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Dehydration Behaviour of Borax Pentahydrate to Anhydrous Borax by Multi-Stage Heating in a Fluidized

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Abstract: In order to optimize the anhydrous borax process in a fluidized bed calcinator, it is absolutely necessary to study the dehydration behaviour of borax pentahydrate. It was found that the basic feature of the dehydration of borax pentahydrate to anhydrous borax is concerned with the conditions employed. The bulk density and sodium borate content of the end product were determined to be a function of number of stages of temperature of the dehydration period in the fluidized bed. It was observed that bulk density also depends on the number of moles of water remaining in the borax pentahydrate structure. High purity, low density and powdered anhydrous borax up to 99.9% can be produced by multi-stage calcination. Therefore, anhydrous borax may be produced in a convenient fluidized bed system by multi-stage heating of borax pentahydrate.

Key Words: Borax pentahydrate, dehydration, fluidized bed, bulk density

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