

# PREPARATION OF NANOSIZED SULFUR PARTICLES

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Sulfur is a widely used chemical element for a variety of application such as fertilizers, pharmaceuticals, antimicrobial agents, insecticides, fumigants, etc. Moreover, the nanosized sulfur particles are applicable in pharmaceuticals or as components of lithium ion batteries. In this work the sulfur nanoparticles (S-NPs) were prepared employing the disproportionation reaction of sodium thiosulphate in the presence of hydrochloric acid. The size of the S-NPs was controlled by changing the reaction parameters like temperature or the type of the stabilizer (PVP, PVA, Chitosan, sulforaphane).

The resulting structures have been examined with a range of physicochemical methods including dynamic light scattering, electron microscopy and spectroscopic techniques. It has been shown that the addition of the stabilizers to the reaction significantly reduces the particle size. The size of the particles can be also controlled by changing the temperature of the reaction.

The sulfur particles appear as a new promising material for medical applications like drug delivery or diagnostics.