MAGNAM ST 080 Manganese Phosphate DATA-Sheet 1

MAGNAM ST 080 Manganese Phosphate

1. Scope

MAGNAM ST 080 Phosphate is designed to produce a crystalline phosphate coating on iron and steel surfaces and which possesses high oil absorbing properties. It is applied to steel surfaces as a lubricant or lubricant carrier. When oiled or a rust prevention compound is applied, the **MAGNAM ST 080** imparts excellent rust proofing properties. The coating produced conforms to **MAGNAM ST 080** phosphate is particularly recommended for applications on moving and wearing parts, and off shore oil industry sectors

2. PLANT AND EQUIPMENT

The process tank and associated pipe work should ideally be constructed from stainless steel however mild steel can be used but with a limited life span. Bath heating equipment is required and air agitation of the bath is recommended.

3. OPERATION

The **MAGNAM ST 080** Phosphate is recommended for use as follows:

Step 1 CLEAN/DEGREASE – TEGRA 999

Step 2 RINSE

Step 3 **MAGNAM ST 080** PHOSPHATE

Step 4 RINSE

Step 5 Dewater Oil / Seal

Parts to be processed through the **MAGNAM ST 080** bath should be thoroughly cleaned through either a vapour degrease or a strong alkaline cleaner such as TEGRA 999.

4. PROCESS CONTROL

(a) Make-up.

Concentrations of between 60 and 120 ml/litre can be used depending on the weight of coating required. A typical make up of the **MAGNAM ST 080** Phosphate is by the addition of 60 litres per 1000 litres of working solution (60 ml/litre) that would yield a 30 point bath. The **MAGNAM ST 080** is added to a pre-heated bath containing water at about 65°C.

When the optimum operating concentration is decided and the pointage set it should be maintained at around ± 3 points.

It is recommended that prior to its use the bath is "worked" for perhaps 1 hour, at its operating temperature of 95°C, by immersing clean steel fine Scourer to increase the iron percentage in working solution and to obtain the darker phosphating layer.

(b) Operating Parameters.

Total acid pointage 30 to 60 maintained within ± 3 points of optimum. Free acid pointage should be maintained in approximate ratio with the total acid.

TOTAL ACID : FREE ACID = 6 : 1

At an operating temperature of 85°C to 99°C the process time is 5 to 30 minutes.

5. LABORATORY CONTROL

The strength of the **MAGNAM ST 080** solution should be tested at regular intervals and replenished accordingly.

Total Acid Pointage: To a 10 ml sample of the bath add 50 ml clean water and a few drops of phenolphthalein indicator. Titrate against 0.1 Molar Sodium Hydroxide solution looking for a clear to pink end point.

TITRE = TOTAL ACID POINTAGE For bath adjustment, 2 litres of **MAGNAM ST 080** per 1000 litres of working solution will raise the bath strength by 1 point.

Free Acid Pointage: To a 10ml bath sample add 50 ml clean water and 3 to 4 drops of Bromophenol Blue indicator. Titrate against 0.1 M Sodium Hydroxide solution, looking for a yellow to blue end point.

TITRE = FREE ACID POINTAGE.

For adjusting the bath, adding 75% phosphoric acid will increase the free acid, and adding Sodium Carbonate will reduce the free acid.

Ferrous Iron Concentration: To a 10ml sample of the bath add 50 ml of clean water and about 1 ml of dilute sulphuric acid and titrate against 0.1N potassium permanganate to a persistent pink end point.

PERCENTAGE (%) OF FERROUS IRON = TITRE x 0.056

The ferrous iron content of a 30 point bath should be maintained in the range 0.2 – 0.4% if possible. To raise the ferrous iron content, dissolve clean scrap iron or steel wool in the bath. To lower the ferrous iron content, add 1 litre of 30% hydrogen peroxide per 1000 litres per 0.1% decrease required. It may then be necessary to add additional **MAGNAM ST 080** to restore the balance of the bath.

Equipments materials

Tank, rinsing zones and heating elements

General-purpose constructional steel to DIN EN 10025, with acid resistance rubber lining chromium nickel steel , material number 1.4541

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

KEMASTARK supplies a wide range of chemicals products and associated equipment for cleaning, sanitizing, de-scaling, paint and carbon removal, metal protection and non-destructive testing. Sales Executives are available to advice on specific problems and applications.

Labour and environmental protection

All local 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 EC safety Data sheets supplied. The user should also pay strict attention to information and hazard symbol shown on product labels.

Waste disposal

All waste waters must be treated in accordance with national legislation and local regulation prior to discharge to the sewer.