

## ABchimie526UV ABchimie526UV LED

July 2025

Soft conformal coating, curing by UV / LED and Dual cure


### PRODUCT DESCRIPTION

ABchimie526UV and ABchimie526UV 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.

ABchimie526UV and ABchimie526UV LED may be applied by brush, pad printing, manual spray machine and of course selective coating machine which is the ideal way to apply. The low viscosity of our system permits to limit the thickness to around 80-100 microns.

ABchimie526UV and ABchimie526UV LED are available in tow versions: for UV (cured with a mercury UV lamp) or LED (curing with a 395nm-lamp) and are also available in two viscosities: DS55 or DS140. Only the application and curing parameters differ; the qualification results and protection of the dry coating are same.

### FEATURES

- Excellent adhesion in harsh weather conditions,
- Fluorescent UV to allow control of the deposited coating layer,
- 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 Mercury or UV LED exposure,
- Moisture cure for shadowed areas,
- No VOC,
- Equipment floor space reduced compared with solvent based coating,
- 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

ABchimie526UV and ABchimie526UV LED can be applied by brush, spray or selective coating machine:

Spraying (two crossed layers)	30-50 microns
Selective coating machine	80-120 microns

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. Pcb's 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.

ABchimie526UV and ABchimie526UV LED contain a fluorescent tracer which permit to check good varnish deposit, inspection of circuits is facilitated. Fluorescence is more important the thickness applied is high.

## **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.

## **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 ABchimie526UV or ABchimie526UV LED, we recommend using SND or ABclean solvents (**no aqueous solutions**).

## **CURING CONDITIONS**

It is important to use the appropriate UV equipment (UV Mercury or UV 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.

ABchimie526UV and ABchimie526UV LED cure with UV light as a first curing mechanism and moisture for the second cure mechanism.

### **1- ABchimie526UV LED - LED version**

ABchimie526UV 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 ABchimie526UV LED:

**To ABchimie526UV LED DS55 and ABchimie526UV LED DS140  
LED lamp 395 nm**

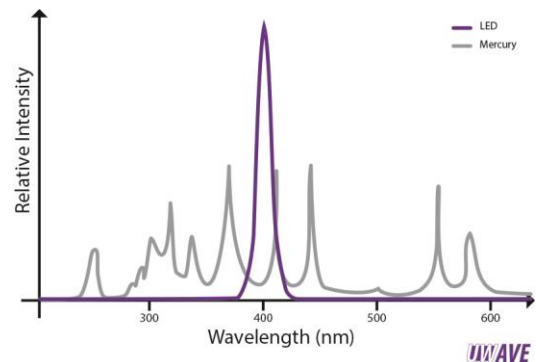
Minimum UVA2 dose : **3000mJ/cm<sup>2</sup>** (100µm)

Minimum UVA2 power : **500mW/cm<sup>2</sup>** (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- ABchimie526UV - UV mercury version**

**UV Curing :**

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

**To ABchimie526UV DS55 MS**

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

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

Minimum UVA dose: **1000mJ/cm<sup>2</sup>** (100µm)

Minimum UVA power: **150mW/cm**

**To ABchimie526UV DS140 and ABchimie526UV DS55**

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

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

Minimum UVA dose: **3000mJ/cm<sup>2</sup>** (100µm)

Minimum UVA power: **150mW/cm<sup>2</sup>**

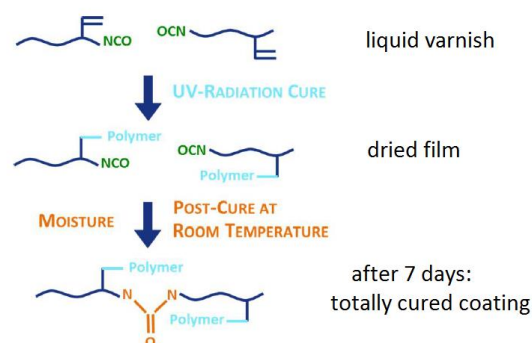
A slight residual tack due to the oxygen in the air can appear. It disappears a few minutes after passing under the lamp.

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:

ABchimie526UV and ABchimie526UV 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 same for ABchimie526UV and ABchimie526UV LED, DS55 or DS140.

#### ABchimie526UV / LED liquid

Base	Urethane Acrylate	...
Appearance	Transparent yellow	
Non-volatile residue	> 97%	
Viscosity at 25 °C	50- 100 cSt to DS55 version 80 – 300cSt to DS140 version	
Film Thickness	30 to 130 microns	

#### ABchimie526UV / 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	+ 50°C
CTE (+65 to 120°C)	528ppm/°C
Breakdown voltage (NF EN 61086)	> 1750V DC
Breakdown voltage (IPC TM 650 2.5.7.1)	> 1500V AC
Breakdown voltage (internal test method)	> 5000V AC
VRT	-55°C+125°C, 10°C/min, landing 25 min, 20 cycles -25°C+25°C, 5°C / min, 15 min level, 100 cycles
Thermal Shock	-40°C +90°C, 30mn/30mn, 1000 cycles
Salt Fog	35°C, 5% salt, 2ml / h (NF EN 61086)
Temperature range from	- 50°C to + 150°C
Flammability	Self-extinguishing according to UL94 VO
Varnish removal method	Mechanical (micro-abrasion) Locally with stripper DVP

ABchimie526UV and ABchimie526UV LED are compliant with REACH and RoHS regulations. If you want a certificate, please contact us ([info@abchimie.com](mailto:info@abchimie.com)).

## PACKAGING:

### ABchimie526UV LED DS55

1 liter  
5 liters

### ABchimie526UV LED DS140

1 liter  
5 liters

### ABchimie526UV DS55 MS

1 liter  
5 liters

### ABchimie526UV DS140

1 liter  
5 liters

### Cleaner

Bulk 5 liters  
Spray – 12/ box

Bulk 5 liters  
Spray – 12/ box

### Stipper

Bulk 1 liter

## REFERENCES

ABchimie526UV LED DS55 01L  
ABchimie526UV LED DS55 05L

ABchimie526UV LED DS140 01L  
ABchimie526UV LED DS140 05L

ABchimie526UV DS55 MS 01L  
ABchimie526UV DS55 MS 05L

ABchimie526UV DS140 01L  
ABchimie526UV DS140 05L

SND 05L  
SND400 B

ABclean 05L  
ABclean400 B

DVP 01L

## 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.

ABchimie526UV and UV LED must be stored in an opaque container, sealed away from excessive heat, at temperatures not exceeding 40°C. The varnish ABchimie526UV and UV LED cures under UV action, it musn't be exposed to any light source.

These varnishes 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.*