# RADIANCE SA50 UV Curable Protective Coating
# Technical Data Sheet

RADIANCE SA50 is a single component, high solids, UV curable, acrylated polyurethane protective coating that has been formulated specifically for increased adhesion to anodized aluminum substrates. The material possesses excellent chemical resistance, surface hardness, and is tack-free after exposure to UV light. A secondary moisture cure mechanism will cure unexposed areas of the coating within 7 days at ambient conditions. The coating fluoresces under UV light to allow coating inspection.

## Properties of RADIANCE SA50

| | |
|---|---|
| Density | 1.10 g/cm$^3$ |
| Minimum Solids Content | 95 % |
| Viscosity, per Fed-Std-141, Meth. 4287 | 4000 - 10000 centipoise |
| Recommended UV Cure* | See curing section below |
| Recommended UV using Arc Technology** | 10 – 20 J/cm$^2$ |
| Shelf Life at Room Temperature, DOM | 12 months |
| Glass Transition Temperature - DSC | 63 °C |
| Hardness, Shore D | 60-70 |

*Microwave UV cure ovens equipped with “H” style bulbs recommended
**UVA bulb

## Application of RADIANCE SA50

Cleanliness of the substrate is of extreme importance for the successful application of a protective coating. Surfaces should be free of moisture, dirt, wax, grease, and all other contaminants. Contamination under the coating could cause problems that may lead to assembly failures.

**Brushing**
RADIANCE SA50 can be brush applied. The use of solvent or thinners is not recommended. Uniformity of the film depends on operator technique. The brushing should be done with adequate ventilation so that the vapor and mist are carried away from the operator.

**Dispensing**
RADIANCE SA50 can also be applied by automated needle dispensing systems.

**Curing**
RADIANCE SA50 is a highly cross linked coating. In order to achieve maximum cross linking density the product must be exposed to the correct spectral output. The table below outlines the required dosage and irradiance values necessary to properly cure RADIANCE SA50 using an arc style UV cure oven. After UV exposure and return to room temperature the coating should be tack free.

| | DOSE J/cm2 | | | | IRRADIANCE W/cm2 | | | |
|---|---|---|---|---|---|---|---|---|
| | UV A | UV B | UV C | UV V | UV A | UV B | UV C | UV V |
| MIN | 0.700 | 0.700 | 0.150 | 0.750 | 0.700 | 0.700 | 0.150 | 0.700 |
| MAX | 3.000 | 3.000 | 0.600 | 3.500 | 1.150 | 1.150 | 0.240 | 1.300 |

*Values measured with a Powerpuck II UV radiometer*

RADIANCE SA50 was designed to be cured using a microwave UV oven equipped with an “H” style bulb.

Hand-held arc lamp systems can be used to cure RADIANCE SA50, however care must be taken during the equipment selection process to ensure minimum dosage and irradiance values can be obtained. The typical dosage and irradiance ranges (UVA/UVB) for these systems are 10-20 J/cm$^2$ and 0.350 – 0.365 W/cm$^2$ (UVA bulb), respectively. Care must be taken when using these systems to ensure the material does not overheat and become discolored. Please note: the material's properties, including hardness, are fully optimized by completion of the secondary moisture cure process. For additional cure information please contact HumiSeal technical assistance.

RADIANCE SA50 also has a secondary moisture cure mechanism which will cure unexposed and shadowed areas of the coating within 7 days at ambient conditions. This secondary curing process will impart additional adhesion and chemical resistance to the coating, so it is recommended to allow the moisture cure to complete before putting coated parts into rigorous service environments. Relative humidity should be above 50% R.H. for optimized moisture cure.

**Clean Up**
To flush equipment and clean uncured RADIANCE SA50, non-alcohol based solvents, for example n-butyl acetate, toluene, MEK etc. should be used.

**Rework**
RADIANCE SA50 is a highly cross linked UV cured coating. The cured film has a high degree of environmental and chemical resistance and will be more difficult to remove. Thermal displacement and mechanical abrasion are suitable options for removal of RADIANCE SA50.

**Storage**
RADIANCE SA50 is photosensitive. The product should not be exposed to direct sunlight or full spectrum fluorescent lighting. RADIANCE SA50 should be stored away from excessive heat, in tightly closed containers at 0 to 25°C to ensure maximum shelf life is achieved. Prior to use, allow the product to equilibrate for 24 hours at room temperature. RADIANCE SA50 is a moisture curing material and care should be taken to protect process vessels and partial containers from moisture. Partial containers must be purged with a dry, inert gas such as dry air, nitrogen or argon before closure, otherwise premature polymerization by atmospheric moisture will occur.

**Caution**
Application of Protective Coatings should be carried out in accordance with local and National Health and Safety regulations.

Use only in well-ventilated areas to avoid inhalation of vapours or spray. Avoid contact with skin and eyes.

Consult MSDS/SDS prior to use.

## For further information on RADIANCE SA50 contact:

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