Supplementary Materials:

Fabrication of Nanostructured Kaolinite Doped Composite Films from Silicone Rubber with Enhanced Properties

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S1. FTIR Analysis of SR and Kaolinite

The starting SR displayed the intense signal at 790 cm\(^{-1}\) corresponding to the coupling of stretching vibration of Si-C and rocking vibration of \(-\text{CH}_3\). The doublet identified at 1015 cm\(^{-1}\) and 1074 cm\(^{-1}\) is the characteristic marker of stretching vibration of Si-O-Si backbone of SR. The rocking and bending vibrations of Si-\text{CH}_3 were clearly detected at 866 cm\(^{-1}\) and 1259 cm\(^{-1}\). The absorption band obtained at 1408 cm\(^{-1}\) has been ascribed to the rocking vibration of \(-\text{CH}_3\). The peak found at 2964 cm\(^{-1}\) has been attributed to the stretching vibration of \text{CH}_2\[2\]. The peak found at 3620 cm\(^{-1}\) is assigned to the stretching vibration of inner -OH (hydroxyls) located below the aluminium atoms which extend towards the vacant octahedral hole (intralayer cavity) of kaolinite [2]. The absorption band recorded at 1115 cm\(^{-1}\) indicates Si-O symmetric stretching whereas the sharp peak at 1004 cm\(^{-1}\) is the characteristic marker of in-plane Si-O-Si anti-symmetric stretching. The signal at 911 cm\(^{-1}\) corresponds to the bending vibration of inner hydroxyls (Al-OH). Finally, the Si-O-Si inter tetrahedral bridging bond in SiO\(_2\) has been detected at 788 cm\(^{-1}\) [3,4].

![SEM microphotograph of SR at X5000.](image)
Table S1. Calculated standard deviations of the observed data for investigated mechanical properties.

<table>
<thead>
<tr>
<th>Film Code</th>
<th>Tensile Strength (MPa)</th>
<th>Young’s Modulus (MPa)</th>
<th>Elongation at Break (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>0.077</td>
<td>0.021</td>
<td>19.816</td>
</tr>
<tr>
<td>SR-K_{0.03}</td>
<td>0.111</td>
<td>0.015</td>
<td>21.897</td>
</tr>
<tr>
<td>SR-K_{0.03}</td>
<td>0.120</td>
<td>0.019</td>
<td>22.581</td>
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<tr>
<td>SR-K_{0.05}</td>
<td>0.114</td>
<td>0.026</td>
<td>18.434</td>
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<td>SR-K_{0.07}</td>
<td>0.145</td>
<td>0.021</td>
<td>22.309</td>
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<td>SR-K_{0.10}</td>
<td>0.167</td>
<td>0.021</td>
<td>18.601</td>
</tr>
</tbody>
</table>

Figure S2. XRD pattern of SR-K_{0.10}.

Figure S3. Effect of solvents on weight loss of SR and SR-K_{0.05}.
References


