



T DERUSTER 4

INTRODUCTION

A strongly acidic liquid product which when diluted with water will remove rust and scale from iron and steel. Used by dip, it normally precedes protective pretreatments and is suitable for use on steels to DEF STAN 03-2/3 Method F3 and BS 7773 (1995) 3.16 Method F.3 and BAE Airbus ABP 1-5056 (as Deoxidine 49).

BENEFITS

- Rapidly removes light rust and has a long bath life.
- Used hot, it can be well 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.

FLASHPOINT

None.

COVERAGE

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. As a guide, the following range has proved reliable:

Dip: 20 – 30 m² /kilo of T Deruster 4.

APPLICATION

Normally, the process sequence is:

1. Degrease, if necessary, either by:



- a) Solvent vapour with Triklone 'N' (MP0301), or,
b) Aqueous cleaning with:
(ii) T Cleaner 70 (MP0035) - All metals.

2. Cold water rinse if aqueous cleaning.
3. Dip in T Deruster 4 until the oxide is removed, according to the following guide:

		Concentration by volume		% Temperature °C	
		20		60	
		Light Rust	Heavy Rust	Light Rust	Heavy Rust
20		2 – 5 mins	5 – 30 mins	1 – 2 mins	2 – 10 mins
10		4 – 10 mins	10 – 60 mins	2 – 4 mins	5 – 20 mins

4. Cold water rinse (see RINSING below).

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.

BATH MAKE-UP

For every 1000 litres of bath:

1. Add approximately 750 litres of mains water.
2. Very carefully stir in 100 – 200 litres (see NOTE (i) above) of T Deruster 4.
3. Fill the bath to the operating level with mains water, stir and heat to the operating temperature (see NOTE (i) above).

CONTROL POINTS

Pointage cm3	12 – 25 Iron
Titration cm3	Normally not more than 10
Temperature °C	Ambient – 70 Time mins 2 – 20



BATH CONTROL/REPLENISHMENT

The bath can be maintained at the required activity by regular, small additions of T Deruster 4 so that the derusting time is satisfactory. However, the Pointage Titration done routinely and after the bath has been brought to its normal level will give the exact strength. A bath in continuous use should be tested and replenished at least daily but in occasional use weekly or before use.

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 and can be overcome at first by raising the temperature to a maximum of 70°C and the strength to 25 cm³ (20% concentration). After this the bath should be considered spent and discarded. The Iron Titration can determine the actual iron content.

1. T Deruster Titration: Measure 10 cm³ of the bath into a measuring cylinder and dilute to 100 cm³ with water. Mix thoroughly and then measure 10 cm³ of this solution into a flask and add approximately 100 cm³ of water and 12 drops of Bromocresol Green Indicator solution. Titrate with 0.1M Sodium Hydroxide to the blue end point.

Replenishment: Add 8 litres of T Deruster 4 per 1000 litres of bath for every 1 cm³ the titration is below the required figure.

2. Iron Titration: Measure a further 10 cm³ of the diluted solution in 1 (above), i.e. 10 cm³ of the bath diluted to 100 cm³, and add approximately 5 cm³ concentrated Hydrochloric Acid and 5 cm³ 50% Sulphuric Acid. Dissolve one Diphenylamine Sulphonate tablet and titrate with 0.1M Potassium Dichromate solution to the royal blue end point. Each 1.0 cm³ corresponds to 0.5% ferrous iron in the bath and above 10 cm³ the bath cannot economically be 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 but if it is to be painted a second, hot rinse containing up to 2 litres of T Rinse 740 (MP0420) per 1000 litres or up to 10 litres T Deruster 4 can be used to minimise staining on drying.

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 can significantly retard any corrosion. For temporary protection, De-watering Oil 4 (MP0100) is a light oil easily removed by subsequent cleaning processes. This can be applied by dip after



cold water rinsing without force drying. For more lasting protection, Protective Oil 2 (MP0066) should be used after drying. Application by wiping, dipping or spraying is effective for both products.

EQUIPMENT

The T Deruster 4 tank should be made of, or lined with, suitable acid-resistant materials such as 316 stainless steel (EN58J), lead or rubber. Rinse tanks can be made of mild steel and should be painted with a suitable paint except where T Rinse 10 is used.

ENVIRONMENTAL CONSIDERATIONS

T Deruster 4 contains no VOCs. The bath however is strongly acid (pH 0.5 – 1.0) and it is recommended that it should be collected when it needs to be discarded. The rinse waters may also exceed the pH limits (usually 6 – 10) even when diluted with any alkaline rinse waters; the pH of the rinse may be raised by careful additions of Alkaline Adjuster 1 (MP0134) before discharge to drain.

SAFETY

T Deruster 4 is a strongly acid liquid. Before use, refer to the Product Safety Data Sheet.

DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
T DE RUSTER 4	MP0054-35
TRIKLONE N	MP0301
T RINSE 740	MP0420
DE WATERING OIL	MP0100
T CLEANER 70	MP0035
PROTECTIVE OIL 2	MP0066

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