



# CHARACTERISTICS OF PARTICLES AND PARTICLE DISPERSOIDS

		Particle Diameter, microns ( $\mu$ )																																		
		(1m $\mu$ ) 0.001					0.01					0.1					1					10					(1mm.) 1,000					(1cm.) 10,000				
Equivalent Sizes		1 10 100 1,000 10,000 5,000 2,500 1,250 625																																		
		Ångström Units, Å																																		
Electromagnetic Waves		X-Rays Ultraviolet Visible Solar Radiation Near Infrared Far Infrared Microwaves (Radar, etc.)																																		
		Gas Dispersoids: Solid: Fume; Liquid: Mist; Spray; Soil: Clay, Silt, Fine Sand, Coarse Sand, Gravel																																		
Common Atmospheric Dispersoids		Smog, Clouds and Fog, Mist, Drizzle, Rain																																		
		Rosin Smoke, Oil Smokes, Tobacco Smoke, Metallurgical Dusts and Fumes, Ammonium Chloride Fume, Cement Dust, Beach Sand, Carbon Black, Contact Sulfuric Mist, Pulverized Coal, Flotation Ores, Zinc Oxide Fume, Paint Pigments, Insecticide Dusts, Ground Talc, Spray Dried Milk, Plant Spores, Aitken Nuclei, Alkali Fume, Milled Flour, Atmospheric Dust, Sea Salt Nuclei, Nebulizer Drops, Hydraulic Nozzle Drops, Combustion Nuclei, Lung Damaging Dust, Pneumatic Nozzle Drops, Viruses, Red Blood Cell Diameter (Adults): 7.5 $\mu$ $\pm$ 0.3 $\mu$ , Bacteria, Human Hair																																		
Typical Particles and Gas Dispersoids		<p>#Molecular diameters calculated from viscosity data at 0°C.</p>																																		
		Methods for Particle Size Analysis: Ultramicroscope, Electron Microscope, Centrifuge, Ultracentrifuge, Turbidimetry, X-Ray Diffraction, Adsorption, Light Scattering, Nuclei Counter, Impingers, Electroformed Sieves, Sieving, Microscope, Elutriation, Sedimentation, Permeability, Scanners, Visible to Eye, Machine Tools (Micrometers, Calipers, etc.), Electrical Conductivity																																		
Types of Gas Cleaning Equipment		Ultrasonics (very limited industrial application), Settling Chambers, Centrifugal Separators, Liquid Scrubbers, Cloth Collectors, Packed Beds, High Efficiency Air Filters, Common Air Filters, Impingement Separators, Thermal Precipitation (used only for sampling), Mechanical Separators, Electrical Precipitators																																		
		Terminal Gravitational Settling* [for spheres, sp. gr. 2.0]: Reynolds Number, Settling Velocity, cm/sec. (In Air at 25°C, 1 atm; In Water at 25°C)																																		
Particle Diffusion Coefficient,* cm <sup>2</sup> /sec.		In Air at 25°C, 1 atm; In Water at 25°C																																		
		*Stokes-Cunningham factor included in values given for air but not included for water																																		

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