

UNIQUE GLO

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Photoluminescent Ink Preparation and Operating Instructions.

Photoluminescent ink is a new product produced by adding luminescent powder (additive) into transparent ink. It can give rise to a light radiation effect that general inks lack. Since it has strong adhesion, is highly heat resistant and wear resistant, it is applicable to surface printing or coating on all kinds of paper, textiles, wood wares, plastic, metal, pottery and other material.

Photoluminescent ink is consisted of photoluminescent pigment, organic resins, organic solvents, and assistants. The specific method of preparation is as follows:

1. Applicable to neutral transparent resins (transparent ink);
2. Made from photoluminescent pigments that have comparatively smaller particle sizes;
3. The photoluminescent pigment accounts for 30-60% of gross quantity by weight, or its ratio in the mixture is determined in accordance with the requirement for luminance. The higher the content of photoluminescent pigment in ink is, the stronger the luminescence in patterns printed with photoluminescent ink and the longer the duration is.
4. When the photoluminescent ink is precipitated, a vessel lined with glass or ceramic can be used to mix the ink at a high speed to disperse the photoluminescent pigments.
5. To minimize precipitation, highly viscous resin or anti-sediment agent can be added into the mixture and stir until it becomes homogeneous before use.
6. **Do not use heavy metal compound as an additive.**
7. Transparent inks of proper style should be selected in accordance with the nature of the recipient. For example, for metal recipient, ink for metal use should be used and for PVC recipient, ink for PVC use should be selected.

Photoluminescent Ink Operating Instructions: Silk Screen!

1. Ink viscosity is between 3000 and 5000 P. Therefore, thinner has to be used to regulate the ink viscosity in response to printing rate.
2. To acquire a print pattern with better light radiation effect, a silk screen of 200 meshes or below can be used for printing. As ink is thinner when low-mesh silk screen is used, patterns of ideal luminescence effect can be obtained. It is recommended to use silk screen of 80-120 meshes.
3. **A White base undercoat for the luminescent coating for printing on a dark substrate can improve pattern luminescence and light radiation duration.**
4. To obtain a pattern of ideal luminescence, the film thickness of photoluminescent ink should not be less than 100um. When the thickness of photoluminescent coating is generally between 150 and 200 um, the optimal luminescence can be acquired..

Case Study:

Corresponding transparent ink: 60%

PLG -12GG / 45 – 55 (um) 40%+

Coating Preparation & Operating Instructions

The photoluminescent coating is consisted of photoluminescent powder, organic resins, organic solvents, and assistant components. When the coating becomes a film, it can give off luminescence in darkness for continuous 12 hours after 10-20 minute absorption of light, and this light absorption and radiation process can be infinitely cycled during use. It has excellent weather and light resistance.

The preparation method of photoluminescent coating is as follows:

1. Select neutral or weak acid organic resin of good transparency, such as polyurethane resin, acrylic resin, epoxy resin, polyester resin, PVC resin, polyvinyl butyric resin, and so on;
2. Photoluminescent powder can be used; however, proper photoluminescent powder is required in correspondence with different applications.
3. The photoluminescent pigment usually accounts for 20-50% of the gross quantity by weight, or its ratio in the mixture is determined in accordance with the requirement for luminance and duration.
4. To minimize precipitation, highly viscous resin or anti-sediment agent can be added into the mixture and stir until the mixture becomes homogeneous before use.
5. A simple method is to mix clear varnish and photoluminescent powder directly and stir homogeneously before it is ready for use.

Photoluminescent Coating Operating Instructions:

1. Suitable for brushing, roll coating, spray coating, spread coating, and curtain coating operations;
2. The optimal luminance will not be obtained until the photoluminescent coating reaches to a certain thickness; therefore, the minimum thickness of photoluminescent coating should be at least 100-150um (spray coating twice).
3. If the base color is not white, white acrylic polyurethane paint can be used as primer and sprayed with photoluminescent coating when the primer is dried.
4. Applying clear varnish finish onto the photoluminescent coating can enhance its gloss and weatherability.
5. A specific amount of photoluminescent coating should be prepared at the site based upon the specific demand of quantity. The viscosity of the coating can be regulated with thinner in response to construction requirements.

Case Study:

Component Quantity

Component 1: Photoluminescent powder 120-170 grams

Component 2: Acrylic acid resin 100 grams

Component 3: Dedicated thinner Proper

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