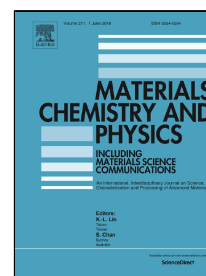


# Accepted Manuscript

Synthesis, Characterization and Dielectric Properties of One-Step Pyrolyzed/  
Activated Resorcinol-Formaldehyde Based Carbon Aerogels for Electromagnetic  
Interference Shielding Applications



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1 **Synthesis, Characterization and Dielectric Properties of One-Step Pyrolyzed/**  
2 **Activated Resorcinol-Formaldehyde Based Carbon Aerogels for**  
3 **Electromagnetic Interference Shielding Applications**

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8  
9 **Abstract**

10 The present study is an attempt to investigate the effects of simultaneous  
11 pyrolysis/activation processes and 3D network characteristic on structural, dielectric and  
12 electromagnetic interference (EMI) shielding properties of one-step activated carbon foam (CAs)  
13 filled in epoxy resin. Samples were synthesized via sol-gel process of resorcinol and formaldehyde  
14 followed by ambient pressure drying. To investigate the effect of pyrolysis process on structural  
15 properties and EMI shielding performance of samples, carbonization and activation processes were  
16 carried out simultaneously under CO<sub>2</sub> atmosphere at varied residence time. To investigate the  
17 influence of 3D network characteristic on the dielectric and EMI shielding performance of the  
18 synthesized CAs, samples were ground down to two different particle sizes of 44 and 1 μm. The  
19 former (samples with 44 μm in size) preserved carbons with network characteristic (CNC) and the  
20 latter turned into pulverized carbon (PCA) with no 3D network characteristic. The results revealed

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