Solid state chemistry and pharmacy

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1. Reactions in solids – what is different from the reactions in the gaseous and in the liquid state, how to control these reactions.

2. Applications of solid state chemistry in pharmacy.
   - 2.1. Crystal chemistry of molecular crystals. Polymorphism and crystal engineering of drugs.
   - 2.2. Solid state chemistry and manufacturing of drugs.
     - 2.2.1. Dry technologies – fewer technological stages.
     - 2.2.2. Intercalation processes and the synthesis of drugs with controlled biological activity.
     - 2.2.3. Mechanochemical processes – the role in classification and tabletting.
   - 2.3. Applications of solid state chemistry for modifying properties of drugs and increasing their bioavailability.
     - 2.3.1. Synthesis and “stabilization” of the metastable polymorphs.
     - 2.3.2. Synthesis of dispersions and the solubilization of poorly soluble drugs.
   - 2.4. Solid state chemistry providing solutions of the problems related to storage of drugs. Oxidation, hydrolysis, thermal destruction, interactions between different components of the formulations.

Award No. REC-008 of CRDF (USA) and Ministry of Education (Russia).