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Rheological analysis of self-healing property of microcapsule-containing asphaltKyungho Chung[a,1], Seunghyun Lee[c,1], Wooksang Cho[b],

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Abstract

Novel anionic urethane ionomers were synthesized, encapsulated, and added to asphalt. Accordingly, microcapsule-containing asphalts displayed better rheological properties than the pure one. Shear strength, G^* (complex shear modulus) exhibited microcapsule-containing asphalts improved over rest period, it reached 98% of its original strength at 24-hour rest time after break as compared to only 74% for pure asphalt. Therefore, microcapsule (core: anionic urethane ionomer)-containing asphalts possess excellent self-healing potential. The anionic urethane solution remained in the core of the microcapsule after break, It represented the core solution and microcapsule itself endured the harsh condition of mixing. In a comparative study, polymer (anionic urethane ionomer)-added asphalt showed better modification effect than