

Application News

No. EG-04

Particle Size Measurements

Measuring of Coating Additives

SALD-7101 and BC -71

Alternative instruments and accessories leading to similar results:

- SALD -2300 with BC-23



Measurement

For the measurement two sample solutions were measured 5 times. Each measurement was done with a fresh solution. Before measuring the samples with Shimadzu's batch cell BC-71 they were diluted using isopropanol.

Discussion

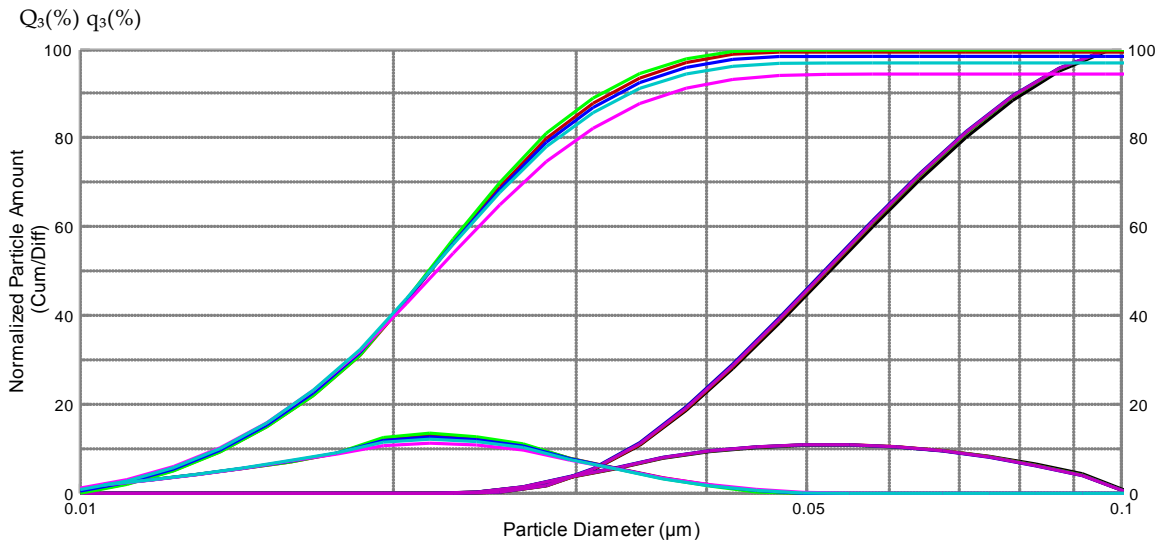
(Please find measurement results on the next page)

The SALD-7101 in combination with BC-71 can successfully be used to measure nanoparticles respectively additives for coatings.

Background

Coatings are an ideal protection for different kind of materials. They protect against moisture, UV radiation, rust and other influences. Additives can enhance the properties of the coating, e.g. the scratch resistance. Like in this application note these additives can be made out of non-polar surface modified silicon dioxide nanoparticles.

Results



	Median D (µm)	Modal D (µm)	Mean V (µm)	Std Dev	25%D (µm)	50%D (µm)	75%D (µm)	0%D (µm)	0%D (µm)	0%D (µm)	0%D (µm)	0%D (µm)	0%D (µm)
1	0.015	0.014	0.016	0.130	0.012	0.015	0.020	0.000	0.000	0.000	0.000	0.000	0.000
2	0.015	0.014	0.016	0.127	0.012	0.015	0.020	0.000	0.000	0.000	0.000	0.000	0.000
3	0.015	0.014	0.016	0.134	0.012	0.015	0.019	0.000	0.000	0.000	0.000	0.000	0.000
4	0.015	0.014	0.015	0.141	0.012	0.015	0.019	0.000	0.000	0.000	0.000	0.000	0.000
5	0.015	0.014	0.015	0.137	0.012	0.015	0.019	0.000	0.000	0.000	0.000	0.000	0.000
6	0.038	0.035	0.039	0.124	0.032	0.038	0.047	0.000	0.000	0.000	0.000	0.000	0.000
7	0.038	0.035	0.039	0.123	0.031	0.038	0.047	0.000	0.000	0.000	0.000	0.000	0.000
8	0.037	0.035	0.039	0.123	0.031	0.037	0.047	0.000	0.000	0.000	0.000	0.000	0.000
9	0.037	0.035	0.039	0.123	0.031	0.037	0.047	0.000	0.000	0.000	0.000	0.000	0.000
10	0.037	0.035	0.039	0.123	0.031	0.037	0.047	0.000	0.000	0.000	0.000	0.000	0.000

Above graph shows a volume based particle size distribution of two different samples. The table contains the corresponding measurement results. Sample 1-5 and sample 6-10 are two independent samples. The mean diameter of the first sample is 22nm the mean diameter of the second 52nm.