



TECHNICAL DATASHEET

MONDOCOLOR POST DYES

POST DYE SYSTEM FOR DECORATIVE COLOURED FINISHES

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Process Information

MONDOCOLOR Post Dye system gives the ability to produce a number of decorative finishes by post treating clear electrophoretic coatings. The Post Dye system is an easy-to-use static immersion process employing a few extra dips after the electrocoating process. A number of tints are available corresponding to finishes such as brass and gold, when applied to natural polished or electroplated substrates such as zinc, aluminium and nickel. The Post Dye system consists of a pre-conditioning rinse followed by the dye solution, then a separate post-rinse or return through the pre-conditioning rinse, dependent on plant configuration. The dye solution is made up from a simple single liquid concentrate, diluted with deionised water. The process operates at 25-30°C; process control is achieved by simple physical methods and comparisons.

Equipment

Rinse and Conditioning Tanks	Normally polypropylene
Dye Tank	Polypropylene tank with pump and filter (1 tank turnover per hour maximum), and stainless steel or PTFE heater and thermostat.
Agitation	It is recommended that the solution be continuously circulated through a 3 micron filter, with solution turnover no more than 1 tank turnover per hour. The equipment should be configured such that the solution is removed from the top of the tank and returned after filtration to the base of the tank to ensure even temperature distribution.

Make-up

MONDOCOLOR Post Dye system is sold as high concentration solutions, requiring dilution to working strength with deionised water:

Post Dye working solution	250 ml/l MONDOCOLOR Post Dye
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Working Parameters

MONDOCOLOR POST DYE Working Solution

Temperature	25 - 30 °C (optimum 25 °C)
Dip Time	60 - 180 seconds (depending on shade required)

Note: Temperature and dip time must be accurately controlled to give consistent results.



Process Sequence

The Post Dye process has the flexibility to produce variable intensity of any given base dye colour. The intensity is controlled mainly by variation of immersion times within the dye solution, but other factors within the process, such as film condition, temperature and rinsing can effect colour intensity. The process parameters for each application will need to be established by trial and then accurately repeated to obtain the best results.

The basic process sequence and parameter envelope is given below:

1. Mondoclear 5000 rinse (1 ml/l Mondoclear 5000)
2. Mondoclear 5000 resin deposition (300 ml/l Mondoclear 5000 Resin)
3. Deionised water rinse
4. Deionised water rinse
5. Pre-conditioner rinse (Clearsol 1500 Rinsing 1ml/l)
6. Mondocolor Post Dyeing (250 ml/l, 1 - 3 mins immersion, 25 - 30 °C)
7. Deionised water rinse
8. Deionised water rinse
9. Deionised water rinse
10. One or more further rinses in deionised water, depending on ease of rinsing, with a final rinse in Mondoclear Rinse aid 5555 Rinsing 10 ml/l
11. Allow most of the water to drain off.
12. Stove, typically for 20 minutes in an oven at 160 °C for maximum physical and chemical properties

Maintenance

Dye is consumed by adsorption and drag-out, and the dye concentration is maintained by regular additions of MONDOCOLOR Post Dye concentrate. The addition rate will depend on the intensity of colour required and the throughput of the tank. Typical solution consumption is 1 litre of dye concentrate for every 50 m² of coating. Process control can be assisted by measurement of the refractive index of the dye solution; the control graph can be used to assess the refractive index and is available in the Control Manual for Post Dyes.

Solution Control

The following conditions should be maintained:

	Ph	Conductivity (µS)	Temperature (°C)
Pre-conditioner rinse	6 – 8	< 100	20 - 30
Dye solution	6 – 8	< 1000	25 - 30

Note 1:

Dump when conductivity limit is exceeded.

Note 2:

Maintain pH as required.

To raise the pH, add 1 % Sodium Hydroxide solution; to lower the pH, add 1 % Sulphuric acid solution.



Intensity Variation

The dye intensity can be varied by adjusting the dye bath temperature, immersion time and dye concentration. It is recommended that the operating conditions of the bath be varied on make-up to achieve the required dye intensity, and colour standard reference pieces and a record of operating parameters be retained to ensure consistency.

Post dye Additives Available:

Mondocolor Brass Dye
Mondocolor Gold Dye
Mondocolor Black Dye
Mondocolor Red Dye
Mondocolor Blue Dye
Mondocolor Bronze Dye
Mondocolor Green Dye
Mondocolor Yellow dye

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.