

# Preparation and Properties of UV-Cured Coating Materials for

## Optical Fiber Coating ( II )

### - Secondary Coating Materials -

강 승구\* . 김 은영\* . 김 호정\* . 하 장식\*\* . 김 한도\*

\* : 부산대학교 공과대학 섬유공학과

\*\* : 부산대학교 공과대학 고분자공학과

The relationship between chemical structure and properties of UV-cured optical fiber coating materials were observed. The coating materials are liquid compounds consisting of polyurethane oligomer, diluent and a photoinitiator. Several families of UV-cured material for secondary optical fiber coating were prepared. The effect of oligomer and diluent types on their physical properties were investigated.

By dynamic mechanical thermal analysis at 35 Hz, the storage modulus of BD / SS - based secondary coating material for optical fiber were found to increase with increasing BD and TMPTA contents. The glass transition temperatures for secondary coating materials obtained from  $\tan \delta$  peaks are in the range of 70 and 90 °C.  $\tan \delta$  maximum peak for the BD / SS - based secondary coating material shifted to higher temperature with increased of BD content. The tensile strength and modulus increased with increasing BD and diluent TMPTA contents. The tensile strength and modulus increased with increasing the number of functional group of diluents. The higher strength and modulus is due to the content of hard segment and crosslinking by BD and multi functional diluent respectively.