

OP-21 & OP-21G Product Data Sheet

OP-21 & OP-21G Flexible Plastic Bonder

DESCRIPTION

Designed as efficient optical plastic bonders, OP-21 and OP-21G cure upon exposure to UV or visible light in seconds. Even most UV opaque and translucent plastics are easily bonded with light. Because of their solvent-free and rapid cure features they increase productivity, lower assembly cost and enhance worker safety. When cured with Dymax spot, beam or flood lamps, they deliver optimum speed and performance for a variety of optical applications. This product is in full compliance with the RoHS Directives 2002/95/EC and 2003/11/EC.

SUBSTRATES BONDED: FEATURES: APPLICATIONS:	 Polycarbonate • Polystyrene • Acrylic • Plastics • Metals • Glass Solvent Free • High Strength • Optically Clear • Wide Surface Compatibility Broad Temperature Range • Complete Cure in Seconds Lens Bonding • Fixturing • Tacking 				
TYPICAL UNCURED PROPE	RTIES				
Solvent Content Composition Appearance Solubility Flash Point Density Viscosity OP- OP- TYPICAL CURED PROPERTI	21 21G I ES	None - 100% Solids Urethane Acrylate Clear Liquid Alcohols/Chlorinated Solvents/Ketones >85°C (185°F) 1.06 450 cP 25,000 cP	ASTM D-1084		
PHYSICAL Linear Shrinkage Durometer Hardness Elongation at Break 24 hr Water Absorption Tensile at Break Thermal Range (brittle/degrad Boiling Water Absorption (2 h)	es)	2.7 % D55 175% 1.8% 1,700 psi -55° to 180°C (-65°/+350°F) 1.3%	ASTM D-2566 ASTM D-2240 ASTM D-638 ASTM D-570 ASTM D-638 DSTM D-200* ASTM D-570		
*DSTM refers to Dymax Standard	Test Method				
RECOMMENDED CURING SYSTEMS					

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Lamp	2000-EC	5000-EC	PC-3	3010-EC
Light Type	UV	UV	UV	UV
Lamp Type	Flood	Flood	Spot	Spot
Intensity (mW/cm ²) at Peak Wavelength	50 @ 365 nm	150 @ 365 nm	1000 @ 365 nm	1800 @ 365 nm
Wavelength (nm) Working Range	300-500	300-500	300-500	300-500
Cure speed (sec)				
Between glass slides	1	1	1	1
1/8" Bead	20	15	10	7
Cure Depth in 1 Minute (inch)	3/16	9/16	1/8	3/16



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The required intensity and cure time should be determined during the initial process validation stage. Factors that should be considered during process validation which can effect the adhesive cure rate and depth of cure include part geometry, bond-gap size, percent light transmittance through the substrate at 365 nm and/or 436 nm, distance from the light source to the adhesive bond are, UV and visible light intensity and spectral output of the light source, the desired margin of safety to be built into the process, etc. For specific technical recommendations relating to the application, please contact Dymax Application Engineering.

OPTICAL PROPERTIES

Refractive Index (25°C) Uncured Refractive Index (25°C) Cured

ASTM D-1218
ASTM D-1218

LIGHT TRANSMITTANCE*



*Measured at 0.03 mm [0.001in] per DSTM-501[‡]

STORAGE AND SHELF LIFE

Store the material in a cool, dark place when not in use. Do not expose to light. This product may polymerize upon prolonged exposure to ambient and artificial light. Keep covered when not in use. This material has a 12-month shelf life from date of shipment, unless otherwise specified, when stored between 10°C [50°F] and 32°C [90°F] in the original, unopened container.

DISPENSING THE ADHESIVE

This material may be dispensed with a variety of manual and automatic applicators or other equipment as required. Questions relating to dispensing and curing systems for specific applications should be referred to Dymax Application Engineering.

SAFETY

Wear impervious gloves and/or barrier cream. Repeated or continuous skin contact with liquid adhesive will cause irritation and should be avoided. Do not wear absorbent gloves. Remove adhesive from skin with soap and water. Never use solvents to remove adhesive from skin or eyes.

CAUTION

For industrial use only. Avoid breathing vapors. Avoid contact with eyes and clothing. In case of contact, immediately flush with water for at least 15 minutes; get medical attention. Wash clothing before reuse. Keep out of reach of children. Do not take internally. If swallowed, induce vomiting at once and call a physician. Repeated or continuous skin contact with liquid adhesive will cause irritation and should be avoided. For specific information, refer to the product's Material Safety Data Sheet.

[‡] DSTM refers to Dymax Standard Test Method