

MY-145 to MY-147 Series

Optical Adhesive

Updated: October 2010



MY-145 to MY-147 series are part of a series of low refractive index UV curable adhesives and encapsulants. Their main feature are the low refractive index and excellent adhesion to glass, metal and some plastics. The products can be described as thermosetting polyurethanes and as such they have very good tensile properties and a wide range of flexibility and hardness combined with a high tensile strength.

Properties

The following are typical characteristics of a few products:

| | MY-145 | MY-146 | MY-1465 | MY-147 | MY-1473 |
|--------------------------------|--------|--------|---------|--------|---------|
| n ^D liquid | 1.435 | 1.4427 | 1.4462 | 1.453 | 1.4558 |
| n ^D cured (@589 nm) | 1.450 | 1.4607 | 1.465 | 1.470 | 1.4738 |
| n cured (@ 950 nm) | 1.446 | 1.457 | 1.461 | 1.466 | 1.469 |
| Density, g/cm ³ | 1.15 | 1.125 | 1.08 | 1.09 | 1.09 |
| Viscosity, cps | 600 | 270 | 235 | 400 | 290 |
| Peel force, glass, g/cm | 600 | >1500 | 800 | 800 | 1700 |
| Hardness, Shore A | 92 | 91 | 90 | 92 | 95 |
| Hardness, Shore D | 50 | 62 | 45 | 60 | 60 |
| Tensile strength, MPa | 11.4 | 17.4 | 10.6 | 11.6 | 14.8 |
| Elongation at break, % | 150 | 22 | 140 | 174 | 90 |
| Young modulus, MPa | 300 | 515 | 160 | 270 | 555 |

Each of these adhesives can also be made harder without impairing the excellent adhesion and mechanical strength.

The products are supplied pre-filtered to below 0.5 micron particles.

The products are pale yellowish clear fluids. Particulate free. The yellowish tint is bleached upon irradiation. The final film is clear. Non yellow formulations can be made as well.

Storage

1. Avoid unnecessary exposure to ambient light.
2. The product should be stored at ambient conditions of 15-30°C. Do not refrigerate.
3. Long storage combined with excessive heat may cause the consumption of a polymerization inhibitor which is present in the formulation. Once it happens, the product may gel irreversibly.
4. Do not store under nitrogen. Oxygen is an essential inhibitor against premature gelation.
5. The adhesive is supplied in partial filled glass bottles. This allows for enough air (oxygen) to be present. Repackaging in plastic (polyethylene or polypropylene) bottles or syringes is possible because these plastics are permeable to oxygen. Do not use syringes which are lubricated with a silicone oil. Ask for recommended syringes.
6. The product is specified to be useful for at least 12 months but longer use can be experienced with proper handling.

Application

Like most UV cured acrylic resins, the polymerization of MY-140 series leaves a tacky surface. To achieve good aesthetic non tacky surface, it is recommended to irradiate under nitrogen. Alternatively, oxygen can be blocked with a cover, such as polyethylene or glass.

Curing can be achieved by any source of UV. Typically, a dose of 500-2000 mJ/cm² is necessary.

The cured products are tough and flexible polymers.

Cleaning

The non cured adhesive can be removed with solvents such as acetone and iso-propanol. Do not use solvents for hand cleaning. Use only soap and water.

Safety

Although relatively safe, this adhesive is a chemical and must be handled by professional workers and after review of the MSDS.



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