Increased hydrocarbon solvent resistance for EPM/EPDM containing elastomer blends

Gina Butuc[1,2], Auke Talma[2], Wilma Dierkes[1], Anke Blume[1]

1. University of Twente, University of Twente, Faculty of Engineering Technology Department of Elastomer -Technology and Engineering, Enschede, The Netherlands; s.g.butuc@utwente.nl
2. AkzoNobel Polymer Chemistry, 525 W Van Buren, Chicago, IL, 60607

This paper is proposing a novel approach to increasing EPDM and EPM resistance to non-polar solvents by creating polymer blends. These are either an interpenetrating polymer network (IPN) or thermoplastic vulcanized blends of EPDM or EPM with low molecular weight polymeric material. This oligomer is a cyclic oligosulfide containing at least one tetrasulfide group in the molecule. The focus of this paper is on a proposed mechanism of crosslinking facilitated by both organic peroxide and sulfur, with the oligomer becoming a sulfur donor and participating in the crosslinking process. This is a potential platform mechanism for creating unique elastomer materials with tailored properties.