

ABchimie836UV ABchimie836UV LED

July 2025

Soft conformal coating, Curing by UV - Dual cure

PRODUCT DESCRIPTION

ABchimie836UV and ABchimie836UV 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.

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

FEATURES

- Excellent adhesion in harsh environments,
- 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,
- No VOC,
- Floor space saving compared with solvent based,
- High speed process, increase of the productivity,
- Low viscosity for accurate deposit with select coat machine (spray, jetter, film coater),
- Approved UL94 V0 and UL746E (QMJU2-E308681). 

APPLICATION

ABchimie836UV and UV 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.

Varnishes ABchimie836UV 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.

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 or UV LED, we recommend using SND or ABClean solvent.

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.

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

1- ABchimie836 UV LED - LED version

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

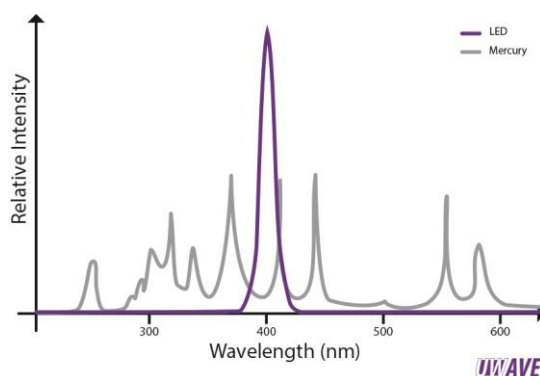
Minimum UVA2 dose : **3000mJ/cm²** (100µm)

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- ABchimie836 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**

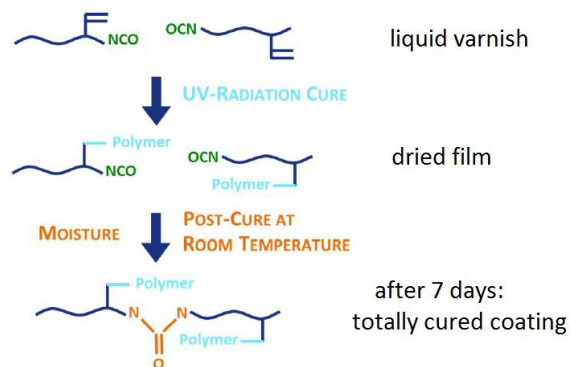
A slight residual tack due to the oxygen in the air can appear. It disappears a few minutes after passing under the lamp.

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:

ABchimie836UV and ABchimie836UV 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 :



PROPERTIES

Properties are the same for ABchimie836UV and ABchimie836UV LED.

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)
Temperature range from	-50°C to + 150°C
Insulation resistance (NF EN 61086)	$10^{12} \Omega$
Dielectric strength	60kV/mm
CTI (DIN EN 60112)	> 600V
Tg	35°C
CTE (T < Tg)	66 ppm/K
CTE (T > Tg)	193 ppm/K
BONO test	corrosion factor < 2 (coating alone)
Breakdown voltage (IPC TM 650 2.5.7.1)	> 1500V AC
Breakdown voltage (internal test method)	> 5000V AC
Insulation resistance in a humid environment	
SIR according to IPC TM 650 2.6.3.4	> $3,16 \cdot 10^{10} \Omega$
SIR according to IPC TM 650 2.6.3.3	> $1,5 \cdot 10^9 \Omega$
Varnish removal method	Mechanical (micro-abrasion) Locally with chemical stripper (DVP)
Auto-extinguishing	Yes- UL94 V0

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

PACKAGING:

ABchimie836UV LED – LED version

1 kg
5 kg

REFERENCES

ABchimie836UV LED 01K
ABchimie836UV LED 05K

ABchimie836UV – UV version

1 kg
5 kg

ABchimie836UV 01K
ABchimie836UV 05K

Cleaner

Bulk 5 litres
Bulk 5 litres

SND 05L
ABclean 05L

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 and UV LED must be stored in an opaque container, sealed away from excessive heat, at temperatures not exceeding 40°C. The varnish ABchimie836UV 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.