



PH-745 PHOSPHOR BINDER & THERMAL CURE DIELECTRIC

Description

PH-745 is a thermal cure binder designed to be mixed with microencapsulated phosphor powder to product screen printable pastes suitable for printing uniform layers of phosphor inks in electroluminescent (EL) panels.

It can also be used out of the jar as a thermally-cured clear dielectric for electrical insulation of printed conductive traces and crossovers.

Features

- Solvent-based, screen printable binder or dielectric
- Flexible thermally cured layer
- Excellent toughness and resistance to water and oxygen
- Excellent capacitive properties allow for applications in EL panels
- Adheres well to ITO (indium tin oxide) substrates
- Excellent wet out capabilities allow for dispersion of large amounts of phosphor powder using low shear mixing processes when used as a binder
- Compatible with the complete range of commercially available phosphor powders
- Allows screen printers to blend phosphor ink as needed, avoiding issues with shelf life and damage to phosphor particles when remixing ink that has been stored for long periods

TYPICAL PROPERTIES

Appearance	Clear or colored thixotropic liquid
Viscosity: Brookfield DV-III Ultra, 25°C, SC4-14 spindle @ SR 20	As tested, without phosphor powder
Total % NV Solids	24.00 - 26.00%

Application Guidelines

PH-745 should be kept in a sealed container in ambient conditions until ready for use. If material is stored for long periods of time, or the container is left open repeatedly for long periods, the percent solids of the binder should be tested before use.

Recommended starting ratio of blending is between 55 and 70 parts of phosphor powder by weight to 100 parts of PH-745. When mixing the binder, DO NOT use high-speed, high-shear mixing methods since this may damage the surface of the phosphor powder. Recommended mix method is to add phosphor to PH-745, mix gently with non metallic spatula, and place sealed container onto a jar roller at slow speed (<100 rpm) for 12 to 24 hours. DO NOT add any grinding media to the jar, such as metal nor ceramic beads.. The mixing jar should be filled no more than 2/3 full to allow for optimal mixing on the jar roller.

Once mixed, test prints can confirm how well the phosphor powder is dispersed. If material sits for long periods after mixing, it can be remixing by



turning any settled material up from the bottom of the container using a spatula, and then jar rolling for 12 hours.

Screening

Use monofilament polyester screens from 240 to 380 mesh, with emulsion thickness from .001" to .003". For thicker coatings, use smaller mesh sizes and thicker emulsions. Stainless steel mesh is not recommended. A polyurethane squeegee with a Shore 'A' durometer between 60 and 70 is recommended. For high speed gravure printing, adjustment of viscosity with appropriate solvent may be needed. Suitable solvents are carbital acetate, dibasic esters and gamma-butyrolactone.

When printing PH-745, it is essential to make a uniform film without pinholes or voids. Sometimes it is necessary to use a wet-wet print sequence. This allows for more efficient packing of the binder on the substrate, and gives more uniform phosphor distribution and greater density of phosphor material in the dried film. In general, two separate print layers will be required. The dry film thickness for best dielectric properties is 30 microns or more.

Drying

It is essential that PH-745 be dried completely after printing. Any residual solvent can compromise the performance of the finished product. PH-745 can be dried completely in 3 to 8 minutes at 140°C depending upon air flow, dryness of air and heat sources in oven. Lower temperatures will require more time to complete drying. PH-745 is cured when the surface is smooth to the touch instead of tacky or sticky.

Cleanup

Use Solvent 20 or appropriate screen cleaner for cleaning screens or thinning. For other solvent recommendations for cleaning or thinning, contact Kayaku Advanced Materials.

Storage and Shelf Life

Shelf life is 1 year in unopened container, if stored in a dry area at 25°C (room temperature). Do not use product after the expiration date.

Disposal

The material and its container must be disposed in accordance with all local, state, federal and/or international regulations.

Handling

Consult Safety Data Sheet (SDS) for details on the handling procedures and product hazards prior to use. If you have any questions regarding handling precautions or product hazard, please email productsafety@kayakuAM.com.

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