

CHEMLINQ™ TC-8020T

Clear Transfer Molded Epoxy Molding Compound for Optoelectronics



+ OPTICALLY CLEAR EPOXY MOLD COMPOUND

+ THRU-HOLE & JEDEC MSL 4 DEVICES

+ FOR ChipLED & OPTICAL SENSORS

PRODUCT DESCRIPTION

High-performance, high transmission, clear epoxy molding compound specifically developed for optical emitters, detectors and other optical sensor.

Designed for Surface Mount Device (SMD) packages and particularly well suited to Monochromatic (single color) RGB ChipLED and optoelectronics applications that require long-term transmittance and reliability after 3 x 260°C reflow encapsulation.

This single-component, optically clear component resists yellowing after reflow and after long-term temperature exposure.

Designed for **THROUGH-HOLE** components and Surface Mount Devices requiring **JEDEC MSL 4**.

FEATURES & BENEFITS

- Resist 1,000s hours yellowing up to 125°C
- High Refractive Index of 1.56 for max
- Transmittance >90%
- Customizable, application-specific filters

APPLICATIONS

- Monochromatic RGB ChipLED
 - Optical Emitter
 - Optical Receivers/Detectors
 - Gesture Detection Sensors
 - Ambient Light Sensors
 - IR and Near-IR Sensors
 - Other Optical Sensors
-
- Mid-Power LED Encapsulation



PRODUCT FEATURES

TYPICAL PROPERTIES	UNIT	VALUE
GENERAL PROPERTIES		
Color	-	Blue/Transparent
Shelf Life @ 10°C	months	6
Spiral Flow @ 150°C	inches	79
Hot Plate Gel Time	seconds	30
CURED PROPERTIES		
Specific Gravity	g/cc	1.23
Glass Transition Temperature, T _g by TMA	°C	125
Coefficient of Thermal Expansion, CTE Alpha 1	ppm/°C	70
CTE Alpha 2	ppm/°C	170
Flexural Strength	MPa	130
Flexural Modulus	GPa	3.0
Water Absorption		
1 hr @ 95°C	%	0.32
24 hrs @ 25°C	%	0.17
Mold Shrinkage	%	1.6
Hardness	Shore D	86
JEDEC MSL Level Capable	-	MSL 4
OPTICAL PROPERTIES		
Refractive Index, @ 460nm	-	1.56
Transmission @ 460nm, initial		>90%
after 10,000hrs @ 125°C	%	86%
after 1,000hrs @ 150°C		68%

► Nomenclature

TC: Trans Clear Epoxy Mold Compound

8020: MSL4 Capable / Through Hole

T: Light Transmitting

Recommended Mold Parameters

Preheat Temperature: 40 – 80°C

Molding Temperature: 140 – 160°C

Transfer Pressure: 10-40 kgf/cm²

Transfer Time: 20 -50s

In-Mold Cure Time: 3 – 5 mins

Post Mold Cure Time: 4-6 hrs @ 150°C



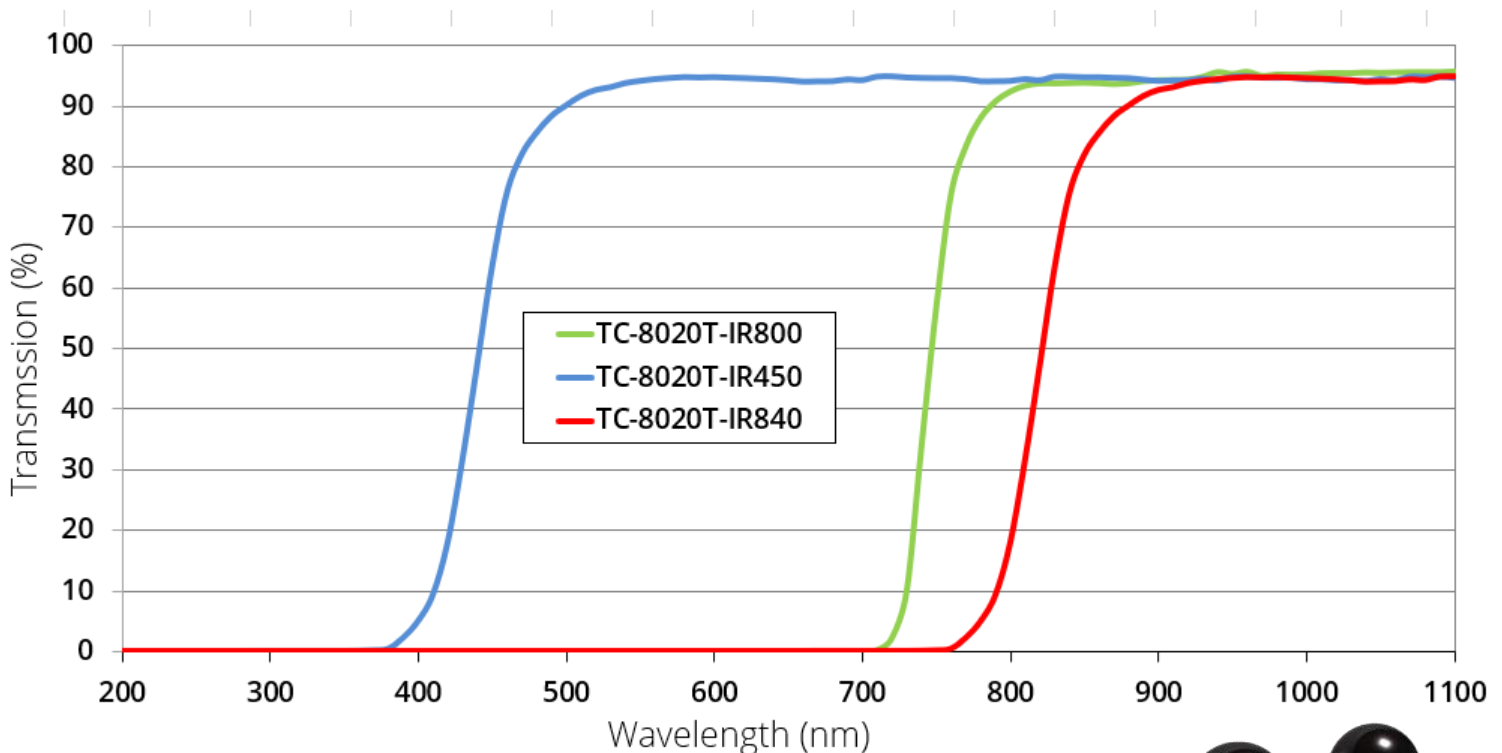


OPTICAL PROPERTIES

AVAILABLE TRANSMITTANCE FILTERS

Complementary to the base chemistry, are standard available filters:

- IR450 | Standard - Transmittance over 450nm.
- IR800 | Absorption between 340 - 700nm. Transmittance over 800nm (scales between 700-800)
- IR840 | Absorption between 340 - 840nm. Transmittance over 840nm



APPLICATION OF TRANSMITTANCE FILTERS

Each filter is designed with specific applications in mind. Though your application may be different than those listed, below are typical applications for each of the given cut-offs:

- TC-8020T-IR450: Typically used for emitter encapsulation
- TC-8020T-IR800 / TC-8020T-IR840: Typically used for detector encapsulation
- TC-8020T-IR800: For applications requiring wavelength filtering <800nm
- TC-8020T-IR840: For applications requiring wavelength filtering <840nm



STORAGE & HANDLING GUIDE

Uncured clear epoxy mold compound is moisture sensitive. Excessive exposure to moisture may cause molding problems, curing defects or suboptimal performance once cured. The packaging, storage and handling guide is written such as to keep the product from moisture and humidity.

PACKAGING

The epoxy molding compound is first ground and pelletized. The pressed pellets are supplied in vacuum-sealed, aluminum-laminated bags to protect the material from moisture before use. The amount of material per package varies depending on the size of the pellet:

PELLET SIZE	DIAMETER	QUANTITY PER BAG	QUANTITY PER BOX
Conventional Pellets	35mm and greater	1 kg	9 kg
Mini-Pellets	<25mm	1 kg	7 kg

STORAGE

It is recommended to keep the material stored in the bags and boxes in which they are provided. Below are some handy tips concerning storage:

- ✦ Storage at temperatures 5°C +/- 3°C is recommended for long-term storage.
- ✦ Storing material colder than the recommended is ok, and may extend shelf-life

THAWING

The following are useful guides when thawing the material prior to use

- ✦ The material must be allowed to come to room temperature before use
- ✦ To reduce moisture contamination, do NOT open bag until it has reached room temperature
- ✦ The material should be removed from the box, one bag at a time
- ✦ Thaw time for 2 kg bags is 16 – 24 hours @ 25°C. Colder storage requires longer thaw time
- ✦ Most customers remove from storage the day before use
- ✦ Use gloves when opening bags. Do not touch the EMC with your bare hands.
- ✦ Use the thawed material within 24 hours after opening bag
- ✦ Keep material away from sources of heat such as molding dies & leadframe preheaters

Consult Product Handling Recommendations for Clear Mold Compounds for more information.

The above figures are typical material properties only and are not to be used for product specification purposes. To generate a specification for this product, please contact our Quality Manager and request a copy of the current stock specification. The information and recommendations supplied in this document are believed to be accurate but no guarantee of their accuracy is made; they are for guidance only and should not be construed as a warranty. All implied warranties are expressly disclaimed, including without limitations any warranty of merchantability and fitness for use. It is recommended that purchasers before using this product conduct their own tests to determine whether the product is suitable for their particular purposes under their own operating conditions.



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