



# ECCOBOND DX-10 Dielectric Adhesives For GaN LED Chip bonding

Key Feature	Benefit
• One component	• Easy processing (No need to mix)
• No yellowing due to heat and light	• Long life
• Long work life	• Excellent workability

### Product Description:

ECCOBOND DX-10 is a one-component, thermosetting, dielectric adhesive developed for GaN Blue and white LED Chip bonding. It is compatible with our LED encapsulants, such as 9ZR-2, NX-17, and NX-76.

### Applications:

ECCOBOND DX-10 is designed for GaN LED chip bonding and can be used with pin transfer and dispensing.

### Cure:

ECCOBOND DX-10 is used mainly with two curing systems: 60 min at 150 °C, or 30 min at 180 °C.

The cure times mentioned above are the times needed after the oven was heated to the cure temperatures. The cure times do not include warm up time.

### Instructions For Use:

Thoroughly read the information concerning health and safety contained in this bulletin before using. Observe all precautionary statements that appear on the product label and/or contained in individual Material Safety Data Sheets (MSDS).

### Properties of Material

Property	Test Method	Unit	Value
<b>Before cured</b>			
Chemical Type			Epoxy
Appearance	Visual		Transparent and colorless
Specific gravity	EHD @ 25 °C @10rpm	mPa.s	2800
Gel Time	Hot plate @ 160°C	S	15
Open time		h	4

### Cure Schedule:

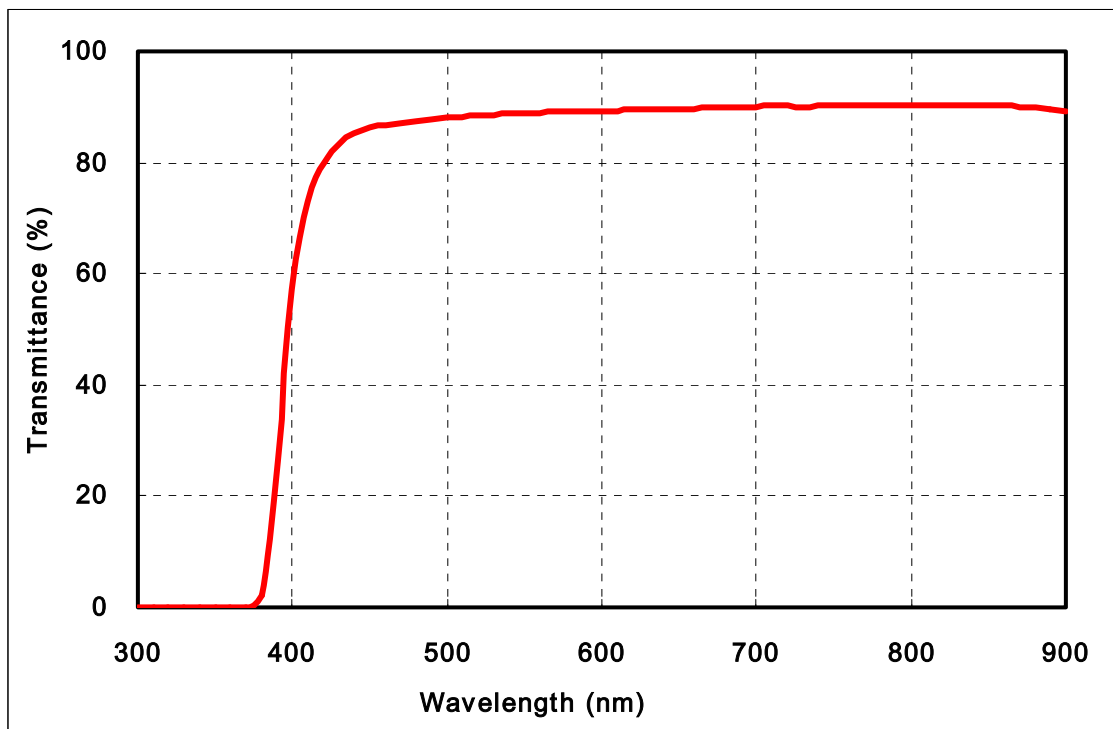
ECCOBOND DX-10 may be cured in a convection oven. No post cure is required.

Recommended Cure schedules	Temperature (°C)	Cure Time
Cure 1	150	1 hr
Cure 2	180	30 min

Property	Test Method	Unit	Value
<b>After cured</b>			
Specific gravity	JIS K6911	-	1.19
Water absorption	JIS K6911	wt%	0.48
Boiled water absorption	JIS K6911	wt%	0.77
Coefficient of thermal expansion $\alpha_1, \alpha_2$	TMA	1/°C	$\alpha_1: 6.8 \times 10^{-5}$ $\alpha_2: 11.0 \times 10^{-5}$
Glass transition temperature	TMA	°C	108
Die share strength after @150°C x1hr	Si chip (1.25mm□)	N	@25°C : 45.6
	Si chip (1.25mm□)	N	@200°C : 16.7
Die share strength after @180°C x 30min	Si chip (1.25mm□)	N	@25°C : 47.3
	Si chip (1.25mm□)	N	@200°C : 26.9
Light Transmittance	Spectrophotometer	%	86 @450nm, t=3 mm
		%	89 @660nm, t=3 mm
Refractive index	ASTM-D-542		1.531 @450nm
			1.523 @660nm

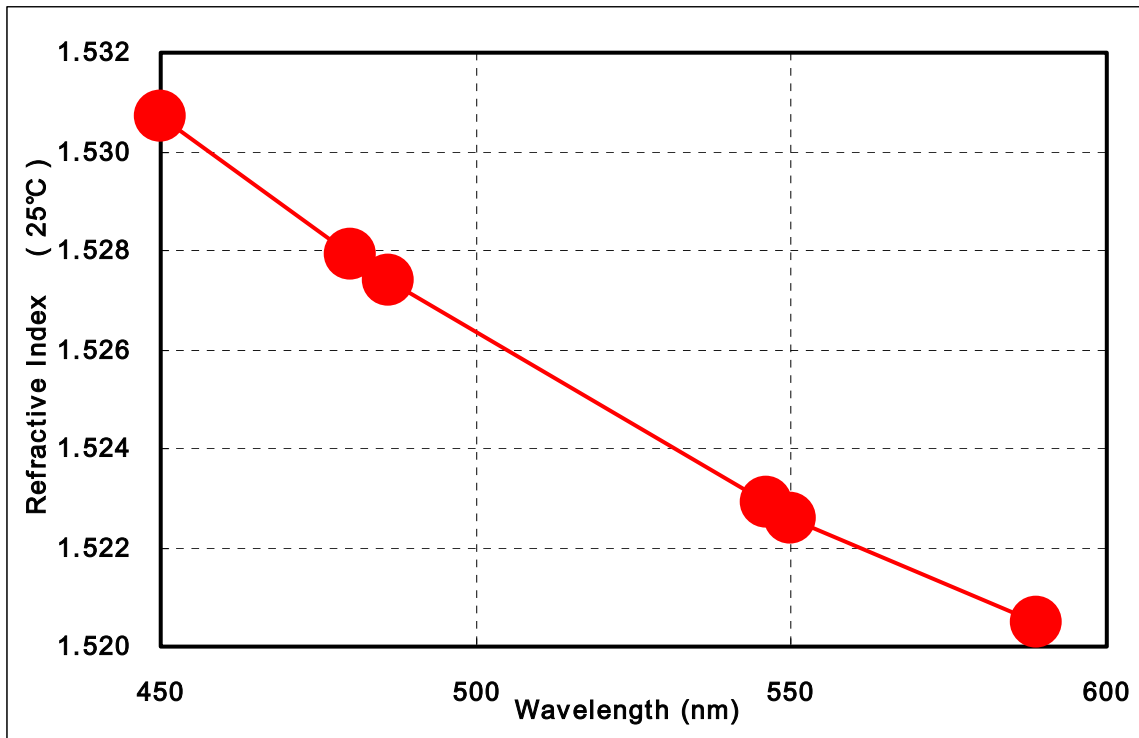
**Light Transmittance Data:**

Fig.1 Light Transmittance ( t = 3 mm )



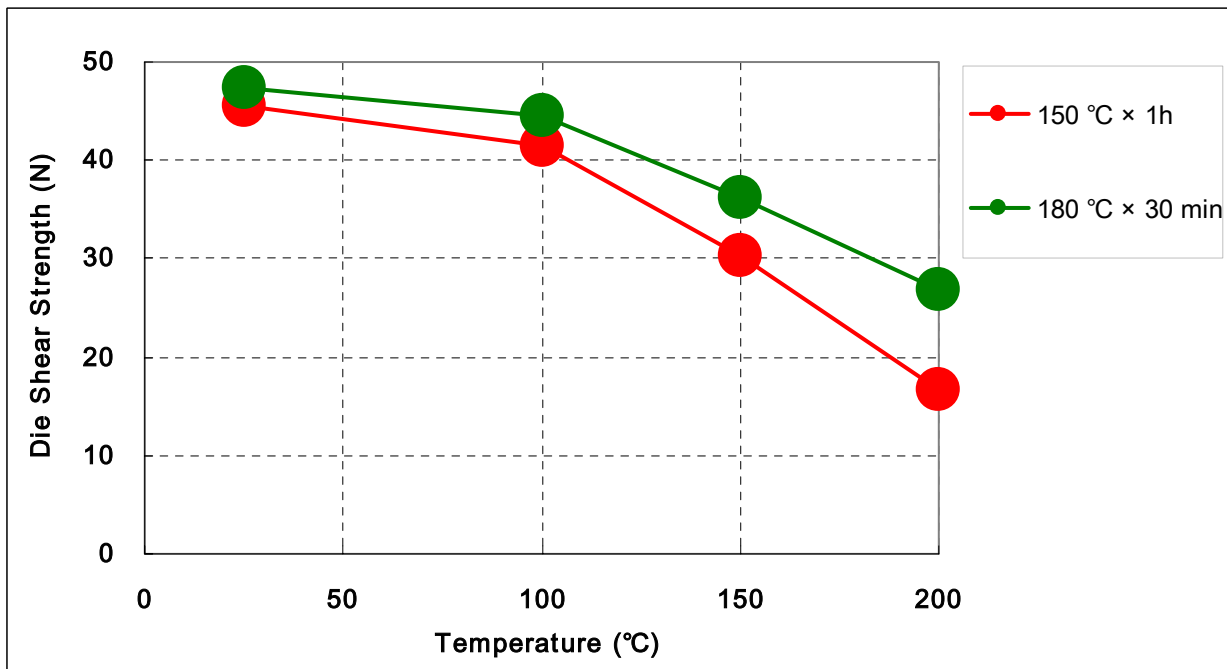
## Refractive Index

Fig.2 Refractive Index



## Die Shear strength vs Test Temperature

Fig.3 Die Shear Strength vs Test Temperature



**Storage and Handling:**

The shelf life of ECCOBOND DX-10 is 3 months at 0 to 10°C. For the best results, store in original, tightly covered containers, under the cool, clean and dry condition. Do not keep the product below 0°C to avoid crystallization. When ECCOBOND DX-10 is stored at a low temperature, it needs to be incubated at a room temperature to recover appropriate property (approximately 30 min) before use in prevention of dew condensation.

**Health and Safety:**

The ECCOBOND DX-10, like many industrial compounds, possesses the ability to cause severe skin and eye irritation upon contact. Certain individuals may also develop an allergic reaction after exposure (skin contact, skin absorption, inhalation of vapors, etc.) which may manifest itself in a number of ways including skin rashes, itching sensations and breathing difficulties. Components of this product may be absorbed through the skin. Handling this product at elevated temperatures may also generate vapors irritating to the respiratory system.

Good industrial hygiene and safety practices must be followed when handling this product. Proper eye

protection and appropriate chemical resistant clothing should be worn to minimize direct contact and prevent possible skin absorption. Consult the Material Safety Data Sheet (MSDS) for detailed recommendations on the use of engineering controls and personal protective equipment.

*This information is only a brief summary of the available safety and health data. Thoroughly review the MSDS for more complete information before using this product.*

**Attention Specification Writers:**

The technical information contained herein is consistent with the properties of this material but should not be used in the preparation of specifications as it is intended for reference only.

For assistance in preparing specifications, please contact your local Emerson & Cuming Specialty Polymers office for details. Please contact Emerson & Cuming Quality Assurance for test method details.