



Better Chemistry. **Better Business.**

**Metal Guard® 821**

**Product Code: 2508021**  
**Revised Date: 05/31/2006**

## **Metal Guard® 821** **Indoor Rust Inhibitor for Steel**

**Metal Guard® 821** is a water-soluble liquid concentrate specifically formulated to provide temporary rust protection of steel indoors. It leaves a dry, invisible, non-oily film that will not hinder subsequent operations. It can be used as a final dip in tumbling or soak operations to prevent possible oxidation of steel parts. Since it is a water solution, it does not present a fire hazard nor does it present a toxicity problem.

### **PHYSICAL DATA**

Specific gravity ..... 1.10  
Vapor pressure ..... less than 17.5 At 20° C  
Solubility in water ..... infinite  
Appearance and odor ..... clear, water white liquid

### **SOLUTION MAKEUP**

**Metal Guard® 821** is commonly used at 1 to 3% (volume) with water and at temperatures ranging from ambient to 180°F. Higher temperatures facilitate faster drying and speed up production, while higher concentrations provide greater protection against oxidation. Solution replenishment is non-hazardous, whether added to a hot or cold bath.

### **CHEMICAL CONTROL**

**Metal Guard® 821** can be controlled chemically, but this is usually not necessary since the solution has such wide operating parameters that additions may be made without chemical control and/or the bath may be made up new more frequently because of its low cost.

### **CONTROL PROCEDURE**

Reagents and Equipment:

- 10 ml graduated cylinder or 5 ml pipet
- 250 ml Erlenmeyer flask
- 25 ml buret
- 50% Sulfuric acid solution
- 0.1 N Potassium permanganate solution



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### PROCEDURE

1. Take a 5 ml sample of the Metal Guard 821 bath and transfer it into the 250 ml Erlenmeyer flask.
2. Add about 75 ml of warm water (~120°F).
3. Add 5 ml 50% sulfuric acid.
4. Titrate immediately with 0.1 N Potassium permanganate to a pink endpoint that lasts for 30 seconds.

### CALCULATION

$$\% \text{ Metal Guard}^{\circledR} 821 = \text{ml Potassium Permanganate} \times 0.435$$

### EQUIPMENT

Tanks may be made of mild steel or stainless steel with provision for heating the bath, if required. It is not necessary to exhaust the solution.

### CAUTION

**Metal Guard® 821** is a water solution of chemicals, thus it does not present a fire hazard, nor does it contain caustic or other chemicals that require special clothing for handling.

### WARRANTY

THE QUALITY OF THIS PRODUCT IS GUARANTEED ON SHIPMENT FROM OUR PLANT. IF THE USE RECOMMENDATIONS ARE FOLLOWED, DESIRED RESULTS WILL BE OBTAINED. SINCE THE USE OF OUR PRODUCTS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, OR THE RESULTS TO BE OBTAINED.