

## MEASUREMENT OF SHAPE AND SIZE DISTRIBUTIONS OF PVC RESIN PARTICLES BY SCANNING ELECTRON MICROSCOPY AND IMAGE ANALYSIS

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**Abstract**—Characterizing poly(vinyl chloride) (PVC) resin particles in terms of particulate morphology, shape and size distributions is important for various technical reasons. We describe a method that shows how these properties can be simultaneously measured using scanning electron microscopy and image analysis. A computer algorithm, which calculates the distributions, has been developed based on the present mathematical formulation, and the data generated by scanning electron microscope and image analyser. The algorithm considers the variation in shape and size of each particle. The number of mutually exclusive particles required for these measurements, to have an acceptable level of precision, has been statistically determined to be around 430. The number- and weight-average particle diameters, of the experimental PVC resin, were estimated to be 80.4 and 114.8  $\mu\text{m}$ , respectively. The particle size uniformity index was found 1.43.