

### Measurement of Polystyrene Latex Particles

The completely new Single Nano Particle Size Analyzer IG-1000 uses a new particle size measurement technology "Induced Grating (IG) Method ."

On the IG-1000, a diffraction grating is formed by the action of dielectrophoresis on particles, and after dielectrophoresis is suspended, the decay of the diffraction grating due to diffusion is detected as temporal changes in the intensity of the diffracted light. Since the diffusion speed increases the smaller the particle size becomes, and vice versa, the particle size can be found from these temporal changes in the intensity of the diffracted light. Fig. 1 shows the external appearance of the IG-1000.

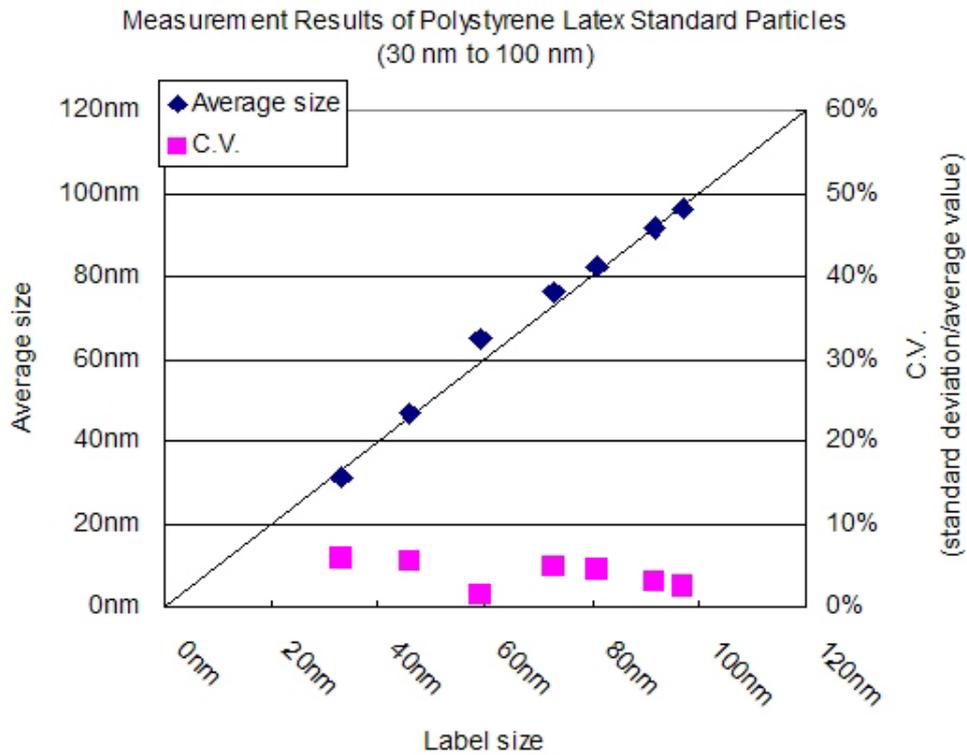


Fig.1 External Appearance of the IG-1000

The IG method differs from conventional methods that use scattered light in that diffracted light is used for the detection signal. As a result, even in the small particle size nano-particle region, high reproducibility can be obtained without the detection signal becoming faint.

Using the IG-1000, we measured polystyrene latex particles which are widely used as standard samples. For measurement, we used polystyrene latex particles of label size (average size) 33 nm to 97 nm. Graph 1 shows the measurement results.

The average size (marked by ◆) measured on the IG-1000 well matches the label size considered for use as standard particles. Also, the CV value\* (marked by ■), which indicates non-uniformity of measurement, is 10% or less at all particle sizes, indicating that reproducibility is satisfactorily maintained even at small particle sizes. A feature of the IG method is that reproducibility is good even when measuring small particle sizes.



Graph 1. Measurement Results of Polystyrene Standard Particles

- \* Particles made by Duke Scientific (label size is NIST traceable)
- \* The average size is the average value of five measurements.
- \* CV indicates the degree of data non-uniformity.

$$CV = \text{standard deviation/average value (5 measurements)}$$

**NOTES:**

\* This Application News has been produced and edited using information that was available when the data was acquired for each article. This Application News is subject to revision without prior notice.



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