TECHNICAL DATASHEET

ABchimie836UV LED August 2022

Soft conformal coating, Curing by UV - Dual cure

PRODUCT DESCRIPTION

ABchimie836UV LED is a transparent single component conformal coating designed to protect printed circuit boards subjected to harsh environments. It has dual cure technology (UV - humidity) for crosslinking in the shadow areas.

ABchimie836UV LED is the third generation of dual cure conformal coating developed by ABchimie. This conformal coating shows the best dielectric properties in humid environment on the market (Log Ohm > 10,5, IPC CC 830, SIR according to IPC TM 650 2.6.3.4).

ABchimie836UV LED may be applied by selective coating machine which is the ideal way to apply.

ABchimie836UV LED is compliant with REACH and RoHS regulations. If you want a certificate, please contact us (info@abchimie.com).

FEATURES

- Excellent adhesion in harsh environments,
- Fluorescent under UV light to control of the layer of conformal coating deposit,
- Operating temperature range -65°C to + 150°C,
- Can be soldered through without fear of highly toxic gases being produced,
- Resistant to mould growth,
- Excellent dielectric properties,
- Very fast curing under UV LED exposure,
- Moisture cure for shadowed areas,
- No VOC,
- Floor space saving compared with solvent based,
- High speed process, increase of the productivity,
- Low viscosity for select coat machine (used on head SC200, SC280, SC300 and SC400),
- **Pending approval UL94 V0 and UL746E**

APPLICATION

ABchimie836UV LED can be applied by brush, spray or selective coating machine:

Recommended thickness	30 – 130 microns
Spraying	30-90 microns
Selective coating machine (film coater)	90-130 microns (380mm/s)

Minimum temperature of 16°C and minimum relative humidity of 50% are recommended

for coating application. The relative humidity of at least 50% is recommended for the second polymerization mechanism.

Before applying the printed circuit board must be clean, dry and free of moisture. PCBs are humidity sensor, it is important to remove it before coating application. A stage in an oven for 4 hours at 80 ° C is usually sufficient.

The varnish ABchimie836UV LED contains a fluorescent tracer which permit to check good varnish deposit, inspection of PCBs and facilitate inspection. The higher the fluorescence level, the higher the coating thickness.

PREPARATION OF THE PCB

PCBs must be free of moisture and perfectly clean (no dust, grease, wax…). Adhesion of the coatings is depending on substrate quality. All traces of flux should be eliminated because they can become corrosive and create malfunction of the circuit.

CLEANING

To clean equipment or clean uncured varnish ABchimie836UV LED, we recommend using SND or DNS solvent.

CURING CONDITIONS

ABchimie836UV LED cures with UV LED rays and moisture for the second cure mechanism.

UV LED Curing :

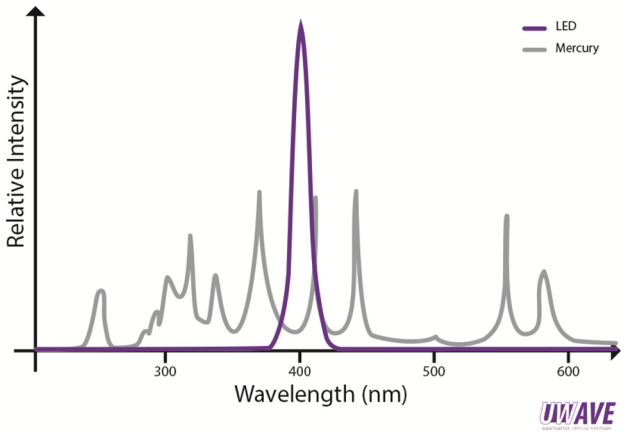
It is important to use the appropriate LED equipment, as well as the recommended settings for the best properties of ABchimie836UV LED:

LED lamp 395 nm
Distance LED light – varnish : 0 to 10cm
Minimum UVA2 dose : **3000mJ/cm²** (100µm)

A slight residual tack du to the oxygen in the air can appear. It disappears a few minutes after passing under the lamp.

The UV dose given is a minimum to guarantee a good level of cure of varnish. A higher dose of UV or a overexposure will not damaged the product.

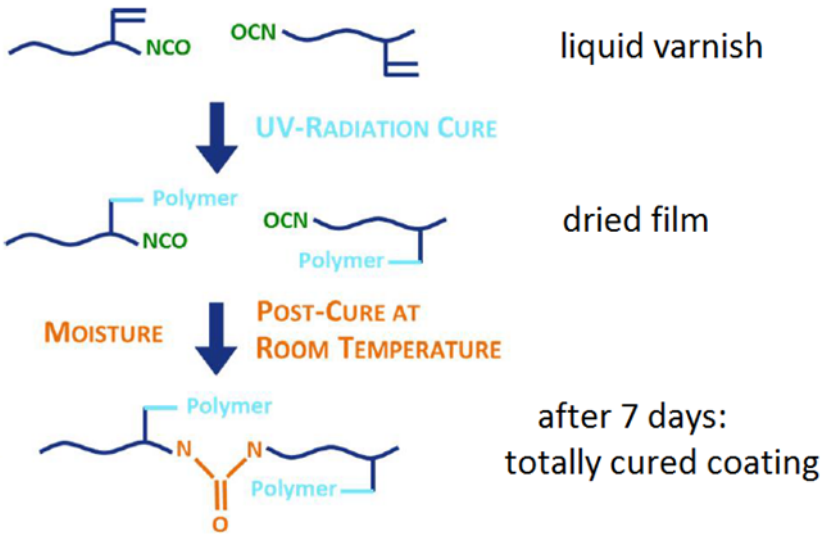
The following graph shows the wavelength range emitted by the LED lamp, different from the spectrum of a mercury lamp.



Moisture cure:

Ambient temperature, 50% minimum relative moisture for 7 days

Curing mechanism :



PROPERTIES

ABchimie836UV LED liquid

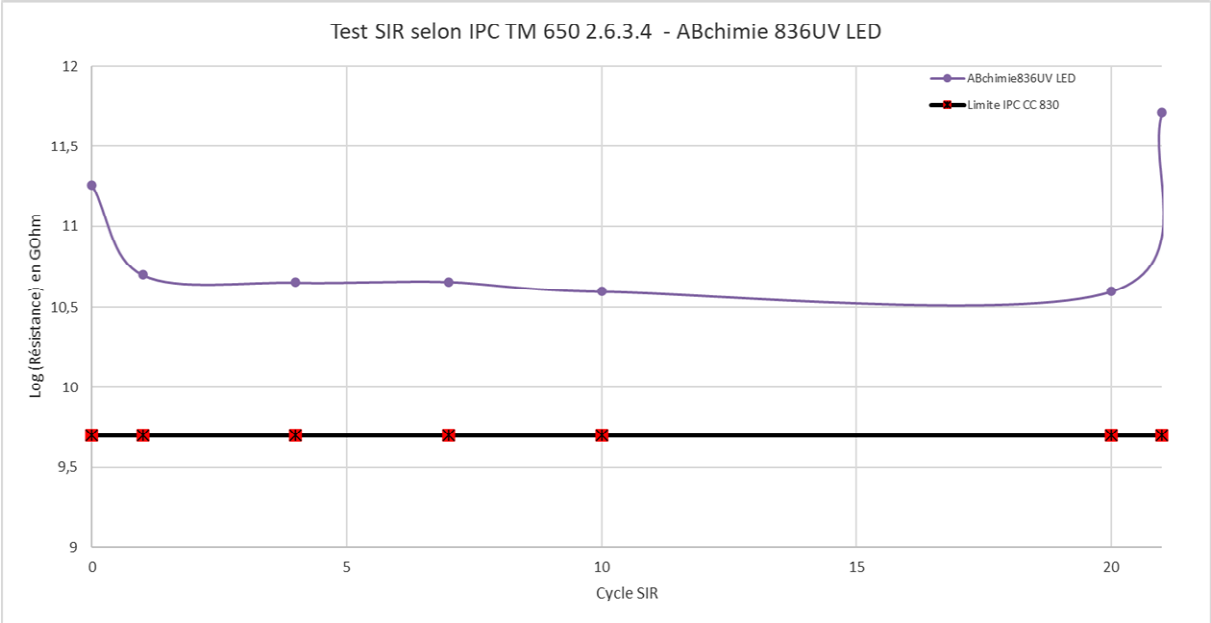
Base	Urethane Acrylate
Appearance	Transparent yellow
Non-volatile residue	> 98%
Viscosity at 25 ° C	50 - 100 cSt
Flash point	> 100°C
Film Thickness	30 to 130 microns

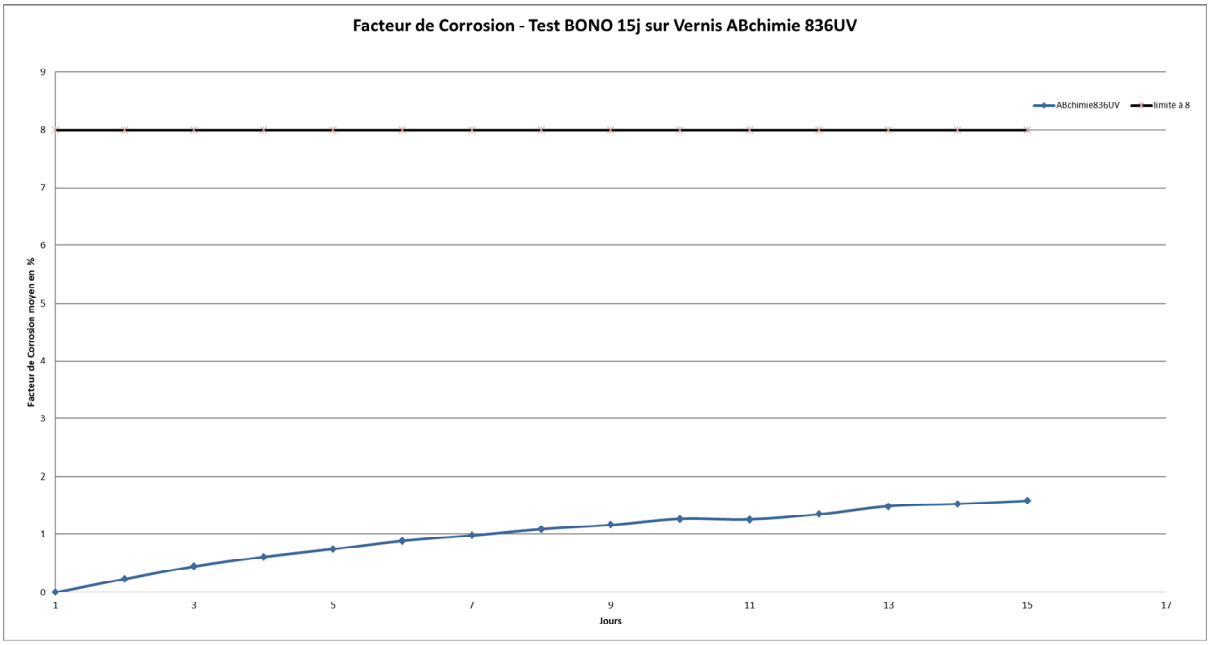
…

ABchimie836UV LED cured

Appearance	Transparent
Adhesion ISO 2409	Class 0 (excellent)
Volume resistivity	1 x 10^{14} Ohm / cm
Insulation resistance (Ω)	10^{12} (NF EN 61086)
Dieletric strength	60kV/mm

CTI (DIN EN 60112)	Pending
Tg	Pending
CTE (T < Tg)	Pending
CTE (T > Tg)	Pending
Insulation resistance in a humid environment	
SIR according to IPC TM 650 2.6.3.4	> 3,16 .10^{10} Ω
SIR according to IPC TM 650 2.6.3.3	> 1,5 .10^{9} Ω
BONO test	corrosion factor < 2 (coating alone)
Breakdown voltage	> 1500V AC
(according to IPC TM 650 2.5.7.1)	
Temperature range from	-65°C to + 150 °C
Varnish removal method	Mechanical (micro-abrasion)
	Locally with chemical stripper (DVP)
Auto-extinguishing	Pending





PACKAGING:	**REFERENCES**
ABchimie836UV LED	
1 liter	ABchimie836UV LED 01L
5 liters	ABchimie836UV LED 05L

PACKAGING:	**REFERENCES**
Cleaner	
Bulk 5 litres	SND 05 L

STORAGE AND SHELF LIFE:

Storage temperature: 5 to 30°C
A temporary lower or higher (maximum 40°C) temperature during few days (transport) doesn't distort varnish properties.
ABchimie836UV LED must be stored in an opaque container, sealed away from excessive heat, at temperatures not exceeding 40°C. The varnish ABchimie836UV LED cures under UV action, it musn't be exposed to any light source.
This varnish also crosslinking with moisture, make sure there is no moisture in the deposition process and in cans open. After opening a bottle, it is recommended to purge these cans started with a dry inert gas (nitrogen) to prevent polymerization of the coating during storage.

Shelf life: 12 months after the date of manufacturing

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification. ABchimie cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.