Optimization of PVC Latex Synthesized by Miniemulsion Polymerization

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PVC latexes were synthesized by polymerization miniemulsion which was prepared by using mixture of cetyl alcohol (CA) and sodium lauryl sulfate (SLS). Vinyl chloride miniemulsion can be easily prepared by mechanical stirrer without aging CA/SLS solution. Experimental design methods were applied to investigate and optimize effect of compositions and conditions of polymerization on average particle size and particle size distribution of latexes. The stable latex has average particle size up to 0.7 μm. Emulsifier ratio (CA/SLS) and emulsifier concentration are the most effective factors affecting on particle size and particle size distribution while other factors such as initiator concentration, agitation or temperature has a little effect. The total emulsifier's concentration is about 2 % wt. The optimum CA/SLS in molar ratio is 1:1 while the optimum VCM loading is 54% in volume.