

TECHNICAL

## UC201

### PRODUCT DESCRIPTION

Chemence UC-201 is a single component, low viscosity adhesive that cures to give a clear, flexible bond when exposed to UV-light (310nm or above).

### TYPICAL APPLICATIONS

Chemence UC-201 has been formulated to provide clear, high strength bonds with most clear plastics, e.g. Acrylic, Polycarbonate, etc. It is especially suited for medical device assembly. UC-201 will also bond to most thermoplastics and some other substrates. UC-201 cures dry to touch.

### PROPERTIES OF MATERIAL

	Value
Chemical Type	Urethane acrylate ester
Appearance	Clear
Specific Gravity	1.04
Viscosity <sup>1</sup> , cPs	60-100
Typical Value	80
Fixture Ttime (secs) <sup>2</sup>	<120
Depth of cure <sup>3</sup>	2
Compressive Shear Strength <sup>4</sup> N/mm <sup>2</sup> (PMMA)	>5.0(subs. fail)
Refractive index	1.4745
Water absorption <sup>5</sup>	1.6%
Hardness, Shore D	75
Flash Point (°C)	> 100
Shelf Life @ 20°C (Months)	12
Temp Range °C	
	Continuous -50 to +120
	Intermittent -50 to +150

- <sup>1</sup> Brookfield LVF, Spindle 2, 30rpm
- <sup>2</sup> Glass slide fixture 10mW/cm<sup>2</sup> @365nm
- <sup>3</sup> Cured for 30secs @ 10mW/cm<sup>2</sup> @365nm
- <sup>4</sup> Based on ASTM D4501, 180 secs cure @20mW/cm<sup>2</sup>
- <sup>5</sup> % weight increase after 3h in boiling water

### CURING PERFORMANCE

Glass Slide Fixture Time in seconds, using Hg vapour lamp:

10mW/cm <sup>2</sup> .....	<120
30mW/cm <sup>2</sup> .....	<30

Surface cure time (to achieve dry to touch):

10mW/cm <sup>2</sup> .....	Not recommended
30mW/cm <sup>2</sup> .....	120

The rate of cure, depth of cure and surface tack of the cured adhesive will depend on the intensity of the UV light, exposure time, spectral output of the UV light source and light transmittance of the substrates to be bonded.

Depths of cure up to 4mm can be achieved with high intensity lamps and long cure times

To achieve a fast, controlled, reproducible cure performance, the use of high quality UV lamps @310nm or above is recommended.

### TYPICAL ENVIRONMENTAL RESISTANCE

#### Hot strength

Chemence UC-201 is not suitable for use at very high temperatures. At 120°C the bond strength will be ~25% of the strength at 21°C.

#### Heat ageing

Chemence UC-201 exhibits excellent resistance to heat ageing. Typically, exposure to heat for a prolonged period, results in fully curing any uncured resin that may remain. This has the effect of increasing the bond strength when subsequently tested at 21°C.

#### Chemical / Solvent Resistance

Chemence UV-curing adhesives exhibit excellent chemical resistance to most oils and solvents including alcohols, methylated spirit water. Chemence UV-curing adhesives are not recommended for use in pure oxygen or chlorine lines.

### DIRECTIONS FOR USE

Chemence UV-curing adhesives are very sensitive to UV-light. As such, measures must be taken to protect the adhesive from exposure to UV-light from the lamp, sunlight and artificial lighting to prevent unwanted curing.

The adhesives should be applied to clean, dry parts. Once the adhesive is applied, the parts can be positioned correctly and then exposed to UV-light to initiate curing.

Ensure parts are clean, dry and free from oil and grease. Apply adhesive to one surface, bring parts together and expose to UV-light.. Alternatively, parts can be assembled and the adhesive applied and allowed to wick around the joint before curing.

Excess adhesive can be wiped away with Chemence LA-70 Safety Clean or alcohol.

Product can be hand applied from the bottle. Dispensing systems are also available for high volume assembly applications. Feed lines for the dispensing system must have black, UV-opaque tubing to avoid adhesive curing in the lines. Please contact your Chemence representative for further advice on dispensing solutions.

### CURING MECHANISM

Chemence UC-16 is formulated to cure when exposed to UV radiation of 310nm and above

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## **GENERAL INFORMATION**

For safe handling of this product consult the Material Safety Data Sheet.

UV-curing adhesives only cure when exposed to UV-light of the correct wavelength and sufficient intensity. Cure speed may vary as the UV-lamp bulb ages.

## **STORAGE**

Store in a cool area out of direct sunlight. Refrigeration to 5° C gives optimum storage stability.

## **PRESENTATION**

Bottles (black): .....50g, 250g and 1kg.  
Available in bulk for use with dispensing systems.

## **STERILISATION**

Chemence UC-201 resists one typical steam sterilisation cycle (30mins. @121-127°C) and sterilisation by gamma irradiation or EtO. UC-201 is not suitable for repeated autoclaving.

## **DATA RANGES**

The data contained in this data sheet may be reported as typical value and/or range. Values are based on actual test data and are verified on a regular basis.

## **NOTES**

The information contained herein is produced in good faith and is believed to be reliable but is for guidance only. Chemence Ltd. and its agents cannot assume liability or responsibility for results obtained in the use of its product by persons whose methods are outside or beyond our control. It is the user's responsibility to determine the suitability of any of the products and methods of use or preparation prior to use mentioned in our literature and furthermore the user's responsibility to observe and adapt such precautions as may be advisable for the protection of personnel and property in the handling and use of any of our products.