

CHEMICAL RESISTANCE AND SWELLING BEHAVIOR OF NBR/PVC BLEND CURED BY SULFUR AND ELECTRON BEAM

Mahshid Hafezi¹, Saied Nouri Khorasani^{2,*}, Farhood Ziaei³,
Hamid Reza Azim³

¹*M.Sc. Graduated student, Chemical Engineering Dept., Isfahan
University of Technology, Isfahan, Iran*

²*Polymer Group, Chemical Engineering Dept., Isfahan University of
Technology, Isfahan, Iran*

³*Yazd Radiation Processing Centre, P.O.Box 89175-389, Yazd, Iran*

ABSTRACT

In this research chemical resistance and swelling behavior of NBR/PVC blend cured by electron beam and sulfur system in three chemicals isooctane/toluene (50:50), Behran840, DOP were characterized (according to ASTM 3 oil and ASTM fuel-C). A fixed master batch formulation was used for both curing systems. In curing with sulfur, the optimum level of curing system (sulfur, MBTS, CBS) was added to fix master batch formulation. Depending on the number of factors and level needed (4 factor and 3 level), L₉ orthogonal array of Taguchi method was used. Electron beam were used for curing master batch. Dose ranging from zero to 150 kGy were applied to fixed master batch formulation to cure the NBR/PVC blend. Results show that those samples cured by electron beam have better chemical resistance and swelling behavior in order of 12 percent than those cured by conventional method.

Key words: Electron beam, sulfur, NBR/PVC blend, curing system, chemical resistance, swelling behavior.

* Corresponding author. Tel: +98 311 3915612 Fax: +98 311 3912677,
E-mail address: saied@cc.iut.ac.ir