

## SPRAYABLE TLC COATINGS

### SPN100 and SPN300 Series

Two series of TLC coatings are available. Both are aqueous, acrylic-based and designed for application by spraying through an airbrush or similar compressed gas sprayer. They have good adhesion to most surfaces and matt and gloss finishes are achievable by varying the coating thickness.

**SPN100 Series** - For optimum color brightness and ease-of-use.  
They can be removed easily by washing with water.

**SPN300 Series** - For some degree of water resistance.  
They can be used underwater for limited periods of time.

Note: Once formulated, SPN300 Series coatings have limited lifetimes before the color play profile changes and the color brightness diminishes. The coating is supplied as a 2-part system and it is recommended that the coatings are made up immediately before use. Useful lifetimes are not more than four (4) weeks from the date of mixing.

The use of microencapsulated sprayable TLC coatings overcomes many of the problems associated with using unsealed TLC mixtures, although the reflected colors are less bright. Applied as a thin film, the coatings will dry to give a finish, which will resist light abrasion. They can be sprayed directly onto the test surface and are particularly useful when the surface is not flat.

#### PACK SIZES

250g and 500g

**Note:** *Since all SPN Series coatings are manufactured to order, 250g is the minimum order quantity.*

**GUIDELINES FOR USE**

1. Clean surface thoroughly to remove all dirt, grease, fingerprints, etc. Acetone, petroleum ether, and other common organic solvents may be used. Ensure that the surface is completely dry before proceeding.
2. **Coat surface black.** If the surface is already black or sufficiently dark, the TLC coating may be applied directly. Black water-based paints SPB100 and SPB300 are available which will air dry in 20-45 minutes when sprayed through a good quality compressed gas sprayer like an artist's airbrush. Applying the black paint by brush is not recommended, as uneven coatings affect the thermal response properties of the TLC. The black coating must be completely dry before the TLC coating is applied.
3. **Apply the TLC coating.** The TLC coating may separate to some extent on storage, and should be mixed thoroughly before use. The following instructions are a guide to provide the user with a starting point from which to optimize the application techniques (coating thickness, etc.) specific to their needs. Minimum application, surface and drying temperatures of 20°C are required for best results.
  - i. Spray through airbrush (15-20cm) above substrate surface.
  - ii. Air brush pressure = 20 psi/1.41kgcm<sup>-2</sup>/1.3 bar (approx.)
  - iii. Drying times at 20-25°C are 30-45 minutes for SPN100 and 20-30 minutes for SPN300, depending on coating thickness. This can be accelerated by gently blowing warm air onto the coating.
  - iv. The coating thickness alters the surface texture. Thin coats are matt and slightly rough. Thicker coats flow together more, giving smoother gloss finishes.
  - v. Coating thickness and surface texture will affect the brightness and shade of the color produced, and may also affect the temperatures at which each color appears. Generally, the thicker the coat the lower the onset of color. Too thick a coating results in the normally bright colors appearing milky, more noticeably at the red end of the spectrum.
  - vi. Optimum dry film thicknesses are around 10 microns. To achieve this, a total wet film thickness of around 100 microns will need to be applied. Best results are likely to be achieved by building up the coating gradually, drying between applications.
  - vii. 250 grams should be adequate to cover 2.5m<sup>2</sup>.
4. The microencapsulated TLC coating is now ready for use. The color play should be checked and calibrated if necessary. Prolonged exposure to temperatures in excess of 70°C should be avoided if possible.
5. **Cleaning up:** Dry SPN300 coatings have a good degree of water resistance. They can be removed by vigorous scrubbing with hot, soapy water or, alternatively, acetone. SPN100 coatings can be easily removed by washing with water.
6. **Storage:** Ideally, all TLC coatings should be stored in a refrigerator at 5-10°C but **MUST NOT BE FROZEN**. They should be allowed to warm up to room temperature (20-30°C) before use. Surfaces coated with microencapsulated TLC coatings should be stored out of UV light, and in a solvent free environment. Ideally, no stress should be applied to the coated surface. The color play response should be checked at regular intervals to ensure that no loss of calibration has occurred. If stored correctly, microencapsulated TLC coatings have a useful shelf life of at least 6 months.

**TO MAKE TLC COATINGS YOURSELF**

Use the appropriate SLN40 Series TLC slurry and binder: CC100 for SPN100 Series and CC300 for SPN300 Series. Add the binder to the slurry, 3 parts binder to 1 part slurry, with thorough mixing. Both the binder and slurry should be mixed well before use. Ideally the finished coating should also be filtered before use.