

Amorphous nanosilica from hydrothermal solution: technology of production, physical and chemical characteristics, experience and perspectives of innovative application for nonorganic materials

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Abstract

Technological scheme of nanosilica production from hydrothermal solution consists of number studies. Basic studies are polycondensation of orthosilicic acid and silica particles rising, membrane concentration of silica particles by ultrafiltration and production of SiO₂ sols, cryochemical vacuum sublimation of sols and production of nanopowders. Nanosilica produced by this technology have physical and chemical characteristics for it application for concrete modification: increasing compressive strength of concrete, cool-resistances.