

Adhesion Primers for UV Adhesives - MY 133 Series

August 2011



Generally speaking, MY-133 series has 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. Optical Primer for Glass with a matching RI of 1.33: **Primer 133H**.
4. A Pressure Sensitive **Primer PS** with a matching refractive index to MY-133.

All the primers are supplied as dilute solutions in solvents. They are applied to the substrate as a thin coating prior to the application of the MY-133 adhesive.

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. A 25% solids is a good starting point. The product is supplied as a 20% solids and may be diluted by acetone, MEK etc.

The major solvent component is HFE-100 a safe hydro-fluoro-ether.

Application: After applying to the substrate, allows for the evaporation of the solvents or apply warm blown air to accelerate drying. There is no particular need to protect the coated surface from ambient light for the duration of this drying process. The dry primer will harden upon irradiation. There is no particular recommendation for the delay before applying the adhesive. Normally 5-60 minutes is a convenient delay. The primed parts can also be stored for up to a month before use.

Primer G 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 available as a concentrate of 50% solids or as a ready to use 25% solids.

Application: Apply on glass, metal, oxides. Allow to dry. Allow at least 5 minutes for the adhesion promoter to react with the substrate before applying MY-133-x. Longer delay may provide a better adhesion. The adhesion may take time to develop. Allow at least 24 hours before testing the adhesion. Post curing at an elevated temperature at 60-100° for 30 minutes to 2 hours may provide better adhesion. In general the adhesion is very good with or without excessive delays and post curing and these extra steps may be eliminated.

Primer G is sensitive to humidity avoid opening the bottle too many times. If necessary split the product into a few well sealed glass vials.

Both primers P and G are also light sensitive. Both are intended to be cured by UV irradiation simultaneously with the top MY-133 material.

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

Shelf life is in excess of 12 months.

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.



Electro Optical Components, Inc.

5460 Skylane Boulevard, Santa Rosa, CA 95403
Phone: (707) 568-1642 • FAX: (707) 568-1652
www.eoc-inc.com

Primers 133H

Primers 133H is intended for the active glass (and oxides) parts of the optical device. It is based on moisture curable resins. Primer 133H is intended to be used with all the MY-133 series.

Primer 133H is very sensitive to humidity and may form gels after many opening of the bottle. It may be better separated into a few bottles.

Shelf stability of the sealed product is 6 months.

It is supplied as a dilute solution in HFE-□100, a "green" substitute for Freon made by 3M, boiling point 60°. HFE is non toxic and non flammable. The solution contains a low level of methanol. Methanol is toxic. Refer to the MSDS for more details.

Further dilution can be made with acetone. A 25% solids solution is a good starting point.

The timing with this primer is more critical than with the other primers. For best results do not wait for more than 5 minutes between the application of the primer and the MY-133 adhesive. Here again, final properties are only expected to show after a day or after a post cure of one hour at 80-100°C..

The primer solution is very sensitive to humidity.

The product is supplied as stated above in HFE mixture.

Primer PS

Primer PS is a pressure sensitive resin with a matching refractive index to most of the MY-133 series. It has a RI of 1.333 in the near IR.

Unlike the other primers, primer PS is an inert resin. It does not go any further reaction and therefore it has no special sensitivity to moisture or light. The primer is supplied as a 25% solids in HFE. After evaporation of the solvent it leaves a tacky layer of 2-6 micron. 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 PS is the most versatile primer of all the above list. It provides the index matching, it is suitable for all substrates, it is the fastest to dry and it provides an infinite delay period before applying the next layer. It is self healing and is resistant against moisture penetration at the interface. It is practically having no limit on shelf life. Like most pressure sensitive adhesives, Primer PS works better at a higher thickness. A 10-20 micron layer will work better than the recommended minimum of 2-6 microns.



Electro Optical Components, Inc.

5460 Skylane Boulevard, Santa Rosa, CA 95403
 Phone: (707) 568-1642 • FAX: (707) 568-1652
www.eoc-inc.com