

ABchimie800UV ABchimie800UV LED

Sept. 2025

Soft conformal coating, high viscosity
Curing by UV / LED and Dual cure

PRODUCT DESCRIPTION

ABchimie800UV and ABchimie800UV LED are transparent single component conformal coatings designed to protect printed circuit boards subjected to harsh environments. It has dual cure technology (UV - humidity) for crosslinking in the shadow areas.

ABchimie800UV and ABchimie800UV LED are proposed with medium viscosity (>500cP) to be applied with select coating machine and Improve the Edge Coverage compared to traditional conformal coatings.

FEATURES

- Improved Edge Coverage,
- Excellent adhesion in harsh environments,
- High viscosity for low flowing,
- Fluorescent under UV light to control of the layer of conformal coating deposit,
- Operating temperature range -50°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 or UV mercury lamp,
- Moisture cure for shadowed areas,
- Low VOC,
- Floor space saving compared with solvent based,
- High speed process, increase of the productivity,
- Can be applied with select coat machine,
- **Qualification UL in progress**

APPLICATION

ABchimie800UV and UV LED can be applied by brush, spray or selective coating machine:

Recommended thickness 30 – 300 microns

PREPARATION OF THE PCB

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.

Varnishes ABchimie800UV and UV LED contain 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.

CLEANING

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.

To clean equipment or clean uncured varnish ABchimie800UV or ABchimie800UV LED, we recommend using SND or ABClean solvents (**no aqueous solutions**).

CURING CONDITIONS

It is important to use the appropriate UV equipment (UV or LED) as well as the recommended settings for the best properties of cured conformal coating. These parameters have some effects on the reactivity and the surface of coating.

ABchimie800UV and UV LED cure with UV rays and moisture for the second cure mechanism.

1- ABchimie800 UV LED - LED version

ABchimie800UV 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 ABchimie800UV LED:

LED lamp 395 nm

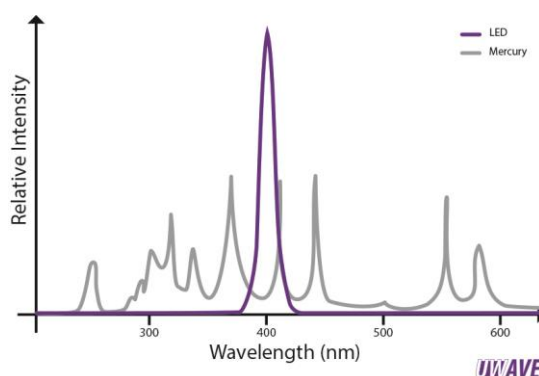
Minimum UVA2 dose : **3000mJ/cm²** (100µm)

Minimum UVA2 power : **500mW/cm²** (100µm)

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

The UVA2 dose is a minimum dose recommended. The intensity depends on the lamp power and the lamp distance. UV dose may be increased by a longer exposure time. A higher dose of UV or an overexposure will not damage the product. However a lower UVA dose can have a detrimental effect on product final properties therefore it is very important to ensure minimum recommended UVA dose is met with your curing system.

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



2- ABchimie800 UV - UV mercury version

UV Curing :

With an arc lamp (emitting UV from 200 to 400nm and IR up to 800nm)

Recommended parameters :

Curing equipment : **arc lamp (mercury)**

Distance UV lamp – PCB : **1 to 10cm**

Minimum UVA dose: **3000mJ/cm²** (100µm)

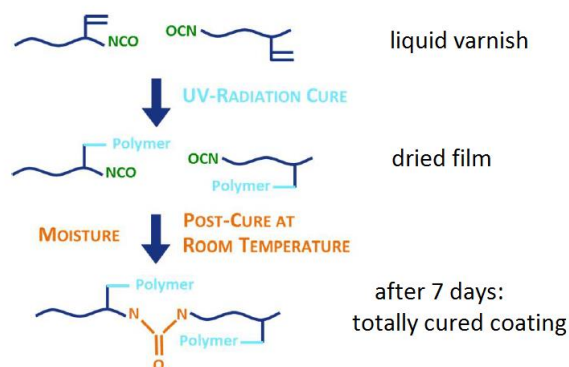
Minimum UVA power: **150mW/cm²**

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

The UVA dose is a minimum dose recommended. The intensity depends on the lamp power and the lamp distance. UV dose may be increased by a longer exposure time. A higher dose of UV or an overexposure will not damage the product. However a lower UVA dose can have a detrimental effect on product final properties therefore it is very important to ensure minimum recommended UVA dose is met with your curing system.

3- Moisture cure:

ABchimie800UV and ABchimie800UV LED have the same dual cure system, to assure curing in shadow areas. This curing is made at ambient temperature with 50% minimum relative moisture minimum for 7 days.



Curing mechanism with moisture

PROPERTIES

Properties are the same for ABchimie800UV and ABchimie800UV LED.

ABchimie800UV / LED liquid

Base	Urethane Acrylate	...
Appearance	Transparent yellow	
Non-volatile residue	> 98%	
Viscosity at 25 ° C	500 - 1000 cSt	
Film Thickness	30 to 300 microns	

ABchimie800UV / LED cured

Appearance	Transparent
Adhesion ISO 2409	Class 0 (excellent)
Insulation resistance (NF EN 61086)	$10^{12} \Omega$
Dielectric strength	60kV/mm
CTI (DIN EN 60112)	> 600V
Tg	40°C
CTE (T < Tg)	145 ppm/K
CTE (T > Tg)	210 ppm/K
Breakdown voltage (IPC TM 650 2.5.7.1)	> 1500V AC
Breakdown voltage (internal test method)	> 5000V AC
Thermal shocks (IPC TM 650 2.6.7.1)	-65°C/ +125°C, 30mn/30mn, 100 cycles
Temperature range from	-50°C to + 150°C
Varnish removal method	Mechanical (micro-abrasion) Locally with chemical stripper (DVP)

ABchimie800UV and ABchimie800UV LED are compliant with REACH and RoHS regulations. If you want a certificate, please contact us (info@abchimie.com).

PACKAGING:

ABchimie800UV LED – LED version

1 kg
5 kg

ABchimie800UV LED 01K
ABchimie800UV LED 05K

ABchimie800UV – UV version

1 kg
5 kg

ABchimie800UV 01K
ABchimie800UV 05K

Cleaner

Bulk 5 litres
Spray – 12/ box

SND 05L
SND400 B

Bulk 5 litres
Spray – 12/ box

ABclean 05L
ABclean400 B

REFERENCES

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.

ABchimie800UV and UV LED must be stored in an opaque container, sealed away from excessive heat, at temperatures not exceeding 40°C. The varnish ABchimie800UV and UV LED cures under UV action, it mustn'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.