



TECHNICAL DATA SHEET

MONDOCLEAR 5000

CATHODIC ELECTROPHORETIC LACQUER

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Process Information

Mondoclear 5000 is an electrophoretic coating process for producing a clear protective finish on solid brass, zinc diecastings and most electroplated substrates. The coating is a modified acrylic co-polymer and can be post dyed. The process has been formulated to produce low to medium build coatings (5 - 12 µm).

Process advantages

- Superior corrosion and wear resistance
- Enhanced clarity and gloss
- Excellent in-tank stability
- Consistent performance
- Can be post dyed
- Operator friendly

These features result from a formulation which stabilises the working strength emulsion, so there is minimal deterioration in deposition rate or film properties as the bath ages.

Equipment

The basic requirement is for a resin deposition tank with bare stainless steel counter electrodes and filtered circulation via an overflow section; ultrafiltration equipment is also necessary. Filtration recommended through a 1 µm glass filter element/circulation, at four tank turnovers per hour.

Make-up

1. Rinse the tank and all pipework including ultrafiltration equipment with a deionised water solution containing 20 ml/l CLEAR SOL 1500 Solvent.
2. Fill the tank to one-half its operating level with deionised water, then slowly with local agitation, add the required amount of MONDOCLEAR 5000 resin.
3. Add the remaining quantity of deionised water.
4. Switch on filtration and heating system.
5. Maintain the solution at operating temperature with continuous filtration for at least 12 hours before use.



Working Parameters

Temperature	23 – 30 °C (optimum 28 °C)
Voltage / Time	Immersion for 30 - 60 seconds before depositing resin at 25 - 40 volts for 30 - 60 seconds, producing a typical coating thickness of 5 - 12 microns.
Curing Cycle	20 minutes at 160 °C (metal temperature) *
Conductivity	500 - 800 μ S
Refractive Index	12 – 14 Brix
Peak Current	27 A/m ²
Mean Current	6 A/m ²

- Note: Curing can be tested by rubbing with cotton wool soaked in acetone

Process Sequence

1. Electroplate (or chemically clean) and rinse well in mains water.
2. Rinse in demineralised water.
3. Pre-condition in 2 ml/l MONDOCLEAR 5000 solution.
4. Resin deposition, cathodically from a 30 % solution of MONDOCLEAR 5000 in deionised water.
5. Post-deposition rinse in deionized water
6. One or more further rinses in deionised water, depending on ease of rinsing, with a final rinse in MONDOCLEAR RINSE AID 5555 solution.
7. Allow most of the water to drain off (approx. 5 mins).
8. Stove, typically for 20 minutes in an oven at 160 °C for maximum physical and chemical properties. Alternatively, 130 °C for 45 minutes will provide acceptable coating properties.

Maintenance

The concentration of MONDOCLEAR 5000 Resin is monitored by refractometer and maintained at 25 - 30 % using the same resin concentrate as used for the initial make-up. Solvent is lost by ultrafiltration and by evaporation, requiring additions of CLEAR SOL 1500 Solvent. Control by refractometer index testing on the permeate.

Rate of Consumption

This depends very much on drag-out and coating thickness, but typically 1 kg of MONDOCLEAR 5000 Resin will produce 25m² of coating (10 μ m dry film).

Coating Properties

Correctly applied and cured coatings obtained from MONDOCLEAR 5000 are capable of achieving the following properties:



Hardness	5H – 6H pencil hardness
Solvent resistance	Typically 500 double rubs with acetone on a fully cured film
Dry adhesion	No loss of squares on cross-hatch and pull-off with adhesive tape
Handling	Excellent mar resistance as soon as stoved items are cool enough to handle
Scratch resistance	2000 g
Wet adhesion	No loss of squares on cross-hatch and pull-off with adhesive tape

Corrosion Resistance

For substrates coated with 10 µm of MONDOCLEAR 5000 and chromate passivate film (subject to the quality of the base metal and electrodeposits):

Polished brass	up to 1,000 hours
Brass plated articles	up to 150 hours
Zinc diecastings	up to 150 hours

Product Details

Product Code	Product Name
5000	MONDOCLEAR 5000
1500	CLEAR SOL 1500
5555	RINSE AID 5555

Health and Safety

Material Safety Data Sheets are available for all GALVANO MONDO products, they are normally issued with relevant quotations and Technical Data Sheets. They explain hazards associated with the product following classification by European Statutory Requirements. Normally more than one product will be used in a process. Risk evaluation of the process is the users responsibility because the user controls men, materials, methods and machines. The user must consider all of the substances present in the solution, whether they present a risk to people and the environment, whether abatement measures are needed.