ISO 9001:2015, 14001:2015, 45001:2018 & RoHS Certified

SMG CoateX

A Chemistry For Performance

Manufacturer of Electrophoretic & Spray Lacquers, Anti Corrosive Paints Coatings and Epoxies Color Dyes & Pigments, Plating Chemicals & Brighteners. Sealants & Adhesives.

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TUFF X-60

TUFF X-60 is PU (Polyurethane**) lacquer with high solids. Blended to used as for clear coat and as to mix with acrylic dye lacquer. It is perfect lacquer for clear coat on GPC jewelry. Mostly fixed with acrylic lacquer to enhance life and pencil Hardness. The uniform DFT coverage to low density area and carved items is one of the prominent features for jewelry manufacturers.**

Supply Material Data –

Test	Specification	Unit
Color	Pale Yellow	NA
Viscosity	15-20	Pas
Density as per DIN 53217	1.0-1.1	G/CCM
Non Volatile Solid Content	59	%
MEQ value (100% Solids)	39 - 41	mMOL
Shelf life Storage 4° to 35° C	Maximum -12	Months
Hazard category as per VbF	NA	NA
Solid Contents (150° C/1 Hour)	54	%
Flash Point as per DIN 53213	>21	° C

A) Procedure for Bath Preparation:

Formula (For 10 % solids i.e. Refractive Index = 16)

Part A - DM water	=>	810 grams/ml
Part B – Supply resin	=>	190 grams
Total - Bath volume		1000 grams

Mixing Procedure:

Weigh exactly 810 grams (or ml) of DM water (part A) in cleaned 1.5 liter of container. Weigh 190 grams of supply CED lacquer in another small container (part B). Add Part B to Part A under gentle stirring. Rate of addition should be such that entire addition should be finished not before 15 minutes. As the entire quantity is transferred to DM water, continue stirring for another 20 minutes. Care to be taken to avoid generation of foaming in large quantity.

Allow foam to settle down before bath is taken for coating. It is highly desirable to filter the bath material through 600-800 mesh to remove any impurities in the bath coming from DM water or apparatus used for making the bath. After complete homogenization bath may be filtered through filters ranging from 0.2 to 1.0 micron.

Note:

1) It is recommended to give aging of 2 hours before taking through UF unit and start of production.
2) For jewelry items (low DFT), it is recommended to make bath with lower solids of 10 %.(Refractive index = 16 & above.)
3) For lacquer addition into the running bath, it is recommended to take 10 liters of bath solution for mixing of 1 kg of lacquer.
4) Maintain the PH level of the bath around 4.5 to 5. Control it with the addition of PH stabilizer, the quantity as suggested by the technical persons.
5) Use Solvents only, as per requirement.
6) *Strictly recommended to use only SMG COATEX dyes & solvents.*

B) Procedure for rinses (Drag out Solution) Bath Preparation:

Formula (1000 ML)

Part A - DM water	=>	990 ml
Part B – Refractive	=>	10 ml
Total - Bath volume		1000 grams

Mixing Procedure:

Measure exactly 10 ml of rinses Aid solution (Part B). Measure 990 ml of DM water in a container. Add rinses Aid solution to the DM water under stirring in 5 Minutes. Ensure complete mixing before stirring is stopped.

Note:-

1. Ensure proper cleaning of the apparatus before making the bath.
2. Use Plastic/ Glass/ SS apparatus for mixing.

C) Procedure for use of Dye :

SMG COATEX approved dye (water/ solvent based) or standardized dye solution may be used to impart any specific color to lacquer film as required by the customer. But care to be taken to add the required quantity of dye to supply resin material and then bath be made.

Note:- No dye solution should be added directly in the bath as it may hamper the bath solution

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D) Bath conditioning For Dye Bath:

1. For jewelry items where DFT required is less than 10 microns, bath may be given a overnight aging.
2. Maintain the PH of the bath around 4.6
3. For high buffed jewelry surfaces, add SOLVENT 2 around 20 ml per kg lacquer.
4. Run the ultra filter and keep the REFRACTIVE INDEX of the permeate below 2.5

E) Bath conductivity Control:

Conductivity of bath rises continuously on regular production. Regular dumping of permeate is recommended to control the conductivity. Though conductivity limit is 1100 uS/cm , it is recommended to control below 900 uS/cms.
Following Bath solvent level needs to be adjusted after dumping ultra Filtrate.
SOLVENT 1; SOLVENT 2; FLOW CONTROL AGENT.

F) Bath Processing Parameters :

Test	Specifications	Units
Substrate	Surfaces with any kind of plating or pure metal/ alloys	
Specific conductivity @ 25^{O} C	Maximum 900	uS/cms
Bath solids 120^{o} C/1 Hour	8 – 10	%
Deposition Time	30 – 60	Seconds
Coating Voltage	65 – 80	Volts
Deposition Equivalent	35 – 45	As/gm
Ramp Time	25 – 35	Seconds
Bath Temperature	25 – 35	Degree C
Coating Thickness	5 – 20	Microns
PH Value @ 25^{o} C	4.5 to 4.8	-
MEQ value (100% solids)	39 - 41	mMol
Density of Solids	1.0 – 1.15	G/ cc
Theoretical coverage	10 Micron DFT	19 gms- supply material- m^2
Baking Time	150^{o}	60 Minutes
Flash off/ Pre drying Zone	Hot Air Blow	-

Note: Testing on Brass Panel.

G) Mechanical Characteristics of Dry Film

Gloss / Clarity	High gloss & clarity
Adhesion (1mm*1mm)	Passes 100%
Pencil Hardness	5H
Cupping test (Din – ISO 1520)	> 5 mm
Mandrel bend test (DIN – ISO 1520)	Passes 5.3 mm
Impact resistance 980g/20cm/2 inch	Passes direct / indirect

Note: It is recommended to check the hardness & perspiration cycle test after 72 Hours of the coating of the surface.

H) Chemical Characteristics of the Dry Film :

Acetone Rub Test	Passes Min 216 On Brass Panel
Acid Resistance (N/ 10 HCL)	Passes Minimum 70 Dip Hours
Alkali Resistance (N/ 10 NAOH)	Passes Minimum 87 Dip Hours

I) Corrosion protection of the Dry Film :

Salt Spray Test (ASTMB 117)	Passes Min 136 Hours
Water Resistance	Passes Minimum 113 Hours
Humidity Resistance (IS 101)	Passes Minimum 113 Hours

Note : - Lacquer film DFT = min 15Microns.

J) Out Durability of the Dry Film:

Weather -0-0meter Sunshine	Min 567 Hours
Xenotest 150	Min 567 Hours

Note:-

1. *Performance of Lacquer is dependent upon quality of electroplating & surface Processing parameters .In case of coating with dye, outdoor durability of coating depend on upon the light – fastness of dye used.*
2. *This is general procedure of bath commissioning SMG COATEX technical person should be consulted before commissioning the for possible variations in this procedure for special application.*

   This information complies with present state of our knowledge and intended to provide information concerning our products and their possibilities for operation. In that capacity, then it does not possess the significance of legally enforceable assurance of the specific characteristic of products or of their suitability for a specific application.

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