Metal Guard® 800

Metal Guard 800 is a clear, non-flammable, mildly alkaline liquid which is used in metal finishing processes for protecting ferrous metals against rust during an "in-process" operation.

Metal Guard 800 may be used in immersion operations, power wash machines and vibratory tumbling flow-through systems.

Metal Guard 800 does not contain any inorganic salts; therefore, no powder residues are left on the surface of the metal.

Features & Benefits

Excellent short- term-in-process rust protection	Prevents rust on high value parts between process steps
Easily soluble in water	Easily removed with a mild alkaline cleaner
Used at low concentrations	Cost effective over large applications
Low foam	Excellent for use in spray washers or as a burnish in vibratory mass finishing

Physical Data

Specific gravity	1.07
Solubility in water	Complete
Appearance and odor	Water white to faint yellow solution, slight ammonia odor
pH (conc)	12.0

Typical Applications

- In-process rust inhibitor
- Low foam spray cleaner
- Vibratory burnishing compound

Operating Conditions

Immersion Method

Metal Guard 800 is used 0.5 to 5.0% By volume. This dip may be the final step after a sequence of wet operations such as tumbling, cleaning, etc. No visible films remain, and parts have temporary indoor protection for indefinite periods. Metal Guard 800 may also be used as a corrosion inhibitor in iron casting inspection where the part is immersed in water and air pressure applied. Parts do not rust while they are immersed in the water and are protected after exposure to air.

Metal Guard 800 affords some protection after parts are rinsed subsequent to dipping. However, no rinsing after the dip is preferred for best rust protection.

Power Wash Method

The non-foaming characteristics of Metal Guard 800 makes it an ideal product for use in the final rinse in power washers.

Concentration	0.1 – 1.0% by volume in final rinse
Temperature	100 – 160°F (37 – 71°C)

A hot final rinse will facilitate the drying of the work.

Vibratory Tumbling Flow-thru Systems

Being a liquid, Metal Guard 800 is ideal for use in vibratory tumbling flow-thru systems via automatic aspirators or similar arrangements. Metal Guard 800 is easy to add to the makeup tank as there are no solubility or crystallization problems with the material. Simple flow-thru systems can be made by using a make-up tank of Metal Guard 800 and a gravity feed pipe-valve hook-up.

Concentrations of Metal Guard 800 for aspirator set-ups would be 2 to 8 oz/gallon in the sump or tank with a suction rate of 1 gallon of make-up solution to 10 to 20 gallons of feed water.

Concentrations for gravity feed flow-thru would be 0.5 to 1.0% by volume.

In some vibratory flow-thru systems, Metal Guard 800 may be the compound used throughout the tumbling cycle. It functions as the clean rust inhibitor, lubricant and burnisher. Its mild nature makes it ideal for use in vibratory finishing of zinc surfaces.

Titration Method

1. Pipette a 25 mL sample of Metal Guard 800 into a 250 mLErlenmeyer flask.
2. Add about 25 mL of distilled water.
3. Add 4 to 5 drops of mixed indicator. (50% Bromocresol green, 50% methyl red).
4. Titrate with 0.1 N Hydrochloric Acid solution until the color changes from green to red.

Calculation

Concentration = mL 0.1 N HCl x 0.12

Note: Indicator may also be substituted in place of the above mixed indicator. The solution color will change from yellow to red.

Test Kit Method

A slight modification in the conventional Hubbard-Hall test kit operation procedure will be necessary for determining concentration (% by volume). Instead of using the dropper, it will be necessary to use a 10 mL sample.

1. Fill test bottle 1/4 full of water.
2. Add 10 mL Metal Guard 800 solution using a 10 mL graduated cylinder.
3. Add 5 drops Methyl Orange indicator.
4. Add dropwise 0.72 N Hydrochloric Acid solution until solution turns from yellow to red orange.
5. Record number of drops 0.72 N Hydrochloric Acid solution used.

Calculation

Concentration = # Drops 0.72 N HCl x 0.10

Waste Disposal

Neutralize solutions of Metal Guard 800 to a pH between 6.0 to 8.0 with a mineral acid. Use caution when adding the acid since neutralization generates heat. Discharge the neutralized solution to a sewer or settling lagoon. In order to be completely informed on the latest disposal regulations for your area, please contact the local authorities.

Caution

Metal Guard 800 is a mildly alkaline liquid. Avoid skin, eye and oral contact. Wear protective clothing, gloves and goggles when handling the product. Flush exposed areas immediately with clean, cold water. Contact a doctor immediately in case of injury.

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For more information on this process,
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