



OF-133 and OF-134 Optical Cladding Materials

OF-133 and OF-134 are low refractive index coating materials which are intended for the cladding of specialty optical fibers. They are close relatives to the MY-133 low refractive index resin and to the higher viscosity MY-133-V2000 and MY-133V5000. They provide better adhesion to glass.

Properties

	OF-133	OF-134
n^D liquid	1.333	1.339
n^D cured	1.334	1.344
RI at 900-1000 nm	1.330	1.340
Density, g/cm³	1.68	1.66
Viscosity, cp	2100	3800
Shore A	70-75A	70-75A
Tensile Strength, MPa	0.9	1.1
Elongation, %	20	38
Elastic modulus, MPa	3.7	3.8
Adhesion to glass, 90° Peel, g/cm	20	33
Methanol release potential (g/Kg)	20	13.5
Transparency	clear	clear

Adhesion

Peel test was performed on samples coated on a virgin glass with a thickness of about 270 microns and after a delay of 3 days at ambient conditions followed by one hour @90°C.

Storage

1. Avoid unnecessary exposure to ambient light and moisture.
2. The product should be stored at ambient conditions of 20-30°C. Do not refrigerate. Upon storage and especially if subjected to low temperature, some ingredients may crystallize out.
3. Long periods of storage combined with excessive heat may cause irreversible gelation..
4. Do not store under nitrogen. Oxygen is an essential inhibitor against premature gelation.
5. The adhesive is supplied in glass bottles. Keep container closed to avoid moisture penetration.

The product is specified to be useful for 6 months.

Application

OF-133 and OF-134 are dual cure compositions that are based on a fast UV curing followed by a slow moisture curing. The moisture in the surrounding atmosphere is sufficient to start the process. The final stage of the moisture curing is a condensation reaction which is enhanced by heat and coupled with a release of a small level of methanol. The UV curing is done under nitrogen. Typically, a dose of 1000-4000 mJ/cm² is necessary. When properly cured under nitrogen, it should have no oily surface or a tacky surface. Final adhesion will be achieved not earlier than 24 hours after curing and possibly only after rewinding and venting of the fibers. For best adhesion and best performance, it is recommended to allow the fiber to dwell for 30-60 minutes at 80-90°C. This post heat process has to be done a day or more after the coating operation and can be delayed until shortly before the actual use.