

## TECHNICAL DATA SHEET

# Paintbond 900M

## Manganese/Iron Phosphate Treatment

<b>Description</b>	A treatment producing a manganese/iron phosphate coating on steel surfaces.
<b>Features</b>	<ul style="list-style-type: none"><li>• The process develops a fine, uniform, heavy crystalline coating which is non-metallic and highly absorptive.</li><li>• Conforms to the requirements of BS EN ISO 9717 (formerly BS 3189, BS 12476) and DEF STAN 03-11.</li><li>• Will phosphate cast iron, mild steel and many difficult low-alloy steels.</li><li>• Excellent protection against rust when sealed with paint, spirit stain or oil.</li><li>• Absorbs lubricant – prevents metal-to-metal contact, which reduces scuffing when running-in.</li><li>• Reduces friction and wear on moving parts, such as piston rings, valves, gears and other bearing surfaces.</li><li>• Concentrated product for economy.</li></ul>
<b>Product Code</b>	<b>MP0224</b>
<b>SG</b>	1.31 ± 0.1 kg/l at 15°C.
<b>Coverage</b>	Consumption will depend on bath losses through drag-out. As a guide the following range has proved reliable: 7 – 12 m <sup>2</sup> /kilo of Paintbond 900M.
<b>Equipment</b>	The tanks should be made of stainless steel with built-up welds. The Paintbond 900M tank should not be over-large and is best heated by a side-mounted steam coil, gas tube or gas immersion heater, fitted so that the sludge is not disturbed. Rinse tanks should be made of stainless steel.
<b>Initial Fill</b>	For every 1000 litres of bath: <ul style="list-style-type: none"><li>• Add approximately 750 litres of mains water and heat to 70° - 80°C.</li><li>• Add 45 litres of Paintbond 900M and stir.</li><li>• Fill the bath to the operating level with water, stir and heat to working temperature. During this time, process a few kilos of degreased steel wool or scrapwork to age the bath.</li><li>• <b>Care should be taken to ensure the Paintbond 900M is NOT boiled</b>, as heavy sludging may result. This, in turn, will put the operating parameters out of balance.</li></ul>
<b>Application</b>	The process sequence is: <ol style="list-style-type: none"><li>1. Degrease by aqueous cleaning (see <b>Pre-Cleaning</b> below).</li><li>2. Cold water rinse.</li><li>3. Hot water rinse to preheat large work if necessary.</li><li>4. Activate using Abphos Activator M Salts for 1 - 3 min, at between ambient temperature and 65°C (see separate TDS for Abphos Activator M Salts).</li><li>5. Paintbond 900M dip.</li><li>6. Rinse - normally 2 stages (see <b>Rinsing</b> below).</li><li>7. Dry-off (see <b>Drying</b> below).</li></ol>

## Paintbond 900M

### Manganese/Iron Phosphate Treatment

**Pre-Cleaning:** If the work is oily, initial treatments of aqueous cleaning (Dipping: T Cleaner 70, **MP0035**) will prolong the tank life of the phosphate process. Paintbond 900M will remove light rust. Heavy rust or scale should be removed by mechanical means, as strong acid/alkali cleaners can give coarse, heavy coatings which require long immersion times. Acid pickling with 50% hydrochloric acid plus 5% Target AB40i for 10-30 minutes can be done if necessary.

#### Control Points

For the best **Corrosion Resistance** results:

Pointage	20 – 30 ml
Time:	10 – 20 min
Temperature	92° – 98°C
Acid Ratio	13 – 16%
Iron Content	2 – 4.5 g/l

For the best **Wear Prevention** results:

Pointage	55 – 65 ml
Time	5 – 10 min
Temperature	92° – 98°C
Acid Ratio	13 – 16%
Iron Content	2 – 4.5 g/l

#### Analytic Control

The bath is primarily controlled by a Pointage Titration done routinely according to usage and after the bath has been brought to its normal level with water. An Acid Ratio check may be necessary if the coating time is excessive or the coating too coarse.

- Pointage Titration:** Measure 10 ml of the bath into a conical flask and add 3 - 4 drops of Phenolphthalein Indicator solution. Titrate with 0.1 M sodium hydroxide until the colour changes to a permanent pink. Each ml of sodium hydroxide required is the Titration Pointage.

**Replenishment:** Add 1.5 litres Paintbond 900M per 1000 litres of bath for each ml the titration is below the operating level.
- Acid Ratio:** Measure 10 ml of the bath into a conical flask and add 3 - 4 drops of Bromophenol Blue indicator solution. Titrate with 0.1 M sodium hydroxide until the colour changes from blue to yellow. Each ml of sodium hydroxide required is the Free Acid Pointage.

To obtain the Acid Ratio %, divide the Free Acid Pointage by the Titration Pointage and multiply this value by 100.

A high Acid Ratio can be reduced by ageing the bath (see **Bath Make-Up**) or by making 0.25 kilo additions of PB Toner MN (MP0229) per 1000 litres of bath.

**Adjustment of Free Acid:**

To reduce Free Acid by 0.1 Point, add 60 g of manganese carbonate per 1000 litres of operating solution.

To increase Free Acid by 0.1 Point, add 800 ml of Paintbond 900M per 1000 litres of operating solution.
- Iron Content:** Measure 5 ml of the bath into a conical flask. Add 15 drops of 50% sulphuric acid and titrate with 0.1M Potassium Permanganate to a permanent pink end point. Each ml of 0.1M Potassium Permanganate is considered equal to 1 g/l Iron.

**TECHNICAL DATA SHEET****Paintbond 900M****Manganese/Iron Phosphate Treatment**

The most satisfactory coatings will be obtained if the iron content is kept between 2 and 4.5 g/l.

During operation, the iron concentration will slowly increase. When the upper limit is reached, an addition of 125 ml per 100 litre of 30% (100 vol) hydrogen peroxide\* will reduce the iron concentration by 1 g/l.

*\*This addition of Hydrogen Peroxide will increase the Free Acid Pointage and therefore may require adjustment of the Free Acid to Total Acid ratio.*

<b>Rinsing</b>	Rinse the work thoroughly in a tank fitted with a weir and continuously overflowed with mains water.
<b>Drying</b>	For most reliable results, the work should be dried in an indirect-fired oven at 70° - 125°C.
<b>Tank Maintenance</b>	Sludge, formed as a by-product of the phosphating action, will build up as more work is processed. Regular removal of this sludge is necessary in order to maintain satisfactory operating conditions. This is best achieved by allowing the solution to settle, decanting off the clear solution into a holding tank, and removing the settled sludge. Before returning the decanted solution, all scale build up should be removed from the heaters and tank sides.
<b>Shelf Life</b>	2 years from date of manufacture when correctly stored in unopened containers.
<b>Storage</b>	The product should be stored in cool, dry, frost-free conditions, in sealed containers.
<b>Health &amp; Safety</b>	<b>Refer to the product's Safety Data Sheet and safety advice on the product label before use.</b>
<b>Technical Support</b>	For technical support in using this product, please contact: e: <a href="mailto:birminghamtech@trimite.com">birminghamtech@trimite.com</a> , or t: 0121 554 7000.
<b>Date of Issue</b>	June 2021.

Information provided in this leaflet is given in good faith but without warranty or assumed liability, as the conditions of application and use are beyond our control. Data are accurate to the best of our knowledge at the time of issue but may be revised in the light of new knowledge and the user should check that data are current before use. The user must satisfy themselves about the product's suitability for their own purpose and refer to the Safety Data Sheet for this product before use. For industrial use only unless specifically stated otherwise.