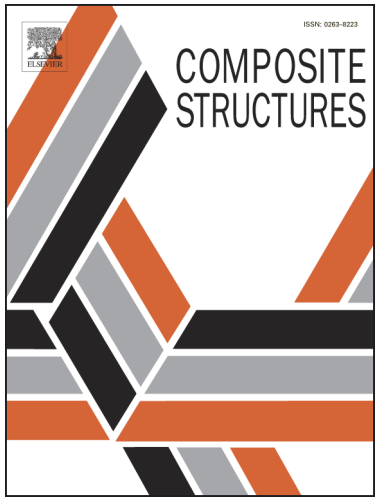

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Hyo Seung Jung,[1] Seung Hyuk Kwon,[1] Hyoung Jin Choi,[1*]
Jae Heum Jung,[2] Young Gil Kim [2]

[1]*Department of Polymer Science and Engineering, Inha University, Incheon 402-751, Korea*
[2]*Materials Development Team, Daeheung Rubber & Technology Co., Kimhae 621-884, Korea*

*Corresponding author: (H. J. C.) E-mail: hjchoi@inha.ac.kr Tel: +82-32-860-7486. Fax: +82-32-865-5178.

ABSTRACT

Mangetorheological (MR) elastomer composites, consisting of natural rubber and carbonyl iron (CI), were fabricated in two different forms of isotropic and anisotropic states. In the case of the anisotropic MR elastomer sample, it was cured under an applied external magnetic field. Therefore, the dispersed CI particles were pre-aligned in the direction of the applied magnetic field. To confirm the arrangement of CI particles in the elastomer composite, a mapping method by scanning electron microscopy was used. The MR effect of these MR elastomer samples was measured using a rotational rheometer under an external magnetic field. The results showed that as the magnetic field strength increases, the storage moduli increased depending on the angular frequency at a constant shear strain. Higher MR performance from both the viscoelastic characteristics and MR efficiency were also observed for the anisotropic MR elastomer compared to the isotropic MR elastomer.