

MICRO AND SUB-MICRO SIZED SILVER POWDER FOR USE IN ELECTRONICS INDUSTRY APPLICATIONS

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Variation of the basis synthesis process based on hydrometallurgy process of reduction of silver ions by ascorbic acid in near-neutral solution and different surfactants/dispersants is the topic of this paper. Special attention is dedicated to the crystal structure, determined by X-ray diffraction analysis (XRD), of the obtained silver powders. Morphology of the powder particles was another important goal of the study. Powder of the medium size of the particles under two micrometers with a high yield is the base for industrial production of the powders for various applications in electronics and related disciplines. The synthesis process is simple and has not high requirements neither in equipment or skilled workforce. Improvement in the method led to silver powder with smaller particles (below a micrometer) and narrower size distribution, which can be used for more demanding applications. The morphology of the Ag particles was determined by the use of the SEM technique. Improved technological process produce more rounded (spherical) particles and generally more regular shaped powder. Characteristical fcc crystal structure of the silver was determined for the different synthesized Ag powders with minor variations in crystallographic orientation planes, depending on the synthesis method.

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