

# OPTOLINQ OLS-1305



## Two part optically clear epoxy resin

- Extremely low viscosity
- Rapid cure at moderate temperatures
- Excellent mechanical properties

**OPTOLINQ OLS-1305** is an optically clear, two-part epoxy resin designed for chip encapsulation. This material exhibits exceptionally low viscosity and excellent air bubble release capabilities. It can cure rapidly even at moderate temperatures while demonstrating low shrinkage throughout the curing process. OLS-1305 has high mechanical strength, good adhesion strength on different surfaces, and high resistance against moisture and heat. It is highly resistant to aging from light and heat exposure. When fully cured, OLS-1305 exhibits uniform transparency and retains its color, making it an ideal material for the encapsulation of optoelectronic devices.

### Premixed properties

Property	Part A	Part B
Appearance	Transparent liquid	Transparent liquid
Viscosity at 25 °C	210–410 cP	70–170 cP
Density	1.10–1.20 g/cm <sup>3</sup>	1.10–1.20 g/cm <sup>3</sup>
Shelf life	183 days	93 days

### Mixed properties

Property	Value	Unit
Mixing ratio by weight	100:20	-
Viscosity at 25 °C	150–350	cP
Gel Time at 120°C	80±20	sec
Pot Life	4	h

### Cured properties

Property	Value	Unit
Volume resistivity at 25 °C	6.4 x 10 <sup>15</sup>	Ω · cm
Surface resistivity at 25 °C	2.7 x 10 <sup>15</sup>	Ω
Breakdown voltage at 25 °C	20	kV/mm
Hardness	80±5	Shore D
Water absorption	<0.3	%
Coefficient of thermal expansion*	85	ppm/°C
Glass transition Temperature*	122–132	°C

\* Cylindrical test sample (diameter = 5 mm, height = 10 mm) was cured at 120 °C for 2 h, and then at 150 °C for 4 h. Addition of diffusion and color pastes may affect the CTE.

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### Processing Instructions:

- Mix component A and B, stir uniformly, and defoam for 5 minutes.
- Prior to chip encapsulation, it is recommended to dry the chip at 150 °C for 2–4 hours and then treat the chip surface using plasma.
- The recommended curing conditions is 150 °C for 4–6 hours. Identify the specific curing settings based on your product requirements.

### Precautions:

1. Do not preheat Parts A and B as exposure to high temperatures may shorten their usable time.
2. Utilize the mixture promptly after mixing components A and B to avoid excessive viscosity.
3. After dispensing, immediately commence the baking process to avoid moisture absorption, which can slow down the drying process and make the cured product brittle. It is recommended to maintain the relative humidity at approximately 70% when handling the product.
4. Store the curing agent (component B) in sealed jars to prevent moisture absorption and sedimentation.
5. Precipitates may form in the color pastes when they are stored for an extended period of time. As such, prior to use, color pastes must be heated at 60–90 °C until the solid sediments are completely dissolved to ensure uniform color distribution during dispensing.
6. For foam reduction, a defoaming agent may be added, not exceeding 0.3% of the total AB mixture weight.
7. Avoid skin and eye contact. In case of contact, rinse thoroughly with soap (for skin) or clean water (for eyes), and seek medical attention if needed.
8. Maintain a clean and ventilated workplace, using extraction trunks when necessary.
9. Wear appropriate protective equipment and minimize direct contact with the human body. Refer to the Material Safety Data Sheet (SDS) before use.

Please note that the provided information is based on available data and typical conditions. For specific applications and detailed test results, refer to the actual test data and conduct appropriate certifications.

### Storage and Handling

Store in a ventilated, dry, and clean environment below 25°C. Keep away from fire and heat sources. It is strictly forbidden to store in outdoor environments. At proper storage conditions, Part A has a shelf life of 6 months and Part B a shelf life of 3 months. Shelf life can be extended by using cold storage.

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