

# KOPSTRUAL SA-3102

## Acrylic Adhesive

### Product Description

SA-3102 is primarily designed for bonding rigid or flexible PVC to polycarbonate where large gap filling capabilities and flexible joints are desired. The product has shown excellent adhesion to a wide variety of substrates including glass, many plastics and most metals. The thixotropic nature of SA-3102 reduces the migration of liquid product after application to the substrate.

### Features

- UV Fast cure.
- High strength.
- High transparent.
- Little to no surface preparation.

### Typical Uncured Physical Properties

**Note:** The following technical information and data should be considered representative or typical only and should not be used for specification purpose.

<b>Appearance</b>	Transparent liquid
<b>Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP): Spindle 4, speed 20 rpm</b>	3,500 to 7,500
<b>Specific Gravity @ 25 °C</b>	1.08
<b>Refractive Index</b>	1.48

### Typical Curing Characteristics

**Note:** The following technical information and data should be considered representative or typical only and should not be used for specification purposes. SA3102 can be cured by exposure to UV and/or visible light of sufficient intensity. To obtain full cure on surfaces exposed to air, radiation @ 220 to 260 nm is also required. The speed of cure will depend upon the UV intensity and spectral distribution of the light source, the exposure time and the light transmittance of the substrates.

#### Stress Cracking

Liquid adhesive is applied to a medical grade polycarbonate bar 6.4 cm by 13 mm by 3 mm which is then flexed to induce a known stress level.

Stress Cracking, minutes:

7 N/mm <sup>2</sup> stress on bar	>15
12 N/mm <sup>2</sup> stress on bar	13 to 14



### Fixture Time

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm<sup>2</sup>.

UV Fixture Time, Glass microscope slides, seconds:	
Black light, Zeta® 7500 light source:	
6 mW/cm <sup>2</sup> , measured @ 365 nm	≤15

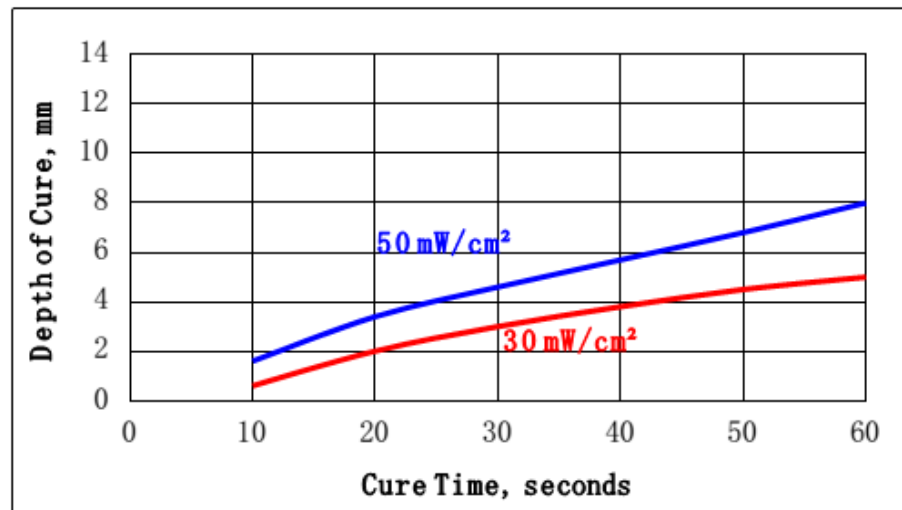
UV Fixture Time, Polycarbonate to PVC, seconds:	
Metal halide bulb, Zeta® 7400:	
30 mW/cm <sup>2</sup> , measured @ 365 nm	<5
Electrodeless, H & V bulbs:	
50 mW/cm <sup>2</sup> , measured @ 365 nm	<5
Electrodeless, D bulb:	
50 mW/cm <sup>2</sup> , measured @ 365 nm	<5

### Depth of Cure vs. Irradiance (365 nm)

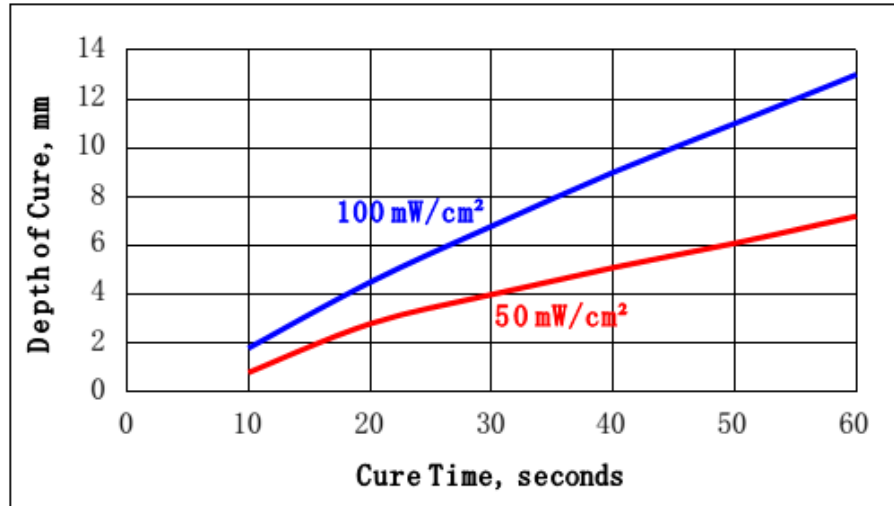
The graph below shows the increase in depth of cure with time at 50mW/cm<sup>2</sup> - 100mW/cm<sup>2</sup> as measured from the thickness of the cured pellet formed in a 15mm diameter PTFE die.

Note: When exposed to a V Bulb at irradiances of 50 and 100 mW/cm<sup>2</sup> for 30 seconds, a depth of cure greater than 13 mm was achieved. The performance for medium pressure Hg will be similar to Electrodeless system, H bulb.

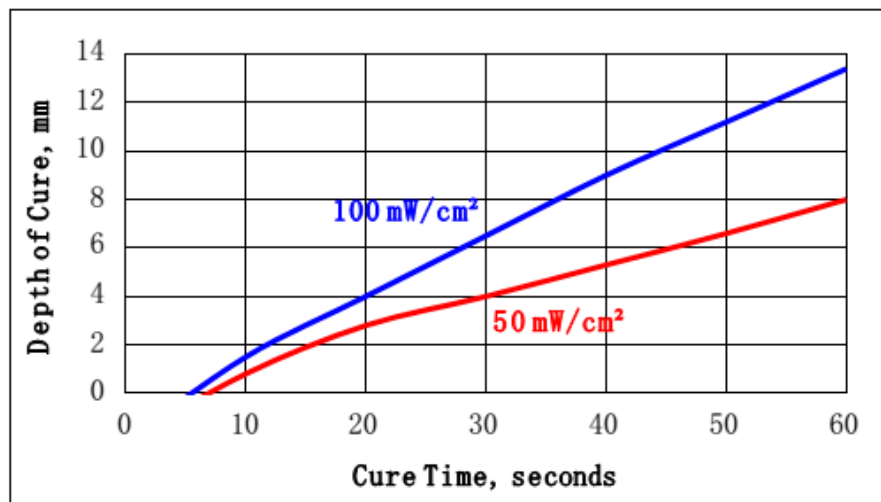
### Curing System: Metal Halide



## Curing System: Electrodeless, D bulb



## Curing System: Electrodeless, H bulb



### Typical Cured Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes. Cured @ 30 mW/cm<sup>2</sup>, measured @ 365 nm, for 80 seconds using a glass filtered metal halide light source. Performance considered representative or typical only and should not be used for specification purposes.



**Physical Properties:**

Shore Hardness, Durometer D		53
Refractive Index		1.5
Water Absorption, %		
2 hours in boiling water		3.18
Elongation, at break, %		250
Tensile Modulus	N/mm <sup>2</sup>	255
Tensile Strength, at break	N/mm <sup>2</sup>	18.6

**Electrical Properties:**

Surface Resistivity, Ω·cm		9.2×10 <sup>14</sup>
Volume Resistivity, Ω·cm		7.7×10 <sup>14</sup>
Dielectric Breakdown Strength, kV/mm		26
Dielectric Constant / Dissipation Factor:		
@ 100 Hz		5.17 / 0.04
@ 1 KHz		5.01 / 0.02
@ 1 MHz		4.61 / 0.04

**Typical Cured Performance**

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

**Adhesive Properties**

Cured @ 30 mW/cm<sup>2</sup>, measured @ 365 nm, for 80 seconds using a metal halide light source, (samples with 0.5 mm gap).

Lap Shear Strength:

Polycarbonate	N/mm <sup>2</sup>	5.2
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**Typical Environmental Resistance**

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Cured @ 30 mW/cm<sup>2</sup>, measured @ 365 nm, for 80 seconds using a metal halide light source, (samples with 0.5 mm gap).

Lap Shear Strength :

Polycarbonate

0.5 mm gap

**Heat Aging**

Lap Shear Strength, % of initial strength :

Polycarbonate :



Aged @ 71 °C for 170 hours	100
Aged @ 71 °C for 340 hours	100
Aged @ 93 °C for 170 hours	100
Aged @ 93 °C for 340 hours	100

#### Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength		
		2 h	24 h	170 h
Boiling water	100	100	-----	-----
Water immersion	49	100	-----	-----
Water immersion	87	100	-----	-----
IPA immersion	22	-----	95	-----
Heat/humidity	38	-----	-----	100

#### Handling/Curing Information

##### Directions for use:

1. This product is light sensitive; exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling.
2. The product should be dispensed from applicators with black feedlines.
3. For best performance bond surfaces should be clean and free from grease.
4. Cure rate is dependent on lamp intensity, distance from light source, depth of cure needed or bondline gap and light transmittance of the substrate through which the radiation must pass.
5. Recommended intensity for cure in bondline situation is 5 mW/cm<sup>2</sup> minimum (measured at the bondline) with an exposure time of 4-5 times the fixture time at the same intensity.
6. For dry curing of exposed surfaces, higher intensity UV is required (100 mW/cm<sup>2</sup>).
7. Cooling should be provided for temperature sensitive substrates such as thermoplastics.
8. Crystalline and semi-crystalline thermoplastics should be checked for risk of stress cracking when exposed to liquid adhesive.
9. Excess adhesive can be wiped away with organic solvent (e.g. Acetone).
10. Bonds should be allowed to cool before subjecting to any service loads.

#### Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

**Optimal Storage: 8°C to 21 °C . Storage below 8°C or greater than 28°C can adversely affect product properties.** Material removed from containers may be contaminated during use. Do not return product to the original container. KOPLIN cannot assume responsibility for product which 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.



**Precautionary Information**

Refer to Material Safety Data Sheet for health and safety information before using this produce. For additional health and safety information, please contact local representative.

**Product Use**

All statements, technical information and recommendations contained in this document are based upon tests or experience that KOPLIN believes are reliable. However, many factors beyond KOPLIN's control can affect the use and performance of a KOPLIN product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the KOPLIN product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

**Warranty and Limited Remedy**

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Individual

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