

ABSTRACT:

The aim of this study was to compare the effects of ultraviolet (UV) and electron beam (EB) radiation on the properties of cured nanocomposite coatings. Surface hardness increased with increase in radiation dosages (number of passes) for all samples. This was due to the increase in crosslinking with increase in radiation dosage. Pendulum hardness, gel content, and thumb twist results were analyzed to choose appropriate curing dosage for both curing techniques. The selected dosages were then used to cure coatings for scratch and abrasion resistance tests. It was found that the UV curing produced coatings with better abrasion resistance, whereas EB curing was a more suitable approach for producing scratch resistance coatings.