Duroptix™ OE-6636 A/B Kit

Lighting

A two-part, solvent-less, heat cure, optical material

Features

- High purity
- High transparency
- High refractive index

Benefits

- No by-product
- Excellent thermal stability
- Excellent dielectric properties

Composition

- Phenyl Siloxane

Applications

- Encapsulation of LED chips
- Molded lenses and optical parts for LED packages

Description

DuPont Optical Molding materials are designed to meet the challenging needs of the Optical market; high purity, moisture resistance, thermal stability and optical transmittance. Compression moldable optical silicone materials from DuPont are two-part, heat-cure silicone resins that are especially suitable for precision molding applications, as micrometer-sized features can be replicated on the lens surface to direct light output. Silicone optical molding materials can be molded into complex shapes, withstand heat and resist yellowing better than plastic, and are lighter than glass. Parts have been fabricated using a variety of techniques, including injection molding, casting or cavity molding, transfer molding, and others..

Mixing And De-Airing

DuPont silicone Optical Molding materials are supplied in two parts mix ratio, by weight or volume. To ensure best properties Parts A and B must each be thoroughly mixed, inadequate mixing and may result in incomplete cure or reduced physical properties. Automated meter, mix and dispense equipment may be utilized. In applications or molds that are sensitive to air entrapment, de-airing or vacuum application in the mold may be helpful.

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local DuPont sales office before writing specifications on this product.

Property	Unit	Result
One or Two Part	-	Two
Mix Ratio	-	1 to 2
Color	-	Colorless
Viscosity (Part A)	cP Pa-sec	13000 13
Viscosity (Part B)	cP Pa-sec	5100 5.1
Viscosity (Mixed)	cP Pa-sec	7500 7.5
Durometer Shore D	-	33
Elongation	%	100
Heat Cure Time at 150 °C	minutes	60
Specific Gravity (Cured)	-	1.17
Unprimed Adhesion - Die Shear (Al)	psi MPa kg/cm^2	535 3.7 370
Linear CTE (by TMA)	ppm/°C	220
Refractive Index	-	1.54
Transparency at 450 nm, 1 mm thick	%	100
Impurity (Na+)	ppm	0.1
Impurity (K+)	Ppm	0.2
Impurity (Cl-)	ppm	0.5
Tensile Strength	psi MPa kg/cm^2	565 3.9 40
Volume Resistivity	ohm*cm	3E+16
Dielectric Strength	volts/mil kV/mm	37
Dielectric Constant at 1MHz	-	3.3
Dissipation Factor at 1MHz	-	6E-03
Youngs Modulus	psi MPa kg/cm^2	5220 36 367.2
Tg by DSC	°C	32

Processing/Curing

These products are compatible with commercially available equipment and industry standard processes. OS Fluids are recommended to clean cured or uncured silicone residue from application equipment.

Pot Life and Cure Rate

Cure reaction begins with the mixing process. Initially, cure is evidenced by a gradual increase in viscosity, followed by gelation and conversion to a solid elastoplastic material. Pot life is defined as the time required for viscosity to double after Parts A and B (base and curing agent) are mixed and is highly temperature dependent. Please refer to the data table. The cure time depends on the thickness and the cure temperature used.

Useful Temperature Ranges

For most uses, silicone elastomers should be operational over a temperature range of -45 to 200 °C (-49 to 392 °F) for long periods of time. However, at both the low- and high temperature ends of the spectrum, behavior of the materials and performance in particular applications can become more complex and require additional considerations and should be adequately tested for the particular end use environment. For low-temperature performance, thermal cycling to conditions such as -55°C (-67°F) may be possible, , but performance should be verified for your parts or assemblies. Factors that may influence performance are configuration and stress sensitivity of components, cooling rates and hold times, and prior temperature history. At the high-temperature end, the durability of the cured silicone elastomer is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain useable.

Compatibility

Certain materials, chemicals, curing agents and plasticizers can inhibit the cure of addition cure adhesives. Most notable of these include: Organotin and other organometallic compounds, Silicone rubber containing organotin catalyst, Sulfur, polysulfides, polysulfones or other sulfur containing materials, unsaturated hydrocarbon plasticizers, and some solder flux residues. If a substrate or material is questionable with respect to potentially causing inhibition of cure, it is recommended that a small scale compatibility test be run to ascertain suitability in a given application. The presence of liquid or uncured product at the interface between the questionable substrate and the cured material indicates incompatibility and inhibition of cure.

Safe Handling Information

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. FOR MATERIAL SAFETY DATA SHEETS, CONTACT YOUR LOCAL DUPONT SALES OFFICE.

Health And Environmental Information

To support customers in their product safety needs, DuPont has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area. For further information, please see our website, www.dupont.com, or consult your local DuPont representative.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

DUPONT™

electronics.dupont.com

For more information on Duroptix™ OE-6636 A/B Kit or other DuPont products, please visit our website.

Form No. 11-3343-01 Rev 0 (05/21)