

# **Powdery biomaterials drying by intensive techniques**

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## **Abstract**

The work has like central purpose the interparticular forces in dynamic processed powdery materials beds study. The biomaterial drying in general and powdery biomaterial drying by intensive procedures in particular is a very actual research domain.

The PhD thesis contains 7 chapters. The main objectives of the present work are:

- ✚ The literature study regarding the main forces existing in the powdery material beds with and without moisture, studies regarding the stability of biomaterials at thermal treatment.
- ✚ The study of powdery biomaterials behavior in realizing of dynamic structures favorable for the property transfer phenomena (motion, heat and mass) comparatively with inorganically or mixed powdery materials.
- ✚ The qualitative investigation of the interparticular forces using accessible experimental methods.
- ✚ The quantitative evaluation of the interparticular forces upon the dynamic parameters characteristic of intensive techniques of powdery biomaterials processing using drying agents.
- ✚ The elaboration of an algorithm for dynamic classification of solid particles of biomaterials;
- ✚ The establishing of dynamic parameters for the incipient fluidization state accomplishment and optimal operating parameters in transfer processes.
- ✚ Introducing an supplementary energy at the incipient fluidization state in order to compensate the cohesive forces determined by the nature, sizes and moisture of the studied materials.
- ✚ The comparative study of powdery biomaterials drying in different intensive conditions.
- ✚ The energy consumption optimization at powdery cohesive biomaterials drying by intensive techniques.