is packed in 25 and 200 litre drums

### **DISCLAIMER**

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