

World market of amorphous silica consumption and Kamchatka hydrotherms as new raw resources for nanosilica production in Russia Federation

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Abstract

World demand for different types of amorphous silica is continuously increasing. This trend is evident in the high-tech industries, which are associated with the consumption of ultrafine silica forms, i.e. sols and nanopowders. Hydrothermal solutions are a new source of raw material for SiO₂ sols and nanopowders preparation. There is a need to develop technology for production of nanopowders and sols of SiO₂ on the basis of hydrothermal solutions. The technology must take into account the size and concentration of SiO₂ particles, the kinetics of their formation as a result of the polycondensation of orthosilicic acid, the temperature and pH of the aqueous medium.