



## GE Betz Phosgard™ 800HP Non-Chrome Sealer

- Contains no chromium or other heavy metals
- Reduces waste treatment costs
- Provides excellent corrosion resistance for painted surfaces
- Excellent for flash rust inhibition

### DESCRIPTION AND USE

Phosgard 800HP is a liquid non-chrome sealer that improves the corrosion resistance and paint adhesion of phosphated metal. The formulation contains no chromium or other heavy metals. Depending on process conditions, Phosgard 800HP can provide performance comparable to chrome sealers.

Phosgard 800HP is used in spray or immersion washers in the sealer/rinse stage. Phosgard 800HP is applied to metal that has been iron or zinc phosphated.

### SUMMARY OF OPERATING DATA

Bath Makeup	
For each unit volume of bath, add the appropriate amount of Phosgard 800HP to deionized water while stirring or the pump circulating:	
Unit Volume	Phosgard 800HP*
100 gal	1.0 to 3.0 gal

\* Use Permatreat 604A to adjust pH per instructions below.

Normal Operating Ranges	
pH	5.0 to 9.0
Temperature	Ambient
Spray Time	5 to 30 seconds

### GENERAL APPLICATIONS

Iron and zinc phosphate coatings on base metal provide improved paint adhesion and corrosion inhibition compared to base metal alone. However, the end use of many manufactured goods requires additional protection. Sealers, applied to phosphated surfaces, can greatly improve paint adhesion and corrosion inhibition compared to phosphate coatings alone. Paint performance over sealers can depend on the pH of the surface produced by the sealer. Phosgard 800HP can be operated at two different pH ranges to obtain the best performance over the widest range of paint finishes available.

Phosgard 800HP generally provides the best performance when the pH of the Phosgard 800HP bath is adjusted to a range of 5.0 to 5.5 to provide an acidic surface for the paint to adhere to. However, some paints obtain excellent performance with an alkaline Phosgard 800HP pH range of 8.0 to 9.0. It is advisable to test any application in which Phosgard 800HP will be installed to identify the surface pH that provides the best performance for the particular paint being used.

Your GE Betz representative will recommend the appropriate concentration and pH of Phosgard 800HP for specific applications.

### TREATMENT AND FEEDING REQUIREMENTS

Phosgard 800HP is used as both makeup and replenisher. Typical makeup concentration is 1.0 to 3.0% v/v. Phosgard 800HP is made-up and replenished based on the intended operational pH. Replenishment feed rates depend on several factors including production rates, overflow, drag-in and drag-out.

## Acidic pH Operation

Due to the alkaline nature of Phosgard 800HP, the pH must be adjusted lower to operate in the acidic range. Permatreat™ 604A should be added to the Phosgard 800HP bath at the following approximate concentrations to adjust the pH to 5.0 to 5.5:

Concentration of Phosgard 800HP	% Permatreat 604A
1.0%	0.075%
2.0%	0.15%
3.0%	0.22%

The quantity of Permatreat 604A recommended for adjustment is approximate and is based on use with hard water. Using DI, RO, or moderately hard water for bath make-up will require slightly more, very hard water will require slightly less. For new tank make-up, fill the tank with fresh water and add the required quantity of Permatreat 604A with stirring then add the Phosgard 800HP.

Once the pH is adjusted, use AP 450 to control the concentration of the Phosgard 800HP.

## Alkaline pH Operation

Initial bath make-up might require addition of a small amount of Permatreat 604A (approximately 0.065% for a 2% bath) to bring the pH down to the 8.0 to 9.0 operational range.

Concentration of Phosgard 800HP	% Permatreat 604A
1.0%	0.032%
2.0%	0.065%
3.0%	0.097%

The quantity of Permatreat 604A recommended for adjustment is approximate and is based on use with hard water. Using DI, RO, or moderately hard water for bath make-up will require slightly more, very hard water will require slightly less. For new tank make-up, fill the tank with fresh water and add the required quantity of Permatreat 604A with stirring then add the Phosgard 800HP.

Once the pH is adjusted, the bath should be titrated according to the following procedure:

1. Measure a 100 mL sample into a beaker or a flask.
2. Add 5 to 10 drops of Bromcresol Green Indicator (Code 414B). The solution will turn blue.
3. Fill the automatic burette to the zero mark with 0.1 N hydrochloric acid solution (Code L272).

4. While stirring the sample, slowly run in hydrochloric acid from the automatic burette until the blue color turns to yellow.
5. Record the mLs required for the titration.

The results obtained from this titration depend upon the hardness of the water used to make-up the Phosgard 800HP bath. Deionized or reverse osmosis water will produce a titration of 2.5 to 3.0 mLs for a 2.0% solution of Phosgard 800HP adjusted to initial pH of 8.5 to 9.0 with Permatreat 604A. Tap water hardness varies greatly from one location to another, and the control point will have to be established based on a trial sample made down to pH 8.5 to 9.0. Hard tap water produces an adjusted total alkali titration of approximately 4.0 mLs. Once the trial control limits are established, maintain the Phosgard 800HP bath at these levels with a pH controller.

Your GE Betz representative will recommend specific replenishment guidelines.

## OPERATIONAL RECOMMENDATIONS

Phosgard 800HP can be fed neat or diluted. It is added directly to the bath, either continuously or shot fed. Use standard feed equipment made of stainless steel or common plastics. Wetted parts should not contain mild steel, brass or aluminum. A dedicated chemical feed line is required. Phosgard 800HP baths may operate for extended periods without dumping. Your GE Betz representative will recommend a dump frequency based on line conditions.

Phosgard 800HP run at alkaline pH can serve as a nutrient source for biological growth. To keep biological growth in-check, add 80 ppm of Slimicide MC508 weekly. See Sterilization Procedure below for heavily contaminated washers.

## STERILIZATION PROCEDURES

Phosgard 800HP baths operated at alkaline pH can serve as a nutrient source for biological growth, and occasionally require a "sterilization" procedure to keep biological activity at a minimum when accompanied by Slimicide MC508 use.

Dump the washer stage and thoroughly rinse the spray chamber and tank to drain. Utilize pressure spray wand, if available, to remove any loose material from spray chamber and tank walls. Fill the holding tank with fresh water and add 0.50% to 0.75% of 35% hydrogen peroxide at ambient temperature. Remove spray nozzles and circulate for at least 24 hours. Do not stop the process until solution effervescence stops. Simultaneously soak the nozzles at the same hydrogen

peroxide concentration. If biological fouling is severe, slowly add 10 to 25 ppm of AquaShed S10LF or GE Betz KI-5 to the peroxide solution before starting the 24 hour circulation. After the process is complete, drain the solution from the stage, Then thoroughly remove all solids using high pressure water and/or scraping. After cleaning and replacing the nozzles, the system is ready to go back on line.

### **STORAGE**

Phosgard 800HP freezes at 29°F. If it freezes, simply warm and mix to ensure homogeneity.

### **PACKAGING INFORMATION**

Phosgard 800HP is blended as a liquid and is supplied by the unique ChemSure™ Delivery Services. ChemSure is safe, reliable, easy to use and environmentally compliant. GE Betz offers four universal delivery systems: Bulk, Custom-Bulk, Semi-Bulk, and Mini-Bulk. The containers are available in a variety of styles and sizes to accommodate different applications. GE Betz also offers a variety of other packages including drums and pails. Ask your representative for more details.

### **SAFETY PRECAUTIONS**

Material Safety Data Sheets containing detailed information relative to this product are available upon request.

### **METRIC CONVERSION FACTORS**

To convert any of the English units in this Product Fact Sheet into their Metric equivalents, use the appropriate conversion factors:

$$\text{gal} \times 3.785 = \text{liters}$$

$$\text{lb} \times 0.454 = \text{kg}$$

$$\text{psi} \times 6.7 = \text{KPa}$$

$$(\text{°F} - 32) \div 1.8 = \text{°C}$$