Coating: Effect of Particle Size and Shape

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The title of the experiment is Coating: Effect of Particle Size and Shape. The purpose of the experiment is to determine how pigment size and shape affect the strength of the latex/pigment coating. Kaolin is a white mineral that is commonly used in the paper industry as a coating. The procedure for the experiment is as follows: First, the coatings were made using thirty grams of pigment, eleven grams of latex, and eighteen grams of water. The latex/pigment mixture was blended until it was smooth. The mixture was then put on a sheet of light weight paper and used in a draw down using a bird bar. After that, the coated paper was set aside to dry. Next, the coatings were analyzed using the coat weight , aspect ratio, particle surface area, median particle size, Mullen Burst Test, and the Ash test. Lastly, the burst test data was adjusted to have an even coat weight (16 pounds per/thousand sq. ft.). The experiment was completed twice with two sheets per run. Each sheet was used for three Mullen burst test. The original hypothesis was there will be a positive correlation between particle size/shape and the strength of the coating. The experiment proved my hypothesis correct because there was a slight positive correlation between particle size/shape and strength. Because the pigments are extremely experimental, additional studies are necessary to refine the correlation.

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