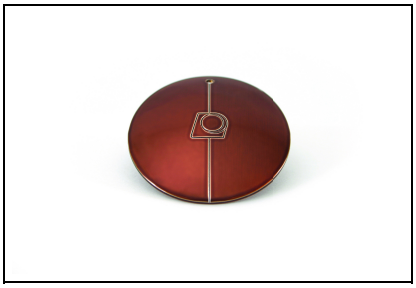
Technical data sheet and product guideline

KLIAR-BRW1

Brown colored nano-ceramic e-coating (1 L)



Product form

Form	**Liquid**
Material color	**Brown**
Storage time	**6 month**
Format	**Ready to use**
Chemical type	**Acidic**
Volume	**1 liter**

Operating data

	Range	Optimal
Voltage (V)	**40-60**	**50**
Working temperature (°C)	**20-26**	**23**
Exposure time (sec)	**10-40**	**20**
pH	**3.7-4.3**	**4.0**
Anode/cathode ratio	**2:1**	**2:1**
Anode type	**316 L Stainless steel**	
Agitation	**Moderate**	

Deposit data

Hardness (pencil)	**2H**
Thickness (um)	**5-20**
Appearance	**Shiny**
Color	**Brown**

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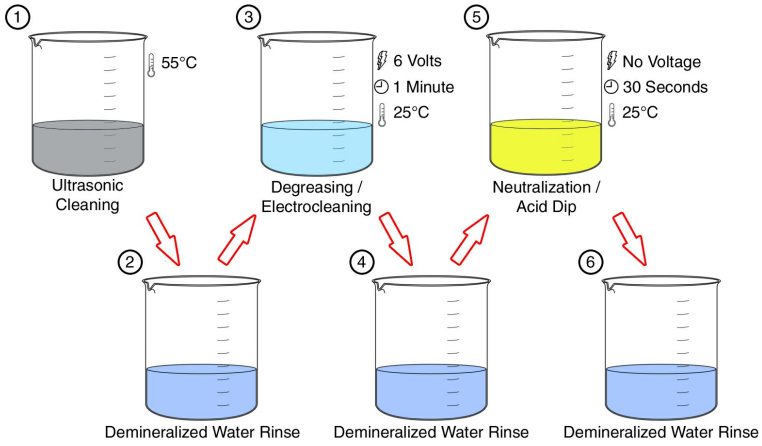
Equipment

It is advised to use plastic vessels (PP) or glass (Pyrex). Do not use stainless steel or iron. The equipment should offer the basic requirements as indicated in the following sequence:

- Ultrasonic cleaning with detergent
- Electrolitic degreasing
- Recovery with normal water (2 recoveries are advised)
- Final rinse with demineralized water by sprinkling or by a ultrasonic device
- E-coating treatment, stabilized at a temperature of 20-26° C, provided with a 40 to 60 volts rectifier
- Recovery (2 recoveries with normal water)
- Final rinse in demineralized water by sprinkling
- Drying to air (min 5 to max 30 minutes)
- Drying in furnace (120-150° C for 30-40 minutes)
- Ultrafiltration/demineralization unit for the e-coating and the first recovery vessel if the plant capacity is higher than 150-300 liters



Bath maintenance

KLIAR-BRW1 SUSPENSION MAINTENANCE

In order to obtain stable performances, it is required to check the dry weight residue on regular basis. The dry weight should remain to a 9-11%. In order to determine the dry weight, place 10 g of liquid on a aluminum foil and heat it at 180° C for 45 minutes. Weight the residue, whose optimal value should be around 1-1.1 g. It is recommended to run this analysis once a week, but according to the use, a more frequent check could be necessary. If the dry residue should be below 10%, it is necessary to replenish the suspension with 12-15 g/l of concentrated suspension for every percent of dry weight below the reference value (10%). The concentrated replenisher consists of the pre-mixed concentrated resin, ceramic and pigment components in the same ratio used to prepare the ready to use solution (see first paragraph). Do not add the three components separately.

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Product usage

OPERATING CONDITIONS - GENERAL RECOMMENDATIONS

An optimal voltage for e-coating application should be around 50 volts. Current density is low and decreases rapidly after the first seconds of treatment, due to the insulating properties of the deposit itself. Optimal treatment time is around 15-30 seconds. In order to keep in good efficiency the e-coating liquid suspension, it is extremely important to avoid any contamination of the KLIAR-BRW1 suspension from the previous stemps. Slight increase of salinity may negatively impair the e-coating performances, leading to clots formation.

CIRCULATION

Continuous pumped circulation from a skim weir and return via submerged pipe. Circulation turnover rate is 8 - 10 bath volumes per hour.

BATH TURNOVER RATE

In order to maintain the optimum properties, the feed replenishment rate should be consistent with one bath turnover within three months.

WORKING ENVIRONMENT

It is particularly important the quality of the air and the cleanliness of the working environment. Since the e-coating is sticky before the heat treatment, any air-borne particle may adhere on of the pieces causing surface defects. This problem may become particularly evident on large and flat surfaces (e.g.: medals, trays, etc.). If treated pieces are items with small surfaces (e.g.: chains) the risk for defects from airborne particles is less evident. In order to obtain the highest surface quality, it is recommended to place the equipment in a cleanroom.

Supplementary information

COATING REMOVAL

The coating can be worn-off by using the standard lacquer/varnish removers available on the market.