

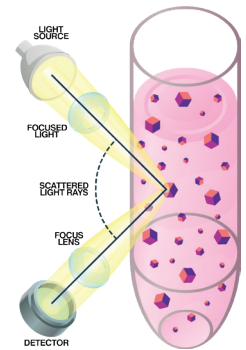
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Technical Information

Turbidity Spectroscopy (TUS) equipment is a continuous optical analyser for on-line and at-line nanoparticles monitoring. It utilizes spectroscopy technology and is composed of a probe, an electrical cabinet, and a computer with a dedicated software for data processing. Particle size or turbidity are parameters that can be monitored. When the nanoparticles concentration is high, the TUS probe can be coupled to a dedicated dilution system to perform the analysis.



Technical specifications

NPs size:	From 30nm to few um
Working temperature:	0-100 °C
pH:	Working with very hot and acidic products
Ingress Protection:	IP65
Size:	∅ 50mm
Connection to process:	min. length 100mm
Wetted materials:	Customisable shaft Stainless steel, FKM, borosilicate glass
Warm-up time:	45min
Power supply:	230VAC
Connectivity:	USB-A, Ethernet



Adaptable shaft

∅ 50mm

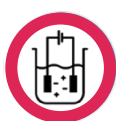
Benefits

- External-PC based GUI
- Ethernet and WiFi connection
- Data visualization in the Cloud
- Continuous parameter monitoring: particle size and turbidity
- Real-time information and results to rectify processes and optimize decision making
- Time savings in laboratory analysis

Applications



Chemical

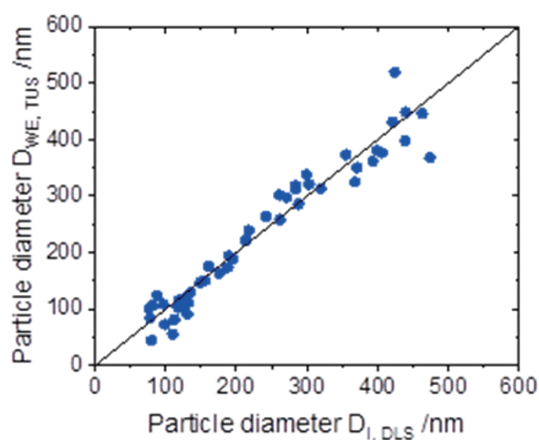


Composites
electroplating

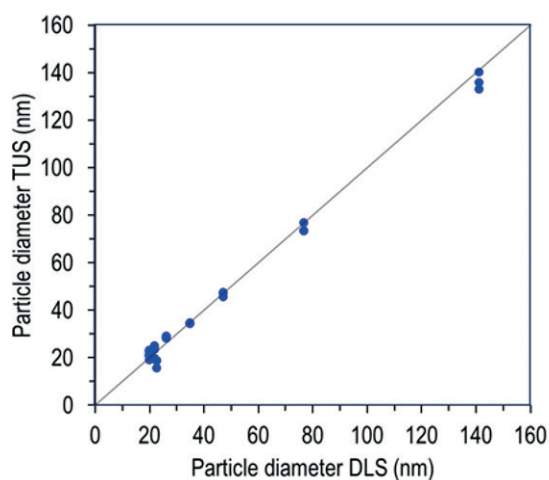


Coatings

Comparison with reference technology



Predicted particles diameter by TUS versus measured diameter by DLS in a two-stage emulsion polymerization to synthesize latex.[1]



Predicted particles diameter by TUS versus measured diameter by DLS in a silica NPs synthesis.

[1] Aspiazu, U.O. et al. (2023) 'Wavelength exponent based calibration for turbidity spectroscopy: Monitoring the particle size during emulsion polymerization reactions', *Journal of Colloid and Interface Science*, 652, pp. 1685–1692. doi:10.1016/j.jcis.2023.08.197.

