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**БЕЙОРГАНИКАЛЫҚ МАТЕРИАЛДАРДЫҢ
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ЗАМАНАУИ МӘСЕЛЕЛЕРІ (МАГИСТРАНТТАРҮШІН)**

**СОВРЕМЕННЫЕ ПРОБЛЕМЫ ХИМИИ И
ХИМИЧЕСКОЙ ТЕХНОЛОГИИ НЕОРГАНИЧЕСКИХ**

PICKERING EMULSIONS STABILIZED WITH HYDROPHOBIZED SILICA PARTICLES

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Pickering emulsions are emulsions, which stabilized by solid particles. Pickering emulsions contain solid particles at the interface between two liquid phases that serve as stabilizing agents. Low - and high-molecular surfactants are used for stabilization of classical emulsions [1].

Every year, interest in Pickering emulsions increases due to their wide range of applications in food, pharmaceuticals and cosmetics. Demand for conventional emulsions is falling because toxicity

is the main problem when using surfactant-stabilized emulsions. An important advantage of Pickering emulsions is a low cost and environmental friendliness. Pickering emulsions, in contrast to conventional emulsions, can maintain their stability for several months or even years. Pickering emulsions stability depends on a ratio of an oil and water phases, pH-medium and electrolytes addition.

Various colloidal particles such as silicon dioxide, polymer latex, magnetic particles, graphene, clays, polymethylmethacrylate particles, zinc oxide, CdSe cadmium selenide nanoparticles, gold nanoparticles and others successfully used to produce Pickering emulsions. Clays are one of the most common materials used to form Pickering emulsions, clays do not pollute the environment, are easily and cheap available [2]. In most studies, clays were pre- processed with amphiphilic or organic molecules, which improved clay particles adsorption capacity on oil phase surface.

Hydrophobized SiO₂ particles was used for stabilization of the direct emulsions. Hexane was used as the oil phase. For obtaining Pickering emulsions, first the silica particles with a 0.0001 % NaDDS solution were mixed. When hexane added and treated with suspension, the direct emulsions formation was observed. Emulsions stability to droplet coalescence was evaluated microscopically. Conditions for modification by SiO₂ particles to form a stable Pickering emulsion were chosen. Microphoto of the emulsions was made and emulsion drops average diameter was determined. The results obtained in this work can be used to create various types microcapsules based on emulsions stabilized with SiO₂ particles.

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