Institute of Environmental Sciences and Technology

IEST-RP-CC042.1

Contamination Control Division
Recommended Practice 042.1

Sizing and Counting of Submicrometer Liquid-borne Particles Using Optical Discrete-particle Counters

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1 SCOPE AND LIMITATIONS

1.1 Scope

This Recommended Practice (RP) addresses the sizing and counting of submicrometer liquid-borne particles using optical discrete-particle counters with a focus on applications in the semiconductor, flat-panel display, and data storage industries. Topics covered include the following:

- Overview of light-scattering technology
- Liquid particle counter (LPC) instrument types
- Data interpretation
- Coincidence level or maximum concentration limit
- Particle-size detection limit
- Bubble issue
- Refractive index effect
- Flow rate
- Calibration verification
- Instrument noise and false counts
- Practice of minimizing sensor contamination
- Sensor correlation
- Particle counting statistics

1.2 Limitations

This RP does not address the measurement and identification of living organisms, e.g., bacteria.

This RP does not address the measurement of extremely high particle concentrations, e.g., chemical-mechanical polishing (CMP) slurry.

This RP does not address the calibration of LPCs.

2 REFERENCES

The cited editions of the following documents are incorporated into this Recommended Practice to the extent specified herein. Users are encouraged to investigate the possibility of applying the most recent editions of the references.

2.1 Reference Documents

IEST-RD-CC011.2: A Glossary of Terms and Definitions Related to Contamination Control

ISO 21501-2:2007 Determination of particle size distribution—Single particle light interaction methods—Part 2: Light scattering liquid-borne particle counter

2.2 Sources and Addresses

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