



ULTRAPHOS 1000

MANGANESE PHOSPHATE

- **Single additive process.**
- **Ideal for break-in, anti-wear & anti-scuffing.**
- **Wide variety of applications.**
- **Low sludging, less bath dumping/decanting.**
- **Dense coating up to 5000 mg/ft².**
- **Easy to maintain.**
- **Economical to use.**

ULTRAPHOS 1000 is a unique manganese phosphate process formulated to provide a heavy manganese phosphate on ferrous surfaces. It produces a uniform porous deposit with coating weights in up to 5000 mg/ft².

ULTRAPHOS 1000 produces a phosphate coating suitable for providing corrosion protection and lubricity on a wide variety of parts as well as a base for solid film lubricants; for break in, anti-wear and anti-scuffing applications such as piston rings, liners camshafts, tappets, clutches, motor block and similar surfaces. It is also ideal as a lubricant carrier for tube and wire drawing.

ULTRAPHOS 1000 is a single package system that is easy to make up and maintain. No additional accelerators, activators or additives are required. It produces a low amount of sludge, thus it offers outstanding operating life in production.

OPERATING DATA

ULTRAPHOS 1000	10% by vol.
Temperature	200-210° F. (93-99° C)
Time	5-60 minutes.
Total Acid Points	12 points
Free Acid Points	2 points
Total Acid/Free Acid Ratio	5.5/1 - 6/1

SOLUTION CONTROL

The phosphate solution should be analyzed on a regular schedule for proper concentration. For heavy loads, once every 4 hours and for lighter loads, every 8 hours. The bath is controlled by titrating for iron and total and free acid and by checking the temperature. **Keep in mind, the rate of reaction is determined by time, temperature and concentration.**

Analytical

Total Acid and Free Acid

1. 2 ml sample of phosphate solution into 250 ml flask.
2. Add 3 drops modified methyl orange indicator.
3. Add 10 drops of phenolphthalein indicator.
4. Titrate with 0.1N Sodium Hydroxide from purple to green. Record as *free acid*.
5. Continue to titrate until solution turns pink. Record as the *total acid* number.

Iron Concentration

1. 10 ml sample of phosphate solution into 250 ml flask.
2. Add 10-15 drops of 50% Sulfuric Acid.
3. Titrate with 0.2N Potassium Permanganate to pink endpoint. Record as the *iron* number. A 3-point titration is equivalent to a 0.3% iron. The iron content of a solution is maintained at 0.2-0.3% or 2-3 ml of titrating solution.

- Iron adjustments are made by adding 8oz/100 gallons of 30% peroxide to the phosphate solution to reduce iron when it rises above 2.7.

OPERATION NOTES

- The quality of the phosphate coating is directly related to the quality of the pre-treatment cycle. If work is not properly cleaned, descaled, and rinsed the appearance, quality and corrosion resistance will be less than satisfactory. Strong cleaners and pickling will increase both the weight and size of the crystal, while solvents and hand wiping will reduce crystal size and coating weight. Your **A BRITE REPRESENTATIVE** can assist in selecting the proper pre-treatment cycle that will best suit your needs.

- Phosphate coatings themselves provide very little corrosion protection. Hence, the coating must be covered with a solvent or water emulsion oil, an organic film such as paint or wax or a chrome or non-chrome seal. **A BRITE** offers various **BRITEGUARD** materials that can improve the corrosion resistance of phosphate coatings significantly.

EQUIPMENT

Tanks

Tanks may be constructed of mild steel, however, 316 stainless steel are recommended.

Heaters

316 stainless steel plate coils are recommended. Direct under fired gas or electric immersion heaters are not recommended since there is a tendency for sludge and scale to build up on the outside surface of the heater and localized overheating will result.

Ventilation

Since solutions operate at elevated temperatures, ventilation is suggested to remove the steam vapors. Plastic, fiberglass or stainless steel equipment will provide maximum operating life.

STORAGE/HANDLING

ULTRAPHOS 1000 is stable upon standing and has excellent shelf life. Store in a dry area and protect from freezing. It is not combustible.

The use of **ULTRAPHOS 1000** requires the handling of acidic materials. Avoid contact with skin and eyes. Wear proper protective clothing, rubber boots, apron, gloves and face shield. In event of contact, flush immediately with large volumes of water and contact a physician. **Refer to the Material Safety Data Sheet for more complete information before using this product.**

WASTE TREATMENT

Spent solutions and normal effluents generally require treatment prior to discharge. **A BRITE** has a staff of trained professionals to assist in the proper disposal of this or any metal finishing material.

MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheets (M.S.D.S.) are readily available on this product. It is strongly recommended that all personnel thoroughly read and understand the information contained in both the Technical Data Sheet and the Material Safety Data Sheet before using this product.

WARRANTY

The information presented herein, while not guaranteed, is to the best of our knowledge, true and accurate. No warranty or guarantee, expressed or implied is made regarding the performance of any products, since the manner of use is beyond our control. No suggestion for product use nor anything contained herein, shall be construed as a recommendation for its use in infringement of any existing patent, and we assume no responsibility or liability for operations which do infringe any such patents. The above includes confidential and proprietary information of **A BRITE COMPANY, Inc.**, and is furnished to you for your use solely on products or processes supplied to you by us.