

T Deruster 4

Acid Etch for Steel

Description	A strongly acidic liquid cleaner for the removal of rust and scale from iron and steel surfaces.																						
Features	<ul style="list-style-type: none"> • Suitable for use on steel to DEF STAN 03-032 and BS ISO 27831-1:2008, and on aluminium to BS ISO 27831-2:2008. • Used by dipping. • Used hot, it can be considerably diluted for economy. • Strongly inhibited, to minimise attack on surfaces after oxide removal. • Rinse residues are non-corrosive and do not contaminate phosphating baths. • Will remove traces of oil, without separate degreasing. • Lightly etches steel surfaces for good paint adhesion. • Also cleans and etches aluminium and aluminium alloys. 																						
Product Code	MP0054.																						
SG	1.62 ± 0.1 kg/l at 15°C.																						
Coverage	<p>The rate of consumption will depend greatly on the amount of oxide to be removed, the strength of the bath needed, which in turn will affect the drag-out losses.</p> <p>As a guide, the following range has proved reliable: Dip: 20 – 30 m²/kilo T Deruster 4.</p>																						
Equipment	The T Deruster 4 tank should be made of, or lined with, suitable acid-resistant materials such as 316 stainless steel, polypropylene or rigid PVC. Rinse tanks can be made of mild steel and should be painted with a suitable paint except where T Rinse 10 is used.																						
Initial Fill	<p>For every 1000 litres of bath:</p> <ol style="list-style-type: none"> 1. Add approximately 750 litres of mains water. 2. Very carefully stir in 100 litres of T Deruster 4. 3. Fill the bath to the operating level with mains water, stir and heat to 20°C. 																						
Application	<p>Normally, the process sequence is:</p> <ol style="list-style-type: none"> 1. Degrease if necessary with T Cleaner 70 (MP0035), which is suitable for all metals. 2. Cold water rinse. 3. Dip in T Deruster 4 until oxide is removed, according to the following guide: <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;">Concentration Volume 20%:</td> <td style="padding-right: 40px;"><u>at 20°C</u></td> <td><u>at 60°C</u></td> </tr> <tr> <td>Light Rust</td> <td>2 – 5 min</td> <td>1 – 2 min</td> </tr> <tr> <td>Heavy Rust</td> <td>5 – 30 min</td> <td>2 – 10 min</td> </tr> <tr> <td> </td> <td></td> <td></td> </tr> <tr> <td>Concentration Volume 10%:</td> <td><u>at 20°C</u></td> <td><u>at 60°C</u></td> </tr> <tr> <td>Light Rust</td> <td>4 – 10 min</td> <td>2 – 4 min</td> </tr> <tr> <td>Heavy Rust</td> <td>10 – 60 min</td> <td>5 – 20 min</td> </tr> </table> <ol style="list-style-type: none"> 4. Cold water rinse (see Rinsing below). 		Concentration Volume 20%:	<u>at 20°C</u>	<u>at 60°C</u>	Light Rust	2 – 5 min	1 – 2 min	Heavy Rust	5 – 30 min	2 – 10 min	 			Concentration Volume 10%:	<u>at 20°C</u>	<u>at 60°C</u>	Light Rust	4 – 10 min	2 – 4 min	Heavy Rust	10 – 60 min	5 – 20 min
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TECHNICAL DATA SHEET**T Deruster 4**
Acid Etch for Steel**Notes:**

- (i) The time taken to remove oxide coatings will depend on: the strength of the bath; the temperature; the amount of metal (iron and/or aluminium) built up in a used bath; and the amount and type of oxide. Some rust films and heat scales can be deceptively easy or difficult to remove.
- (ii) Copper and copper-alloys should not be treated in a T Deruster 4 bath, or subsequently treated steel will be copper-stained.

Control Points

Pointage:	12 – 25 ml
Iron titration:	normally not more than 10 ml
Temperature:	ambient to 70°C
Time:	2 -20 min.

Analytic Control

The bath should be maintained at the required concentration by regular, small additions of T Deruster 4 so that the derusting time is satisfactory. The pointage titration should be performed routinely.

1. T Deruster Titration: measure 10 ml of the bath into a measuring cylinder and dilute to 100 ml with water. Mix thoroughly and then measure 10 ml of this solution into a flask and add approximately 100 ml of water and 12 drops of Bromocresol Green Indicator solution. Titrate with 0.1 M sodium hydroxide to the blue end point.

Replenishment: Add 8 litres of T Deruster 4 per 1000 litres of bath for every 1 ml the titration is below the required figure.

A Test Kit (**MP0601**) containing all the necessary items and replacement chemicals is available from Trimite.

In normal use, and especially when removing heavy rust or scale, ferrous iron will build up in the bath and slow the action of the bath. This may appear as a white powdery deposit on the work. This can be overcome by raising the temperature to a maximum of 70°C and increasing the bath concentration to 20%. After this, the bath should be discarded.

2. Iron Titration: measure a further 10 ml of the diluted solution from (1) above (i.e. 10 ml of the bath diluted to 100 ml) and add approximately 5 ml concentrated hydrochloric acid and 5 ml of 50% sulphuric acid. Dissolve one Diphenylamine Sulphonate tablet and titrate with 0.1 M Potassium Dichromate solution to the royal blue end point. Each ml corresponds to 0.5% ferrous iron in the bath, and above 10 ml the bath cannot be economically restored to its expected activity, and should be discarded.

Rinsing

Rinse the work thoroughly in water in a tank fitted with a weir and continuously overflowed with mains water. This water can be used if desired to overflow the rinse tank after alkali cleaning. The work is now ready for phosphating or any other treatment. If the work is to be painted, a second, hot, rinse containing up to 0.5 litres of T Rinse 10 (**MP0016**) per 1000 litres can be used to minimise staining on drying.

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Drying	Work not undergoing further treatments should be dried as quickly as possible in an indirect-fired oven up to 125°C. Should finishing be delayed or not required, a light coating of protective oil will slow corrosion. For temporary protection, Trimite De-watering Fluid 1 (TT/DW1) can be used, this is a light oil that easily removed by subsequent cleaning processes. This is applied after cold water rinse, without force drying. For more lasting protection, Trimite Protective Oil 2 (MP0066) should be used after drying. Both products can be applied by wiping, dipping or spraying.
Shelf Life	2 years from date of manufacture when correctly stored in unopened containers.
Storage	The product should be stored in cool, dry, frost-free conditions, in sealed containers.
Health & Safety	Refer to the product's Safety Data Sheet and safety advice on the product label before use.
Technical Support	For technical support in using this product, please contact: e: birminghamtech@trimite.com , or t: 0121 554 7000.
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