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Erratum: Modelling fatigue induced change in hyperelastic response of SBR/NR blends

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KEYWORDS

hyperelasticity, fatigue, ABAQUS, yeoh model, rubber, MATLAB, energy limiter

An Erratum on

Modelling fatigue induced change in hyperelastic response of SBR/NR blends

by Nambiar A and Mytharavuni P (2025). *Front. Mech. Eng.* 11:1514002. doi: 10.3389/fmech.2025.1514002

Due to a production error, there was a mistake in [Equations 6, 8, 9](#) and the last, unnumbered equation as published. The corrected equations appear below.

$$\sigma = \frac{2}{J} \exp\left(\frac{-W^m}{\phi^m}\right) (C_1 + 2C_2(\bar{I}_1 - 3) + 3C_3(\bar{I}_1 - 3)^2) \text{dev}[\bar{\mathbf{B}}] + \frac{2}{D} \exp\left(\frac{-W^m}{\phi^m}\right) (J - 1) \mathbf{I}, \quad (6)$$

$$\begin{aligned} \sigma_{11\text{eng}} &= \frac{1}{\lambda_1} \frac{2}{J} \exp\left(\frac{-W^m}{\phi^m}\right) (C_1 + 2C_2(\bar{I}_1 - 3) + 3C_3(\bar{I}_1 - 3)^2) \text{dev}[\bar{\mathbf{B}}]_{11} \\ &\quad + \frac{1}{\lambda_1} \frac{2}{D} \exp\left(\frac{-W^m}{\phi^m}\right) (J - 1). \end{aligned} \quad (8)$$

$$\begin{aligned} \sigma_{22} &= \frac{2}{J} \exp\left(\frac{-W^m}{\phi^m}\right) (C_1 + 2C_2(\bar{I}_1 - 3) + 3C_3(\bar{I}_1 - 3)^2) \text{dev}[\bar{\mathbf{B}}]_{22} + \frac{2}{D} \exp\left(\frac{-W^m}{\phi^m}\right) (J - 1) \\ &= 0. \end{aligned} \quad (9)$$

$$\begin{aligned} \sigma_{11\text{eng}} &= \frac{1}{\lambda_1} \exp\left(\frac{-W^m}{\phi^m}\right) \left[\frac{2}{J} \left\{ \left(0.99e^{-2.18 \frac{N}{N_f}} \right) + 2 \left(0.322e^{0.9267 \frac{N}{N_f}} \right) (\bar{I}_1 - 3) \right. \right. \\ &\quad \left. \left. + 3 \left(0.187e^{0.5394 \frac{N}{N_f}} \right) (\bar{I}_1 - 3)^2 \right\} \text{dev}[\bar{\mathbf{B}}]_{11} + \frac{2}{D} (J - 1) \right]. \end{aligned}$$

The publisher apologizes for this mistake. The original version of this article has been updated.