

Foam formation using soft porous media

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Foams formation with porous materials is a process of great interest to many industries, including household cleaning and enhanced oil recovery. Interaction of foams with porous media has previously been investigated both theoretically and experimentally by A, Bureiko et al [1] and N, Koursari et al [2]. Foams made by compression of a soft porous media has only been investigated recently. Where the foams were made using a compression device with soft porous media containing surfactant solution. The soft porous media used in these investigations was sponges which matches the application which is of interest. This porous media has many uses including household, car and body cleaning. The amount and quality of foam produced by compression/decompression cycles of different sponges with surfactant solution and surfactant-polymer mixture was investigated experimentally. It was found that the maximum amount of foam is produced when the concentration of the commercial dishwashing solution is in the range of 60-80% m/m. The amount of foam produced was independent of the pore size of the media in the sponges investigated [3]. This process was also explored using pure surfactant sodium dodecyl sulphate (SDS) where it was found that the amount of foam produced increased until ten times the critical micelle concentration (CMC). Any concentrations above 10cmc produced the same mass of foam [4]. For both solutions a theoretical solution was also developed which had perfect agreement with the experimental results obtained.

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