

Dispersion Services

Five Star Technologies offers custom processing services for a wide range of material dispersions. Using our patented hydrodynamic cavitation process, we are able to prepare custom dispersions from a broad selection of particulates, fibers and flakes. Five Star has successfully processed a range of materials including precious and base metals, metal oxides, boron nitride, barium titanate, various glasses and carbon nanotubes. Dispersions may be processed in aqueous or organic solvent systems or directly into liquid resin systems. Cavitation-processed dispersions are characterized by narrow targeted particle size distributions, exceptional dispersion stability, and unique rheological control. Five Star cavitation processing is a media-less, low-shear process, preserving product cleanliness and morphology. Customer tests have demonstrated numerous advantages to the use of Five Star dispersions services.

- Dispersion uniformity that eliminates agglomerates and precisely controls maximum allowable particle sizes
- Rheological improvements in numerous applications
- Elimination of multiple processing steps
- No degradation of material purity; no contaminating media
- Maintenance of key material features such as morphology and coating integrity
- Ability to achieve high filler loadings

Representative examples of Five Star processed custom dispersions are shown on the back. The three sets of micrographs illustrate dispersions of silver flakes, silica powder and carbon nanotubes in custom resin media. All three demonstrate the highly uniform dispersion quality achieved in cavitation processing. Typical customer applications include chip packaging adhesives, thermal management materials, ceramic slips, and polymer composites.

Dispersion services are available for lab through full production scale with batch sizes ranging from 1 to 100 gallons. All dispersion services are conducted at our cleanroom facility in Cleveland, OH, under strict quality control conditions. Customers may provide a complete formulation for processing or contract Five Star to formulate a stabilization system for a given filler/media combination.

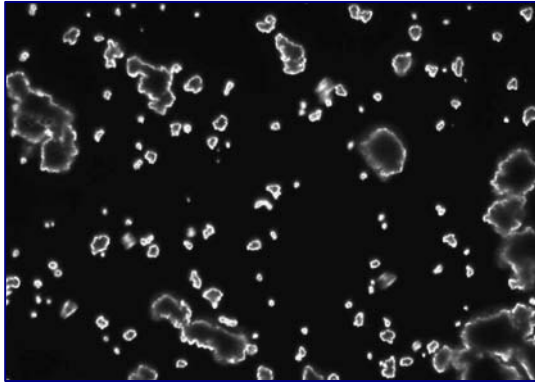
To request a quote for processing your dispersions, please contact:

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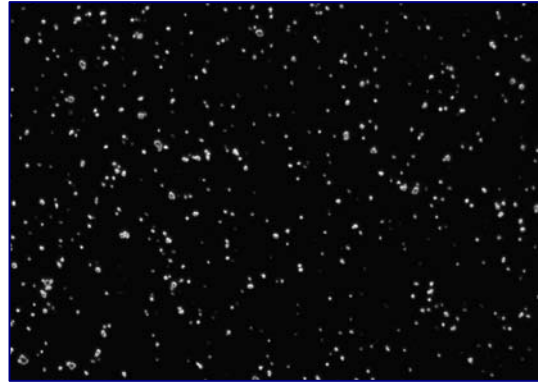
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T: 216-447-8497
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Silver Flake Dispersion



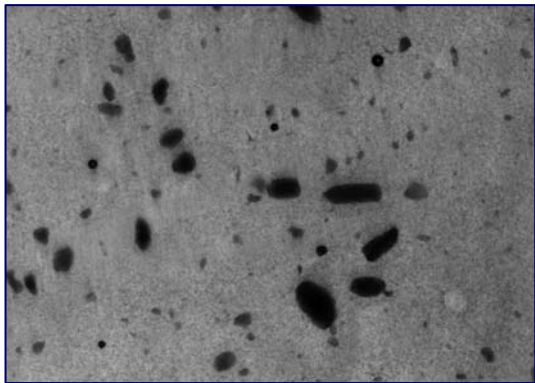
As Received, 600X



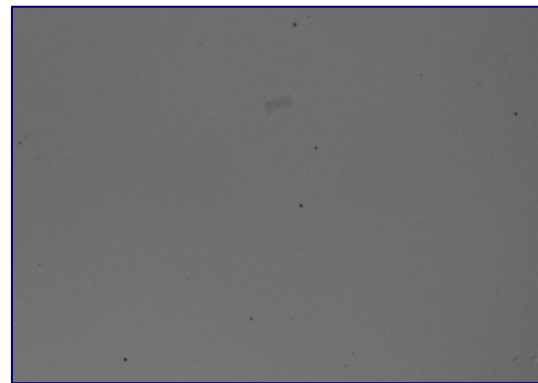
FST Dispersion, 600X

Flake size reduced, size distribution tightened

Silica Powder Dispersion



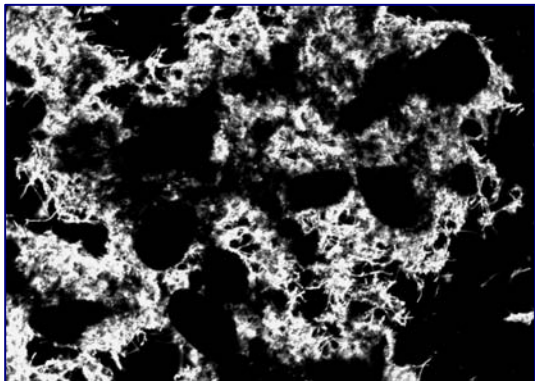
Starting Blend, 100X



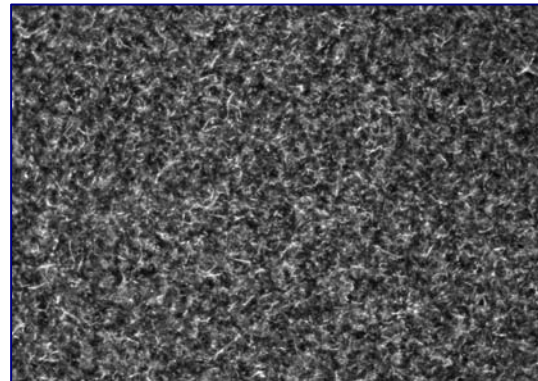
FST Dispersion, 100X

Lower viscosity than conventional mixing – enables higher loading levels

Carbon Nano-Fiber Dispersion



Conventional, 200X



FST Dispersion, 200X

Uniform dispersion enhances electrical conductivity

