COMPARATIVE STUDY BETWEEN REMOVER AGENTS OF Si INTO SYNTHESIS OF GRAPHITIC MESOPOROUS CARBON VIA NANOCASTING USING SBA-15

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The present study deals with a comparison between HF and NaOH with different molarity, as removers agents of Si into synthesis of graphitic mesoporous carbon (GMC) via nanocasting using SBA-15 as hard template [1-2]. SBA-15 was prepared via sol gel using pluronic 123 as surfactant and tetraethyl orthosilicate as Si precursor [3-4]. GMC was synthesized via nanocasting method and pyrolysis at 1273 K using SBA-15 as structure directing agent [5-6]. Using six samples of GMC, the silica removal was carried out using solutions 1M NaOH, 2M NaOH, 4M NaOH, 8M NaOH, 8.6M HF and 28.9M HF by 24 for each. The prepared materials were characterized by means of N\textsubscript{2} physisorption analysis, XRD, EDS, FT-IR, RAMAN, SEM. EDS analysis revealed that 8.6M HF and 2M NaOH had the highest removal efficiency of Si, detecting 0.22\% wt Si and 0.54\% wt Si respectively versus 23.8\% wt Si before this process, indicating that HF could be replaced by NaOH avoiding possible damage to the structure GMC due to the effect of HF.

Keywords: SBA-15, GRAPHITIC MESOPOROUS CARBON, REMOVAL

References:


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