



Better Chemistry. **Better Business.**

Mi-Tique® 1792 Replenisher

Product Code: 2300025
Revised Date: 4/24/2014

Mi-Tique® 1792 Replenisher

Room Temperature Antiquing Solution
For Brass, Bronze, Copper & Muntz Metals

Instructions

Mi-Tique® 1792 Replenisher is a liquid concentrate designed for additions to a long running large working bath of **Mi-Tique® 1792** to prevent copper build up in the working bath. The Replenisher has no copper in the formulation compared to the **Mi-Tique® 1791**. It is designed to replenish all the other ingredients except for the copper.

Equipment

Acid resistant tanks, tumbling barrels, baskets and racks must be used with **Mi-Tique®** solutions. Plastic, plastic lined, rubber lined, glass or stoneware are suitable. Mild steel may be used for the cleaning, rinsing and sealant tanks.

Sealant Make Up And Color Development

Prior to charging a production tank, some experimentation should be done with properly prepared sample parts, using various dilutions and immersion times to determine the conditions required to produce the desired color. After a bath matures it starts to build up the copper which comes from the part exposure to the slightly acidic solution. Over time the copper builds up and the Selenium portion of the formulation becomes depleted or out of balance.

Immersion times and concentrations and temperatures are critical and the colors can be consistently reproduced in production. Antique finishes should be protected with an oil, wax, or lacquer topcoat and the ultimate color will be influenced and enhanced by the topcoat and, therefore, the topcoat must be applied before judging the depth of color or before comparing with other antique finishes. The natural color of the alloy and the mechanical finish on the surface will also affect the final color of "highlighted" or burnished finishes.



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Solution Replenishment And Maintenance

The solution is gradually depleted through use but may be replenished with periodic additions of **Mi-Tique® 1792** or indefinitely with **Mi-Tique® 1792 Replenisher**. The strength of the solution and the amount of concentrate to be added can be determined by titrating with sodium thiosulfate as outlined in "Chemical Control Procedure" or the strength can be maintained by recording the time of immersion. The titration measures both metals at the same time and when out of balance need more advanced analysis such as Atomic Absorption for Cu and Se levels. When the time required to produce the desired color increases, add sufficient Replenisher to reduce the time to your established standard.

The frequency of additions will depend upon the volume of work processed. For optimum results, the solution should be maintained at 85% of its original strength or greater, and frequent small additions are recommended.

Control Procedure

A sample of a freshly prepared production bath should always be taken as a control solution prior to running any parts through the bath. If a sample was not taken, a laboratory prepared solution at the same concentration may be used as the control solution. Titration of this "new" solution will provide the figure for D1.

1. Transfer a 5 ml sample of the production bath into the 250 ml flask.
2. Dilute with water to approximately 75 ml.
3. Add 10 ml 6N (1:1) Hydrochloric Acid to the flask.
4. Add 15 ml of the 15% by weight Potassium Iodide solution.
5. Add 10 ml of Starch Solution. The solution will become a dark blue to almost black color.
6. Add the 0.1N Sodium Thiosulfate solution from the burette while swirling the flask.
7. The end point is marked by a sudden change in color from dark black to light brown.

NOTE: Upon standing, the light brown color will turn dark again, but additional sodium thiosulfate solution should not be added. **The first end point is correct.**

8. Calculate the amount of concentrate to be added as follows:

ml 0.1N Sodium thiosulfate X 0.357 = % Mi-Tique by volume



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Treatment Procedure For Disposal Of Mi-Tique® Solutions

For disposal purposes, the following method may be used to precipitate the metals leaving a solution with 0 to 1 parts per million total metal concentration. Be sure to follow all city, state and federal regulations concerning permitting and waste treatment.

1. Add sulfuric acid until the solution acquires a pH of 1.4 or less. This quantity will vary, depending upon the extent of depletion and the amount of water used in the original make-up.
2. Shred into hand-size pieces, 5-7 lbs. grade 00 steel wool per 100 gallons of spent solution. Add shredded steel wool to the solution and stir for 20 minutes. Check pH to be sure it has not risen above 2.2. If it has, add more sulfuric acid and stir for a few minutes longer.
3. This is followed by additions of sufficient sodium hydroxide (in liquid form-50% solution may be purchased) to raise the pH to 8.5 - 9.0.
4. The treated solution is then allowed to stand so the insoluble metallics and other solids drop to the bottom of the tank. For collection and disposal, the liquid portion may then be drawn off and disposed of in accordance with state and local regulations. The sludge may be accumulated and disposed of at a later time. The sludge is not soluble in (rain) water thus does not create ground contamination.

Caution

The **Mi-Tique®** solution is mildly acidic. Avoid contact with eyes, skin and clothing. Wear eye shields, protective gloves and aprons. The solution is toxic if taken internally. Read and understand OSHA safety data sheet and drum warning labels prior to working with or handling this product.

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.