Fluidized-Bed Coating with Sodium Sulfate and PVA-TiO2, 2. Influence of Coating Solution Viscosity, Stickiness, pH, and Droplet Diameter on Agglomeration

In the first part of this study [Hede, P. D.; Bach, P.; Jensen, A. D. Ind. Eng. Chem. Res. 2009, 49, 1914], agglomeration regime maps were developed for two types of coatings: sodium sulfate and PVA-TiO2. It was observed here how the agglomeration tendency is always lower for the salt coating process than for the polymer coating process, under similar process conditions. This is investigated further in this second part and concluded to be due to differences in coating solution stickiness, rather than differences in bulk viscosities. Furthermore, results show that it is possible to optimize the PVA-TiO2 coating formulation and process to achieve a low tendency of agglomeration, similar to that of the salt coating process. The best results for the PVA-TiO2 solution are obtained by substituting the PVA-TiO2 in equal amounts with Neodol 23-6.5 and further reducing the pH value in the coating solution to pH 4.

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