

## W/O 마이크로에멀전 졸-겔 법을 이용한 수용성 UV 흡수제를 함유한 실리카 마이크로캡슐의 제조

### (Preparation of Silica Microcapsules containing Water-Soluble UV Absorbers by a W/O Microemulsion Sol-Gel Process)

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The microencapsulation of droplets or particles within a solid shell leads to the formation of core-shell particles. Microencapsulation provides protection and controlled release of core materials such as drugs, vitamins, enzymes, perfumes, and the like. Such particles have, therefore, found a diverse range of applications in the pharmaceutical, agricultural, cosmetic, and food industries.

UV absorbers are widely used for cosmetics to screen out ultra violet (UV) rays which have side effects on human skin. The absorbers are made generally from synthetic organic compounds, which can stimulate the human skins to develop allergic phenomena.

In this work, the skin-stimulant water-soluble organic UV absorbers were encapsulated in silica glass using a W/O microemulsion sol-gel process from 2,2',4,4'-tetrahydroxybenzophenone as core material, polymeric silica sols as wall materials, sorbitan monostearate (span 60) as emulsifier, 3-aminopropyltriethoxysilane as coupling agent, and cyclohexane as solvent. Silica microcapsules were characterized on morphologies, particle size distribution, UV screening efficiency and release behavior by means of SEM, Image analyzer, and UV/VIS spectrophotometer.

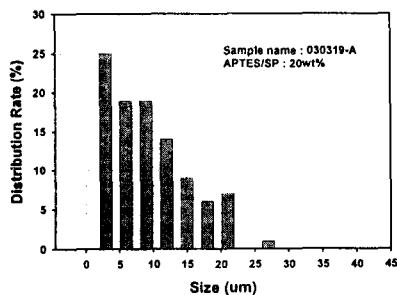
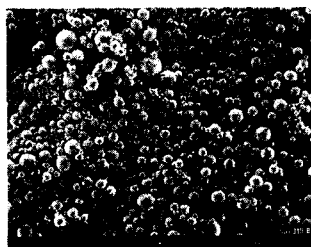


Figure 1. Morphology and size distribution of silica microcapsules containing 2,2',4,4'-tetrahydroxybenzophenone as UV absorber.