

ACTI/Plate DM-50 Catalyst

A Stabilized, Palladium Colloid for Direct Metallization

Product Description

ACTI/Plate DM-50 Catalyst (DM-50) is a specially formulated and concentrated tin/palladium colloidal catalyst suspension which absorbs onto non-conductive surfaces (properly conditioned in DM-10 Cleaner/Conditioner) rendering them suitably conductive for subsequent copper electroplating procedures. ACTI/Plate DM-50 forms a dense, highly conductive and stable deposit on both glass and epoxy surfaces; including difunctional, multifunctional, polyimide, and Teflon substrates.

Performance Features

- ACTI/Plate DM-50 may be used effectively on a wide variety of laminate systems.
- ACTI/Plate DM-50 is an acid free formulation, reducing equipment wear and improving ease of use.
- ACTI/Plate DM-50 forms a dense, conductive, and stable deposit in a single pass; allowing for photo processing without copper flash plating.
- ACTI/Plate DM-50 offers a wide operating window, allowing for additions to be on a square foot basis without frequent laboratory testing.

Physical Specifications

Physical State	Liquid
Appearance	Opaque, Brown Suspension
Odor	Mild
Freeze/Thaw Stability	Do Not Freeze
Specific Gravity	1.2
pH	2-5
Flash Point	None

Equipment Requirements

Tanks: Constructed or Lined with Scratch Free PVC, CPVC, Or Polyethylene.

Heaters: Constructed Of Quartz Or Teflon. Stainless Steel Heaters Cannot Be Used. It Is Recommended Indirect Heat, Such As A Tank Fitted With A Water Jacket Or Heat Exchanger, Be Employed. If A Direct Contact Immersion Heater Is Employed, Position To Assure Maximum Solution Agitation Around The Heater. Localized Hot Spots May Result In The Breakdown On The Colloid.

Racks: Constructed or Lined with Hynel Or Plastisol Coated Steel.

Agitation: Mechanical Agitation Combined With Continuously Recirculated Filtering, Assuring Recirculation Pump Allows No Air Introduction.

Filtration: Required, 1-5 Micron Continuous.

Technical Data Sheet

Product Make-Up

ACTI/Plate DM-50 is a concentrate employed at 5% by volume in a background matrix of 95% ACTI/Plate DM-40 Pre-Dip. To prepare a working bath of ACTI/Plate DM-50, follow the procedure below.

Procedure

1. Thoroughly rinse the tank and inspect for cleanliness, paying special attention to the heaters and heater sheathings.
2. Fill the clean process tank with ACTI/Plate DM-40 Pre-Dip to 75% of the desired working level.
3. Carefully measure the correct volume of ACTI/Plate DM-50 Catalyst (5% by volume of the final desired volume) and slowly add to the tank.
4. Fill to level with ACTI/Plate DM-40 Pre-Dip and mix utilizing solution filtration.
5. Heat the solution to 104°F while continuously maintaining adequate solution agitation.
6. Keep tank covered to prevent evaporation of water or introduction of contaminants when not in use.

Operating Parameters

Concentration	DM-50 Is Employed At 5% By Volume. DM-50 Is Diluted To Volume With DM-40 Pre-Dip.
Temperature	100 - 108°F (104°F Optimum)
Application Method	Immersion Or Flood
Time	5 - 10 Minutes Depending On Agitation.

NOTE: To minimize water evaporation and prevent unnecessary contamination, cover the ACTI/Plate DM-50 Catalyst solution when not in use.

Control Replenishment

Chemical Additions	Additions Can Be Made Based Upon Laboratory Determination Of DM-50 Concentration.
Bath Life Expectancy	5,000 Ft ² Of Work Processed Per Gallon Of Operating Bath. Discard Once Yearly.

NOTE: Make up for evaporation with fresh DM-40 Pre-Dip solution.

Technical Data Sheet

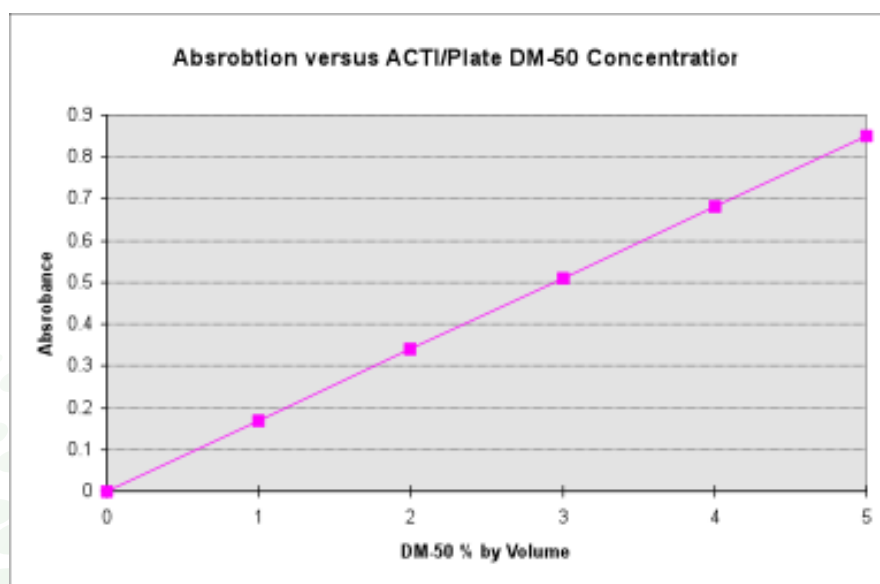
Measuring The Concentration Of DM-50 In The Catalyst Bath

The percent by volume (% v/v) of DM-50 Catalyst in the working bath can be measured using the procedure below.

Equipment Required	Reagents Required
Pipets, 1ml, 2ml, 3ml, 4ml, 5ml	ACTI/Plate DM-40
Spectrophotometer, Visible	ACTI/Plate DM-50
Spectrophotometric Cell, 10 mm Path Length	
Volumetric Flasks, 100ml, 11 Each	

Procedure

1. Into five (5) separate 100 ml volumetric flasks labeled 1%, 2%, 3%, 4%, and 5%, pipette 1 ml, 2 ml, 3 ml, 4 ml, and 5 ml of ACTI/Plate DM-50 Concentrate respectively. Dilute to volume with fresh ACTI/Plate DM-40.
2. Into six (6) separate 100 ml volumetric flasks labeled 1%, 2%, 3%, 4%, 5%, and "sample", pipette 3 ml of solution prepared in step 1 into the flask correspondingly labeled. Into the flask labeled "sample", pipette 3 ml of working ACTI/Plate DM-50 bath. Dilute each of the solutions to volume with fresh ACTI/Plate DM-40.
3. After the spectrophotometer has been warmed-up following the manufacturers recommendations, adjust the wavelength to 425 nm.
4. Fill a spectrophotometric cell with fresh ACTI/Plate DM-40 and zero the spectrophotometer.
5. Starting with the 1% solution prepared in step 2, measure the absorbance and record the value. Repeat this step with the other solutions prepared in step 2, and with the "sample".
6. Prepare a standard curve by graphically plotting the measured absorbance on the y-axis and the concentration on the x-axis.



Technical Data Sheet

Calculations

Determine the percent by volume DM-50 in the working bath by comparing the absorbance of the sample to the absorbance of the standards plotted on the standard curve prepared.

Maintain the DM-50 concentration at 5% by volume. To make additions, add ACTI/Plate DM-50 on a percent by volume basis to increase to 5%. After an addition is made, verify the concentration of the bath by repeating the analysis.

Safety and Handling

Read and understand this products MSDS before handling.

Waste Treatment

Individual users should verify the nature of spent solutions to assure compliance with local, state, and federal regulations. Contact Seacole for specific details and/or further waste treatment recommendations.

Ordering Information

ACTI/Plate DM-50 is available in 1 liter bottles and 1 gallon jugs.

13505 Industrial Park Blvd. Plymouth, MN 55441