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(54) Title: METHODS AND APPARATUSES FOR DILUTE PHASE IMPREGNATION OF A MILLED SORBENT WITH A CHEMICAL COMPOUND IN AQUEOUS SOLUTION

(57) Abstract: The present disclosure relates to apparatus designed to impregnate a sorbent. In some embodiments apparatus of the disclosure may comprise a mixing vessel having either a conical mixing chamber or an cylindrical mixing chamber designed to increase the contact surface area and/or contact/residence time of a sorbent and impregnant to produce compositions comprising an impregnated sorbent. Apparatus of the disclosure may also comprise one or more atomizers operable to produce atomized droplets of impregnant. The disclosure also provides methods for impregnation of a milled sorbent or an un-milled sorbent. Methods of the disclosure provide several technical advantages and may be cost effective. Impregnant sorbent compositions produced by methods and/or apparatus of the disclosure may have higher concentrations of an impregnant, a more uniform distribution of an impregnant and may have a greater sorbent efficiency.



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