PROPERTIES OF MINERAL INDIVIDUAL BORDERS AND SURFACES AS A RESULT OF MINERAL SUBSTANCE SELF-ORGANIZING

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The mechanism of mineral substance consecutive formation in rocks is discussed as a result of silicate or aluminosilicate melt structurating. In transition to each more high level the previous level aggregate becomes structural unit of the following level. So, sticking together or aggregating ions form clusters of ions. Further, if the ion clusters are structured silicon-oxigen tetrahedrons are formed. Further aggregating results to tetrahedrons sticking in clusters. Structurating of clusters gives a basis of future mineral crystalchemical types: island, frame. But particularly crystal is formed only when its borders are formed. It is a new thermodynamic and physical phase. The function of a mineral grain border is complex. It consists in preservation of the crystal from influence of reversal processes, from its melting (dissolution). At the moment of occurrence, the border of a grain and its structure are equilibrium with structure of a matrix and structure of an individual crystal lattice. The stock of the border power durability provides its preservation or destruction in altered thermodynamic conditions. From this moment, the mineral grain border gets function of valency for a crystal lattice volume, protected by her. The border energy defines not only the further destiny of a mineral grain, but also the properties of its surface, it supervises the formation of its growthes with another grains, its compatibility with them. Thus, the mineral grain borders adapting all the system to the process conditions and to each other determine the mineral unit structure, its structure and texture, accumulate energy for the further self-organizing and evolution, define the mechanical, physical, chemical durability and stability. The work is executed at support of the Federal Program Center Integration.