Effect of vulcanization system and carbon black on mechanical and swelling properties of EPDM blends

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Abstrak

EPDM (Ethylene propylene diene monomer) is one of synthetic rubber that widely used in automotive. It must be vulcanized and added by other materials before used. The aim of this study is to investigate the effect of vulcanization system and the addition of carbon black (CB) to the mechanical properties and swelling characteristic of EPDM.

This research used three vulcanization system: conventional vulcanization (CV), efficient vulcanization (EV), and semi-efficient vulcanization (SEV) with the variation of carbon black 50, 60, and 70 phr (per hundred resin).

This research showed that EV system resulted faster vulcanization time and lower delta torque than SEV and CV systems. This system also performed the highest tensile strength, elongation, and tear strength, while SEV system resulted the highest hardness. Furthermore, the conventional vulcanization system resulted the lowest swelling index.