

DATA SHEET

Adhesion Primers for Low RI UV Adhesives

Primer P, Primer G, Primer LC

Generally speaking, low RI adhesives and coating materials, especially the very low index of 1.32-1.34, have low adhesion to all substrates.

There are a few primers being offered:

1. Primer for Plastics: **Primer P**
2. Primer for Glass, Oxides, Ceramics and Metals: **Primer G**
3. A Pressure Sensitive **Primer LC** with a matching refractive index to MY-133.

All the primers are supplied as dilute, 25% solids solutions, in organic solvents. They are applied to the substrate as a thin coating prior to the application of the MY-133 adhesive. The primers are also effective for the other MY products in the range MY-131 to MY-139.

Primer P is the primer for plastics.

It is a UV curable composition. It is suitable for most plastics such as acrylics, polystyrenes, polycarbonate, PET and more. It is applied as a thin coating by either dipping, brushing or other coating techniques. Thickness is non critical. It can be modified by dilution with acetone or other solvents. The product is supplied as a 25% solids and may be diluted by acetone, MEK etc. The cured layer has an RI of about 1.44.

The major solvent component is HFE-7100 a safe nonflammable hydro-fluoro-ether.

Primer G is the primer for Glass.

This one is almost identical to Primer P. The only difference is the presence of an additional adhesion promoter for inorganic oxides. This primer is suitable for plastics as well, yet, the presence of the adhesion promoter makes it sensitive to humidity and somewhat more sensitive for handling. Therefore, the Primer P should be preferred where it is suitable enough.

Like Primer P, Primer G is supplied as a ready to use 25% solids solution.

The cured layer has an RI of about 1.44.

Both primers are supplied with a shelf life of 12 months. Protect the liquid from light and humidity when not in use.

These primers are intended for the non-optically active surfaces such as ferrules or portion of fibers away from the active areas.

Primer-LC

Primer-LC has a matching refractive index to most MY-133 series. It has an RI of 1.33 in the near IR. It is therefore the primer of choice for adhesives with RI in the range 1.32-1.34 where the primer layer is in the optical path.

Primer-LC, like the other two, is a UV curable resin. As with Primer P and G, the UV curing takes place simultaneously with the curing of the top MY-133 or the other UV material.

The primer is supplied as a 25% solids in HFE-7500. It has a viscosity of about 500 cps. After evaporation of the solvent it leaves a tacky layer of 5-30 microns. The tackiness of the resin provides the mechanism for adhesion (same as in a pressure sensitive tape). The pressure sensitive nature also provides another important feature and that is the **self-healing** ability. For this reason the adhesive will not lose grip under cycles of temperature and mechanical vibrations. Primer-LC is best soluble in 1/1v/v of HFE and a common solvent from the families of alcohols, ketones, esters (e.g., Novec-7100 or Novec-7500/ butyl-acetate mixture). Butyl acetate or acetone or alcohol can therefore be used alone as a diluent for the as supplied 25% solution of the resin in HFE-7500.

Primer-LC is the most versatile primer of all the above list. It provides the index matching, it is suitable for almost all substrates, it is the fastest to dry and it provides a long delay period before applying the next layer. It is self-healing and is resistant against moisture penetration at the interface. Shelf life is one year. Like most pressure sensitive adhesives, Primer-LC works better at a higher thickness. A 10-30 micron layer will work better than the recommended minimum of 2-6 microns.

Application

The primers are used by coating (brushing, spraying etc) over the surface, allowing it to evaporate for at least 30 minutes or less by blowing hot air. Application of the Low RI adhesive can be made at any time. Keep coated primed surface in the dark if not used immediately. Apply the Low RI adhesive and irradiate. Both primer layer and the adhesive are cured at the same time.

Safety: The solvents are the more irritating components in these primers and they are volatile. The use of these products requires ventilated work place. In addition, refer to the Material Safety Data Sheet (MSDS) for more details and precautions.

Examples:

Adhesion on fused silica (90 deg. Peel test in g/cm) of two typical adhesives:

| Adhesive | MY-133-V2000 | MY-136-V2000 |
|-----------------------|-----------------|--------------|
| Without primer (g/cm) | 5 | 20 |
| With primer G (g/cm) | 300 | 500 |
| With primer LC (g/cm) | 300 (Estimated) | 500 |

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