

Synthesis of Microporous Interconnected Polymeric Foam of Poly (Glycidyl Methacrylate-Co-Divinylbenzene-Co-Butyl Acrylate) by Using Aqueous Foam as a Template

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Abstract : Hexadecyltrimethylammonium bromide (HTAB) modified nano silica were used as pore stabilizer for the preparation of interconnected macroporous copolymer foam of glycidyl methacrylate (GMA), divinylbenzene (DVB) and tert-butyl acrylate (BA). The polymerization of air infused aqueous foam is carried out through free radical thermal initiator. The porosity of the polymerized foam depends on the concentration of HTAB used to control the hydrophobic and hydrophilic behavior of silica nanoparticle. Modified silica particle results to form closed cell foam with 74% of porosity for 60% of air infusion during aqueous foaming. The preliminary structure of microfoam was observed through optical microscopy, whereas for a better understanding of morphology SEM was used. The proposed route is an eco-friendly route for synthesizing polymeric microporous polymer as compared to other chemical and additive-based routes available.

Keywords : air-infused, interconnected microporous, porosity, aqueous foam

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