

## How do the nano-dispersions compare with the micro-dispersions?

There is a significant transition in the characteristics of dispersions as we go from the micro-scale to the nano-scale, as shown in the following table. However, there is no sharp dividing line between these two domains and there exists an overlapping region.

<b>No.</b>	<b>Parameter</b>	<b>Micro-dispersion</b>	<b>Nano-dispersion</b>
1	Particle size	0.2 ~ 2.0 microns	10 ~ 70 nm
2	Interfacial area	Moderate	Very high
3	Amount of stabilizer required	Moderate : 1~3 %	High 10 ~ 15 %
4	Particle Volume Fraction at equal viscosity	High	Low
5	Rheology at equal Particle volume Fraction	Mildly pseudoplastic	More pseudoplastic
6	Color	Original spectral absorption	Blue shift
7	Tinting strength	Normal	Much higher
8	Opacity	Translucent to opaque	Transparent
9	Sedimentation	Moderate. Often irreversible	Very negligible. Reversible
10	Stability	Kinetically stable ( Less stable)	Thermodynamically stable ( More stable)
11	Centrifugability	Relatively easy	Difficult
12	Examples	Colourants for paints, Polymer Emulsions	Nano Inkjet printing inks, Nano polymer emulsions