# LC 177

## ELASTIC, THERMAL AND IMPACT RESISTANT, MONO COMPONENT UV-CURABLE ACRYLATE

TECHNICAL DATA SHEET

June 2022




## PRODUCT DESCRIPTION

Bostik Born2Bond™ LC range is based on a patented UV acrylic adhesives technology and shows unmatched performance in term of resistance and flexibility.

These adhesives are transparent and have been designed for bonding a wide range of dissimilar substrates for industrial applications, including metals if bonded to a transparent material. The outstanding properties of Bostik LC range allow structural bonding while keeping flexibility.

The Bostik LC range products has been developed to resist aggressive environments. It shows unprecedented results facing weathering and ageing.

## KEY FEATURES

1. UV curing
2. Temperature resistance
3. Impact resistance
4. Excellent environmental resistance
5. Elastic behavior
6. Low water absorption
7. Gap filling up to 2 mm

## DIRECTIONS FOR USE

Before applying LC177 make sure the surface is clean, dry and grease-free. Most plastics require a simple cleaning before bonding. Some may require surface treatment for better performances. The optimum qualities are obtained at room temperature, between 12° C and 35° C without post-curing.
Avoid contact with direct sun light or any other artificial light source. Materials must be stored in cool place away from sources of heat. Read material Safety Data Sheet before handling or using this product.

Curing time must be determined and qualified in real conditions and environment of the intended use, as it will vary depending on parameters such as substrate light absorption, adhesive thickness, light spectrum, irradiation intensity, distance from the lamp, temperature. For process robustness, Bostik advices to increase light exposure time and/or light intensity used during the initial curing time qualification, in order to absorb all possible variations of the operational conditions.

## METHOD OF USE

Manual: Directly from the syringe with or without dispensing cannula for more precise dispensing.

Semi-Automated: Use of pressure-time systems for accurate volume and larger series.

Full-Automated: fully automated robot or application lines (progressive cavity pumps or screw pumps).

## APPLICATIONS

Typical applications for this product are fast bonding of metal, plastic and glass parts.

## STORAGE/SHELF LIFE

The LC177 shelf life is 6 months in unopened original packaging. The product may be stored in a closed container in a dry place at temperature between 5° C and 25° C. Exposure to higher or lower temperature will result in a reduction of the stated shelf life.

## HEALTH/SAFETY

The Safety Data Sheet is available on the Bostik website and should be consulted for proper handling, cleanup and spill containment before use. Keep containers covered to minimize contamination.

## LIMITATIONS

This product is not recommended for use in pure oxygen and/or oxygen-rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials. Material removed from containers may be contaminated during use. Do not return product to the original container. Bostik will not assume responsibility for product that has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or customer service representative.

# LC 177

## PRODUCT CHARACTERISTICS

| | |
|---|---|
| Basis Technology | UV-Acrylate |
| Components | 1K |
| Appearance/Color | Transparent |
| Cure | LED<br>(365nm, 385nm, 405 nm) UVA |

## UNCURED PHYSICAL PROPERTIES

| | |
|---|---|
| Viscosity (mPa.s) -2 rpm | 110.000-150.000 |
| Density | 1,02-1,05 |
| Appearance/Color Liquid | Clear/yellowish |

## FIXTURE TIME

Test on glass (gap: 0,125 mm)

| | |
|---|---|
| UVA<br>Intensity 50-60 mW/cm$^2$ | 7 ± 0,5 s |
| LED 405 nm<br>Intensity 2 W/cm$^2$ | 4 ± 0,5 s |

## CURING PHYSICAL PROPERTIES

| | |
|---|---|
| Shore Hardness D (ISO 868) | 20-35 |
| Tensile Strength (ISO 527) | 9-11 MPa |
| Nominal Elongation at Break (ISO 527) | 200-230% |
| Tg (DMA) | 49°C |
| Water absorption after 48 h (ASTM D542) | ≤ 1 % |
| Volume Shrinkage (ISO 10563) | 8 ± 0,5 % |

## SUBSTRATES RECOMMENDATION

| Substrates | Recommendation |
|---|---|
| ABS | X |
| PA | O |
| PMMA | X |
| PBT | O |
| PC | O |
| SAN | X |
| Glass | X |
| Aluminium | X |
| Stainless Steel | X |

X: Recomended  O : Limited application

## BONDING PERFORMANCE

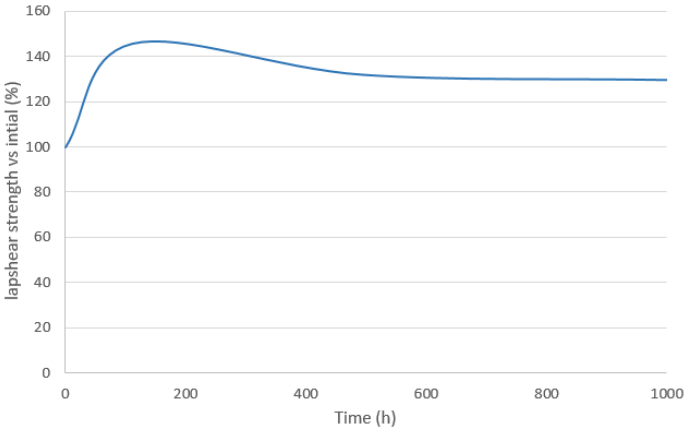
**Lapshear strength (ISO 4587) @ 23° C (MPa)**
Samples were prepared using UVA lamp with an irradiation measured on sample of 40-50 mW/cm2 for 60 s and a gap of 0,25 mm.

| | |
|---|---|
| PMMA/ABS | 7 ± 1 |
| PMMA/PMMA | 7 ± 1 |
| SAN/SAN | 7 ± 1 |
| Glass/Glass | 5 ± 1 |
| PMMA/Aluminum | 6 ± 1 |
| PMMA/Stainless Steel | 8 ± 1 |

# LC 177

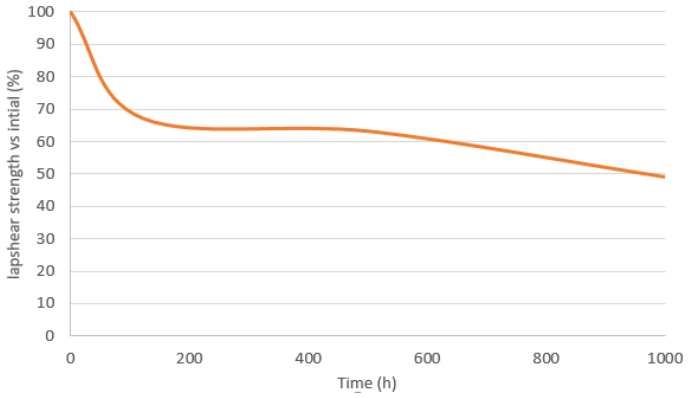
## HEAT AGING

**Lapshear strength (ISO 4587) @ 23° C after aging at 80°C.** Samples were prepared using UVA lamp with an irradiation measured on sample of 40-50 mW/cm2 for 60 s and a gap of 0,25 mm. Adhesive was applied between two glass plates.




## HEAT/HUMIDITY AGING

**Lapshear strength (ISO 4587) @ 23°C after aging under humid conditions.**
Samples were prepared using UVA lamp with an irradiation measured on sample of 40-50 mW/cm2 for 60 s and a gap of 0,25 mm. Adhesive was applied between two PMMA plates. and aged at 95%RH, 40°C.




## CYCLE AGING

**Lapshear strength (ISO 4587) @ 23° C after cycle ageing.**
Samples were prepared using UVA lamp with an irradiation measured on sample of 40-50 mW/cm2 for 60 s and a gap of 0,25 mm. Samples were submitted to a 24h heat and temperature cycle splitted in 3 phases (plus ramp-up times) :

i. 15h at 40° C, RH> 90%
ii. 2h at -20° C
iii. 4h at 70° C, 50 % RH

| Results after 7 cycles cycles | |
|---|---|
| **Substrates** | **% of Initial Strength** |
| PMMA/PMMA | 67 |
| PMMA/Alu | 150 |
| PMMA/ABS | 90 |

## LIGHT AGING

**Lapshear strength (ISO 4587) @ 23° C after UVA exposure** Samples were prepared using UVA lamp with an irradiation measured on sample of 40-50 mW/cm2 for 60 s and a gap of 0,25 mm.

| Results after 1000h | |
|---|---|
| **Substrates** | **% of Initial Strength** |
| PMMA/PMMA | 50 (no yellowing) |

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