

High quality nano-silica aerogels prepared by a facile method from bagasse ash under ambient pressure drying

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Nano-silica aerogels were synthesized from sodium silicate which is obtained from the reaction of bagasse ash and NaOH. Silanes and silazane was employed to control the formation and structure of silica aerogels in this study. To initiate the modification of silica aerogel properties, 1.0 M NH₄OH solution was utilized. The silica aerogel resulted from the reaction was dried under ambient pressure at temperature of 85 for 24 h. Results from preliminary experiment showed that silica aerogel with different surface area was obtained when it is prepared in different solvents and times. Hydrophobic properties of prepared gel is so high (water contact angle, about 120-140°) closed to the super-hydrophobic materials. Specific surface area and pore volume are quite high indicate the success of silica aerogels from biomass under drying at ambient pressure.

Keywords : Silica aerogels, Ambient pressure drying, Bagasse ash, Hydrophobic, Absorbent

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