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Report on particle size of samples

The particle-size distributions of the samples 1 & 2 which had been provided by nanoYo PTE Ltd. were analyzed using a dynamic light scattering spectrophotometer (Otsuka Electronics, Osaka, Japan). Prior to the analysis, the viscosity and refractive index of the solvent were determined at 25°C to be 1.222 cP and 1.3367, respectively.

Figure 1 shows the particle-size distribution of sample 1. Closed diamond and solid curve represent the frequent and cumulative distributions, which were calculated on a weight basis. There were a major peak and two minor peaks in the frequent distribution. The mean diameter of the particles at the major peak was 3.3 ± 0.3 nm, as shown in Table 1. Because the sample contains the particles, the mean diameter of which was 157.9 nm, although the content was very low, it looked slightly milky.

Figure 2 shows the particle-size distribution of sample 2. The keys are the same as in Fig. 1. The mean particle diameter was 2.4 nm ± 0.4 nm (SD). After the sample was stood for 1.5 h at 25°C, the analysis was made again. The frequent and cumulative distributions are also shown in Fig. 2 by open diamonds and dotted curve, respectively. The particle grew to form flocs during the storage (mean diameter ± SD : 17.0 ± 3.7 nm). Because flocs are aggregates by very weak attractive force, they could be re-dispersed to smaller particles.

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