

ABS/PVC/PMMA Ternary Blends

윤이근, 손경호*, 민성기**, 김병규

부산대학교 고분자 공학과,

* (주) 효성BASF

** 부산공업대학교 고분자공학과

The miscibility of poly(vinyl chloride)(PVC) and poly(styrene-co-acrylonitrile)(SAN) has considerable technological importance. For example, SAN is an effective additive for raising the heat distortion temperature of PVC. ABS is used as impact modifiers of PVC. It is well known that halogen-containing polymers are often miscible or partially miscible with polymers having ester groups. Acrylonitrile polymers are also often miscible with esters.

We consider the ternary blends of PVC, ABS, and poly(methylmethacrylate) (PMMA). In our experiment, the blends of PVC, ABS, and PMMA were prepared at various content of PVC and PMMA. ABS containing 35wt%AN of SAN was used.

These blends were prepared by melt mixing using a twin-screw extruder at 190°C, 180rpm. Test specimens were prepared by injection molding at the same conditions with extrusion. Mechanical properties were determined using an Instron tensile tester. Morphology of the blends was also observed by a scanning electron microscope(SEM). Rheological properties were measured by using an RDS (rheometrics dynamic spectrometer) with a parallel plate geometry at 200°C. Thermal behavior was examined by using DSC(differential scanning calorimeter). Tensile modulus of the ABS/PVC/PMMA blend was increased over the additivity rule with PVC/PMMA content.(Fig. 1)

REFERENCE

- [1] J. C. Huarng, Kyonsuku Min, and James L. White, *Polym. Eng. Sci.*, **28**, 1085(1998).
- [2] J. H. Kim, J. W. Barlow, and D. R. Paul, *J. Polym. Sci. Polym. Phy.*, **27**, 2211(1989)

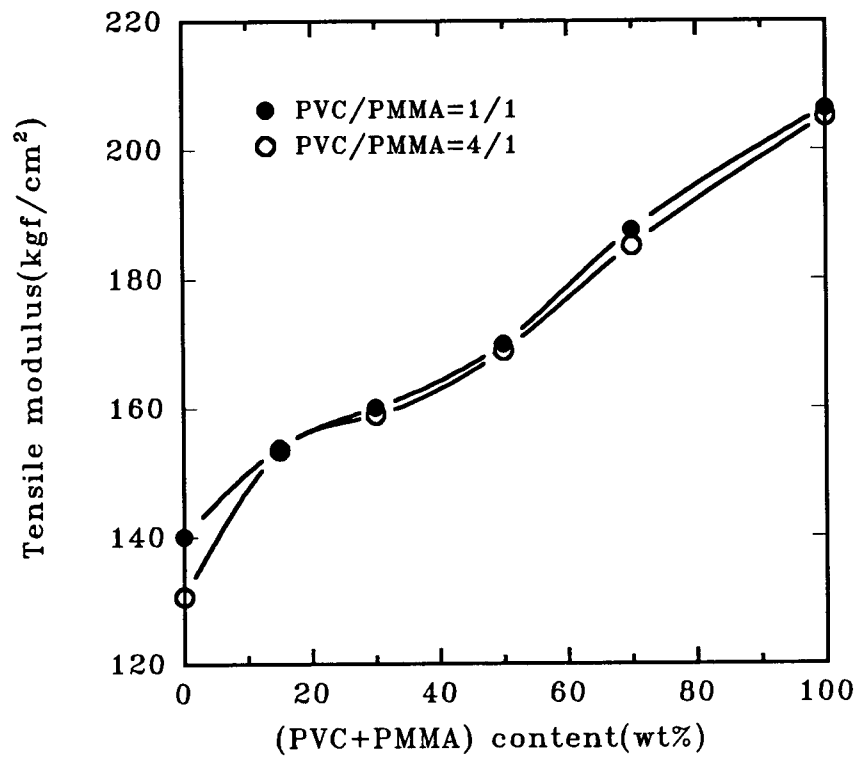


Fig.1. Tensile modulus of ABS/PVC/PMMA blends.