



CLEARCLAD DV200 PRODUCTS

Product Code: 252B151

1. PRODUCT DESCRIPTION

CLEARCLAD DV200 is a general purpose low build cathodic electropaint which offers an attractive combination of properties including good clarity, good resistance to chemicals and UV light, and good corrosion protection over a wide variety of metals. Being designed to produce thin coatings, it is particularly suitable for tarnish protection of silver and brass plating where high performance is not at a premium, but where control of finishing costs is significant. Also, the low build and reduced flow characteristics of this product make it highly suitable for bulk finishing applications.

2. SUPPLY FORM

The base resin concentrate of CLEARCLAD DV200 is a tan colored, free flowing liquid of moderate viscosity, packaged in 20 kg metal pails. Other packaging types and sizes may be available on request.

3. SUPPLY SPECIFICATION

This will vary according to product type. The base resin concentrates are supplied in ready-to-dilute form, solids content 45 - 50% by weight (determined gravimetrically at 120C for 1 hour).

4. METHOD OF DILUTION

CLEARCLAD DV200 concentrate should always be pre-mixed with either high purity de-ionized water, or bath material at coating solids, when making a new bath or replenishing an existing bath respectively.

Pre-mixing must take place in a suitable clean vessel equipped with a motorized stirrer. Diluting material is added gradually to the concentrate, under stir, until a solids content of less than 18% is achieved. At this stage, at least 10 minutes stirring is applied to achieve complete emulsification. Subsequently, this pre-mix may then be further diluted to the required solids or added to the bath as appropriate.

CLEARCLAD DV200 concentrates must never be added directly into de-ionized water or into the bath without this pre-mixing procedure.

5. CONDITIONING OF NEW BATHS

A period of at least 24 hours, and preferably 48 hours, should elapse between initial bath make up and commencement of production. During this time, the bath should be kept circulating through adequate particle filtration at its normal operating temperature, and at least one bath volume of ultrafiltrate permeate should be eliminated. Solvent loss due to permeate elimination is not significant, but the MEQ (corrected) should be maintained at a minimum value of 30 by appropriate additions of CLEARCLAD Emulsion Stabilizer.



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6. BATH OPERATING PARAMETERS

<i>Parameter</i>	<i>Range</i>
Solids %w/w	8.0 - 10.0
pH	3.7 - 4.3
Conductivity microsiemens/cm	400 - 700
MEQ @ 10% solids	30 - 45
Solvent PM A264 %w/w	3.0 - 6.0
Operating temperature	23 – 29°C (73 - 84°F)
Coating voltage	30 - 120 dependent upon load type and required Thickness
Coating time (seconds)	20 - 90 as above
Curing schedule	130 to 180°C (266 – 356°F) metal temperature: 60 minutes @ 130°C to 15 minutes @ 180°C
Particle filtration	1 micron cartridge type for clear or tinted products.
Ultrafiltration	Preferably used in conjunction with TRAP UF/ion exchange system. Approx. 10% permeate production should be routinely eliminated on a continuous basis.
Bath heating/cooling	Where applicable, this should be indirect through a heat exchanger.
Circulation	Continuous pumped circulation from a skim weir and return via submerged sparge pipe. Turnover rate for clear and tinted systems is 3 - 5 bath volumes per hour.
Anodes	316 grade stainless steel. Anode:cathode ratio 1:1
Bath turnover rate	In order to maintain the optimum properties, the feed replenishment rate should be consistent with one bath turnover within three months.

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7. ASSESSMENT OF CURE

This appropriate degree of cure (polymerization) should be established for the particular application and this should be related to the resistance to a solvent rub test. In this way, a quick end-of-line test for correct degree of cure can be established. Obviously, this is a destructive test even in the case of a pass, and so when it is applied to selected production pieces as part of a quality control procedure, the pieces should be discarded or re-worked as appropriate.

8. COVERING POWER

One kilo of the base resin concentrate of CLEARCLAD DV200 will apply a coating of 1 micron over approx. 450 sq.meters (4844 sq. ft.) assuming 100% efficiency. The advantage of DV200 being low build is that a very even thickness distribution is possible. In this way, high relative thicknesses in the high current density areas is avoided. This enables cost-effective processing for applications where finishing costs are marginal. Near to 100% efficiency can be achieved using closed-loop ultrafiltration reclaim. Without a reclaim system, efficiency and consequently covering power will reduce. Tinted" systems, using relatively low concentrations of colorants, will have covering power very similar to the base resin concentrate.

9. RESISTANCE OF CLEARCLAD DV200 COATINGS TO ULTRAVIOLET LIGHT

CLEARCLAD DV200 has good intrinsic resistance to UV light. However, due to its characteristic low coating thickness, it is not recommended for use as a tinted system where fade resistance is at a premium. Other CLEARCLAD products such as HSR are more suitable for such applications.

10. CORROSION PROTECTION AFFORDED BY CLEARCLAD DV200 COATINGS

The resistance to corrosion of any coated metal is always determined by the particular "system" - which means a combination of the base metal, its pretreatment, the type of coating applied, and the thickness and type of pigmentation of the coating.

CLEARCLAD DV200 is effectively a one-coat paint system. Accordingly, its corrosion-protective properties will be principally influenced by its thickness and quality of adhesion to the base metal. In this way, DV200 will provide a barrier (optimized by its thickness) to corrosive agents, and a resist against spread of corrosion (optimized by its adhesive strength). Further than this, the intrinsic corrosion resistance of the base metal should be optimized, for example by chromating of the substrate metal where appropriate.

Note that for significant corrosion protection without change in decorative properties, electropassivation using weak dichromate-based processes is preferred over simple immersion passivation using chromic acid based processes.

11. WEAR AND ABRASION RESISTANCE

CLEARCLAD DV200 has good intrinsic abrasion resistance (as determined by ASTM D968 Falling Sand test - 25 liters/25 micron thickness) when fully cured. Absolute abrasion resistance is limited by available coating thickness.

For Health and safety data see separate MSDS