

Soft conformal coating, Curing by UV - Dual cure



### PRODUCT DESCRIPTION

ABchimie746E UV is a transparent single component designed to protect printed circuit boards subjected to harsh environments. It has dual cure technology (UV - humidity) for crosslinking in the shadows.

ABchimie746E UV may be applied by brush, pad printing, 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 around 80 microns.

ABchimie746E UV is compliance with REACH and RoHS regulations. If you want a certificate, please contact us ([info@abchimie.com](mailto:info@abchimie.com)).

### FEATURES

- Excellent adhesion in harsh weather conditions,
- Fluorescent UV 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 exposure,
- Moisture cure for shadowed areas,
- No VOC,
- Space ground reduced compared with solvent bases,
- High speed process, increase of the productivity,
- Low viscosity for select coat machine (used on head SC200, SC280, SC300 and SC400).
- **Approved UL94 V0 (QMJU2-E308681), **
- **Approved UL746E. **

### APPLICATION

ABchimie746 E UV can be applied by brush, spray or selective coating machine:

Spraying (two crossed layers)	60-80 microns
Brushing	40-60 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.

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 ABchimie746E UV contains a fluorescent tracer which permit to check good varnish deposit, inspection of PCBs is facilitated. Fluorescence is more important the thickness applied is high.

## PREPARATION OF THE PCB

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

## CLEANING

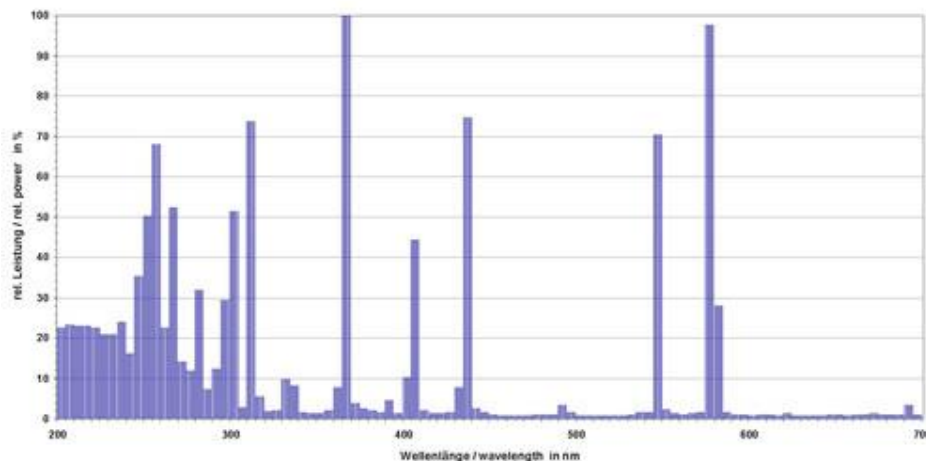
To clean equipment or clean uncured varnish ABchimie746E UV, we recommend using SND or DNS solvent.

## CURING CONDITIONS

ABchimie746E UV cures with UV rays and moisture for the second cure mechanism.

### **UV Curing :**

It is important to use the appropriate UV equipment, as well as the parameters recommended to obtain the optimal properties of the ABchimie 746E UV conformal coating. The advised equipment is a **mercury lamp**.



*Emission spectrum of mercury lamp (UV between 200 and 400nm)*

Minimum UVA dose : **700mJ/cm<sup>2</sup>** (100µm)

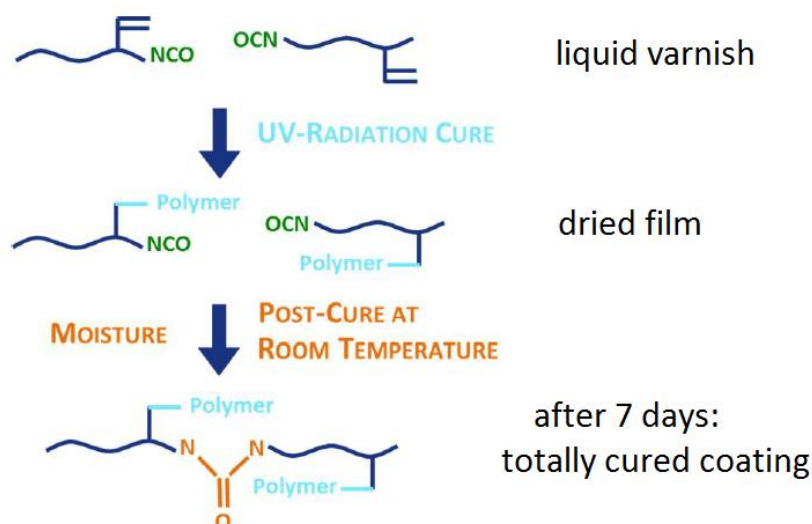
A slight residual tack due to the oxygen in the air can appear. It disappears a few minutes after passing under the lamp.

The UV dose given is a minimum to guarantee a good curing of varnish. A higher dose of UV or an overexposure will not damage the product.

## Moisture cure:

Ambient temperature, 50% minimum relative moisture

## Curing mechanism :



## PROPERTIES

### ABchimie746E UV liquid

Base	Urethane Acrylate
Appearance	Transparent yellow
Non-volatile residue	> 97%
Viscosity at 25°C (ASTM D4212)	50 - 100 cSt
Flash point	> 100°C
Film Thickness	30 to 150 microns

### ABchimie746E UV cured

Appearance	Transparent
Adhesion ISO 2409	Class 0 (excellent)
Volume resistivity	$1 \times 10^{14}$ Ohm / cm
Insulation resistance ( $\Omega$ )	$10^{12}$ (EN 61086)
Dielectric strength	60kV/mm
CTI (DIN EN 60112)	>600
Tg	+16°C
CTE (T < Tg)	200ppm/°C
CTE (T > Tg)	250ppm/°C
VRT + humidity (IEC 60068-2-38)	+65°C et 93%HR / -10°C, 5°C/mn,
Thermal Shock	- 65°C + 125°C, 30mn/30mn, 50 cycles - 65°C + 125°C, 2h/2h, 100 cycles
Voltage	> 1750V DC (NF EN 61086)
Temperature range from	-65°C to + 150 °C
Varnish removal method	Mechanical (micro-abrasion) Locally with stripper DVP
Auto-extinguishing	UL94 V0

## **PACKAGING: \***

### ***ABchimie746E UV***

1 kg  
5 kg

### ***ABchimie746E UV LED (curing with LED radiations)***

1 kg  
5 kg

### ***Cleaner***

Bulk 5 litres  
Bulk 5 litres

## **REFERENCES**

ABchimie746E UV 01K  
ABchimie746E UV 05K

ABchimie746E UV LED 01K  
ABchimie746E UV LED 05K

SND 05 L  
DNS 05 L

## **STORAGE AND SHELF LIFE:**

Storage temperature: 5 to 30°C

A temporary lower or higher temperature (maximum 40°C) during few days (transport) doesn't distort varnish properties.

ABchimie746E UV must be stored in an opaque container, sealed away from excessive heat. The varnish ABchimie746E UV 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.

Date by use: 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.***