

E-Tec™ 512
E-Tec™ 512-C

Water Soluble (Emulsifiable) Rust Preventive

E-Tec 512 is a high performance rust preventive formulated with emulsifiers and waxes and used at full strength or diluted with up to 50% by volume with water and used at 70°F to 130°F. **E-Tec 512** is a rust preventive that provides an extremely thin, waxy, dry-to-the-touch superior corrosion resistant film and provides up to 150 hours salt spray resistance on hot black oxide *(see note on salt spraying). **E-Tec 512-C** is applied in the same manner as **E-Tec 512** but is utilized on copper and brass to enhance their corrosion resistance.

E-Tec 512 provides excellent lubricity and anti-wear characteristics as conducted with Falex tests.

| <u>Concentration</u> | <u>Film Thickness</u> | <u>ASTM-B-117</u> <u>5% Salt Spray</u> | <u>ASTM-D-1748</u> <u>Humidity</u> |
|---------------------------------|-----------------------|---|---------------------------------------|
| E-Tec 512 50% by volume | 0.04 mils | 80 hours* | 24 days |
| E-Tec 512 100% by volume | 0.10 mils | 150 hours* | 45+ days |

E-Tec 512 can be used over **EPI's Ultra-Blak** and **Insta-Blak** black metal finishes and the **E-Phos** zinc/manganese phosphate finishes and also over bare steel.

Application

E-Tec 512 is normally used at 70°F to 130°F. Higher temperatures will help facilitate drying. Some experimentation should be done with parts at various dilutions to determine the type of film and corrosion resistance necessary. **EPI** recommends salt spray testing on customer parts and/or Q-Panels to measure corrosion resistance. **DO NOT HEAT OR HOLD E-TEC 512 ABOVE 145°F FOR ANY PERIOD OF TIME BECAUSE THE HEAT MAY CAUSE LOSS OF EFFECTIVENESS. STORE AT ROOM TEMPERATURE. MATERIAL WILL FREEZE. IF FREEZING DOES OCCUR, REHEAT MATERIAL TO 120-130°F BEFORE USING.**

Plain steel tanks and equipment can be used to hold or apply the **E-Tec** solutions. The solution can be heated by gas, steam, or electricity and can be applied by dipping, spraying or brushing. For applications on plain steel, maximum corrosion resistance is assured if the surfaces are free from corrosive materials such as chlorinated and sulfonated cutting oils, coolants, lubricants and drawing compounds.

When used as a sealant for **EPI's Insta-Blak** or **Ultra-Blak** black chemical conversion metal finishes and **E-Phos** phosphate finishes, the parts are immersed for one (1) minute in the **E-Tec**

solution. Note: If using 100% **E-Tec** by volume, **EPI** recommends drying the parts first because water dragged in will dilute the bath and affect its performance. If that is not possible, ask your **EPI** representative about **E-Tec 512XC**. It is recommended that baskets and rotating barrels used to contain parts for blackening and rinsing not be immersed in the **E-Tec** solutions because they will become coated with the **E-Tec** solution and could contaminate by run-off of the **E-Tec** into the other solutions in the process while being transported back to the beginning of the line.

The **E-Tec** tank should contain an unload chute and catch basket(s) to receive the parts upon unloading of the baskets and barrels.

Tanks should be kept covered when not in use to minimize evaporation of water.

The **E-Tec** solutions are formulated to dry fairly rapidly at ambient temperatures and may be unloaded directly into tote pans or bins and allowed to dry. Heated, forced air drying in ovens or on perforated conveyor belts will accelerate drying. Small parts can be rapidly dried in spin dryers.

Note: Hard water containing high amounts of calcium/magnesium will break the emulsion. In areas of hard water, distilled water or D.I. water is recommended for initially charging the tank and additional water additions.

To remove the **E-Tec 512** coating a low caustic cleaner such as **E-Kleen 148-E** or **E-Kleen 166** works well.

Salt Spray Note

Tests conducted on **E-Tec 512** were conducted on 1" x 4" Q-Panels, cold roll steel, SAE 1010, low carbon, Rockwell hardness B70-B85, blackened in **Ultra-Blak 400** and **Insta-Blak 333**. The base substrate (alloy), process conditions, post cure of film and salt spray chambers will all have an effect on corrosion resistance. **EPI** recommends testing on Q-Panels or parts before proceeding with the process.

Solution Control

The concentration of the solutions is maintained by periodic additions of **E-Tec 512** and water. The percentage weight solids of the solution can be determined by evaporating the water at 110°F from a weighed sample of the solution. The concentration of the solution can be determined as follows:

Take exactly 40 mls of analyzed **E-Tec 512** into a 100 mls graduated cylinder. Add 10 mls of concentrated sulfuric acid. Shake it slightly. Place cylinder into a 300 ml beaker with boiling water so that all solution in a cylinder is covered and leave until you see a clear lower layer and dark brown layer at the top.

After separation, take the cylinder out of the beaker and cool it down. Record how many mls of brown oil is on the top.

$$\frac{\text{mls of brown oil}}{\text{mls of total sample (40 mls)}} \times 1000 = \% \text{ by volume of product}$$

*If the desired concentration is 100% by volume and there is no room to add more **E-Tec 512** stop making water additions for evaporation and increase hang time after rinsing in the rinse tank prior to **E-Tec 512** for 30-60 seconds or dry the parts prior to immersion into the **E-Tec**.

Caution

Wear eye protection (glasses, goggles or face shield) when preparing solutions and working with solutions. Avoid prolonged contact with skin. Wash from skin with soap and water. For eyes contact, flush freely with water and get medical attention.

Do not work with the **E-Tec** products without first reading and understanding the **MATERIAL SAFETY DATA SHEET** furnished by **EPI**.

Packaging

Five (5) and 55 gallon non-returnable containers.

IMPORTANT NOTICE! For Industrial Use Only

The following is made in lieu of all warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose: seller's and manufacturer's only obligation shall be to replace such quantity of the product as proved to be defective. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. **Neither seller nor manufacturer shall be liable either in tort or in contract for any loss or damage, direct, incidental or consequential, arising out of the use or the inability to use the product.**