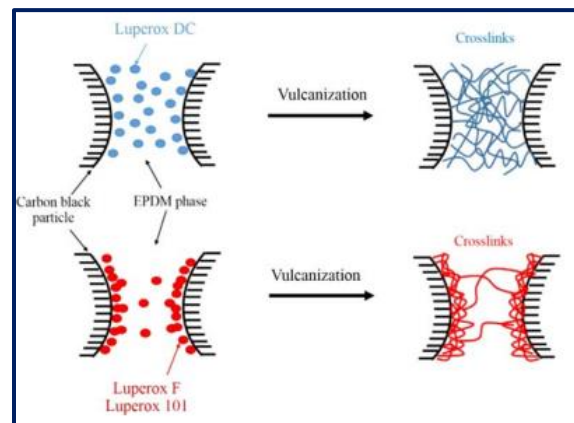


Protection of Peroxide-Cured Ethylene-Propylene-Diene Terpolymer (EPDM) from Undesirable Premature-Vulcanization (Scorch)

Ethylene-propylene-diene terpolymer (EPDM) is mainly used in automotive applications because of its good resistance to heat, ozone, oxidation, and weather experienced under the high service temperature. To gain the EPDM products with high thermal resistance in conjunction with a low compression set, a peroxide curing system is typically used. The objective of this work is to ascertain the characteristics of desirable (cure) and especially undesirable (scorch) crosslinking when carbon black filled ethylene propylene diene terpolymer (EPDM) is processed using different peroxide initiators. The results reveal that the mixing temperature and the nature of the peroxide initiator are crucial parameters affecting scorch (undesirably premature crosslinking) in this rubber.

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The figure representing the idealized occurrence of crosslink distribution in EPDM compounds initiated with various peroxides

Reference:

T. Saleesung, P. Saeoui, C. Sirisinha, Cure and Scorch in the Processing of Ethylene-Propylene-Diene Terpolymer (EPDM), Journal of Applied Polymer Science, 134(9), 44523, 2017.