

## **Effects of cure characteristics, mechanical and morphological properties of styrene butadiene rubber/recycled chloroprene rubber (SBR/CRr) blends**

### **Abstract**

The effects of tensile and morphological properties of styrene butadiene rubber/virgin chloroprene rubber blends (SBR/CRv) and styrene butadiene rubber/recycled chloroprene rubber blends (SBR/CRr) were investigated. The range size of CRr used in this study was 0.3 - 0.7 mm. Both SBR/CRv blends and SBR/CRr blends were prepared using two roll mill at room temperature with blend ratios 95/5, 85/15, 75/25, 65/35 and 50/50. It can be observed that, cure characteristics of SBR/CRr blends have lower cure time,  $t_{90}$  than SBR/CRv blends. SBR/CRr blends showed higher scorch time,  $t_2$  and minimum torque (ML) compared to SBR/CRv blends at all blend ratios compared with the SBR/CRv blends. However, maximum torque (MH) of SBR/CRr blends exhibit the opposite trend compared with the SBR/CRv blends. It can be observed that, the tensile strength and elongation at break of SBR/CRr blends show higher value than SBR/CRv blends particularly up to 15 phr of CRr in the blends. However, SBR/CRr blends shows higher value of tensile modulus (M100) than SBR/CRv blends at all blend ratios. The scanning electron microscopy (SEM) of tensile fracture surface of SBR/CRr blends at 50 blend ratios illustrated a better adhesion and dispersion in comparison with SBR/CRv blends.

### **Keyword**

Chloroprene rubber; Recycled chloroprene rubber; SEM; Styrene butadiene rubber; Tensile properties