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(54) Title: BINDERLESS ZEOLITIC ADSORBENTS, METHODS FOR PRODUCING BINDERLESS ZEOLITIC ADSORBENTS, AND PROCESSES FOR ADSORPTIVE SEPARATION OF PARA-XYLENE FROM MIXED XYLENES USING THE BINDERLESS ZEOLITIC ADSORBENTS

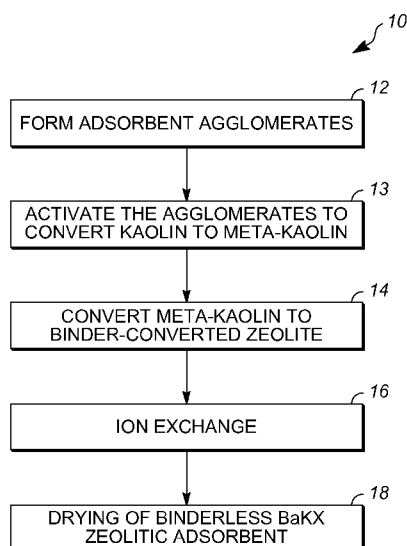


FIG. 1

(57) Abstract: Binderless BaKX zeolitic adsorbents, methods for their production, and processes for their use in a liquid phase adsorptive separation process are provided. An adsorbent includes a binder-converted zeolite portion formed from x wt% kaolin clay binder and (100-x) wt% unconverted Zeolite X with a silica: alumina molar ratio of 2.5. The kaolin clay binder is in the range of 10 to 20 wt%. Ba and K occupy cationic exchangeable sites within the adsorbent. K is in the range of 0.25 to 0.9% by weight and Ba is greater than 31.6% by weight of the binderless BaKX zeolitic adsorbent. Cornstarch may be added to the Zeolite X and kaolin clay binder to increase adsorbent macro-porosity and pore volume. Productivity of the adsorbent is improved decreasing process operating costs. The mechanical strength of the adsorbent is also improved.



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