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## **STUDY OF PRESSURE DROP IN FIXED, FLUIDIZED AND SPOUTED BED OF SEVERAL ADSORBENT MATERIALS**

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### **Abstract**

An experimental study on the hydrodynamics of fixed, fluidized and spouted granular bed was performed. With this aim two commercial adsorbent materials and a composite material obtained by impregnation with a hygroscopic inorganic salt were employed. The fluid phase consisted in dry air. The obtained results highlight the influence of grain size, material density and roughness over pressure drop and gas velocity. Increasing grain size leads to decreasing pressure drop and increasing material density leads to increasing pressure drop. The impregnation proved to have no significant effect on the pressure drop. Pressure drop and gas velocity data were also calculated by means of equations available in literature, and compared with the experimental ones.

*Key words:* adsorption, fixed bed, fluidized bed, pressure drop, spouted bed

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