Nanotechnology and the Cosmetic Chemist

Abstract

Inorganic oxides, in particular zinc oxide, have been used by the cosmetic industry for many years, however their use has been limited due to cosmetically unacceptable whitening imparted to the skin. Whitening, which is a direct function of scattered light, can be significantly reduced by using an oxide with a smaller particle size, free of agglomerates with a narrow size distribution. A number of different ways have been developed over the last decade to manufacture micronised powders, ranging from comminution to vapour processes. The different production techniques impart different characteristics to the particles and it is important to understand how these differences will affect the final formulation. To help characterise differences in quality of the inorganic oxide powders being suppled, the cosmetic formulator should look for a close correlation between all of the particle size measurements at their disposal (eg TEM, XRD, BET & PCS). In lieu of this, the formulator can also assess the quality by testing transparency and whiteness using a UV/Vis analyser.

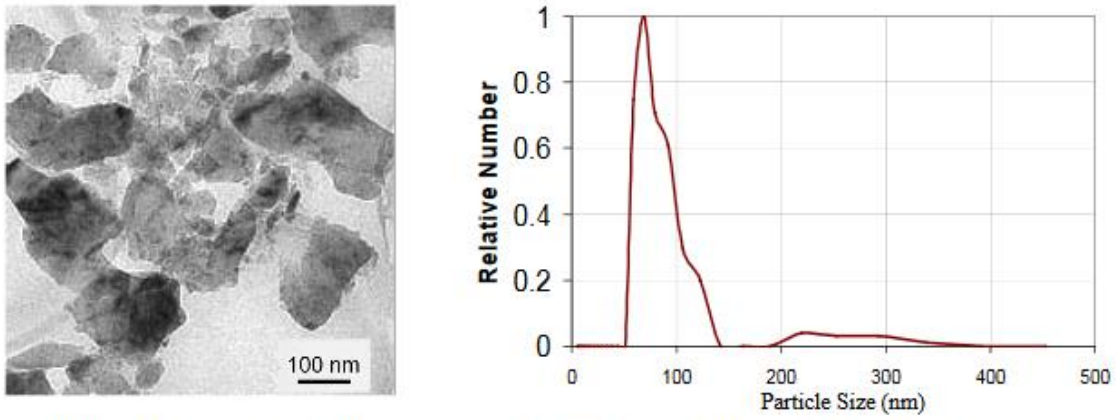

Figure 8. TEM Micrograph and PCS[1] curve of Zinc Oxide made through a typical top-down process.