

Without measurement there is no control®

Chem 20™

Chemical Particle Counter



World's most sensitive particle sensor for high purity process chemicals

Leading-edge microelectronic processes require very clean process chemicals that are highly filtered and regulated to a particle size of 20 nm or below. With 20 nm particle sensitivity, the PMS Chem 20™ Chemical Particle Counter is the world's most sensitive particle sensor for high purity process chemicals.

Extensive data on chemical distribution and packaging systems proves that the PMS Chem 20 sensor detects larger concentrations of particles with better statistics than competitive products; the advanced laser optics and detectors enable the detection of 20 nm polymer particles and 9 nm metallic particles in chemicals. The Chem 20 Chemical Particle Counter is a valuable tool that enables facility and process engineers to quickly detect and characterize chemical particle sources before they impact process and device performance.

BENEFITS

- Detect 20 nm PSL and 9 nm Au particles in real time
- Detect yield-limiting particles (not possible with competitive technologies)
- Easy online and offline 20 nm testing
- React quickly to particle excursions long before surface scan or yield data are available
- Optimize chemical delivery systems from the loading dock to point-of-process
- Tighten process control limits through improved sample population statistics

FEATURES

- On-board chemical flow meter to set sample flow
- Optimized for low and high refractive index chemicals:
 - Chem 20 sensor, lower refractive index chemicals
 - Chem 20-HI sensor, for sulfuric acid and other high-index chemicals
- On-board leak detection with internal chemical leak alarm
- Low-flow detector and alarm to ensure consistent data
- Bubble detector to optimize data and protect sensor
- Syringe sampling with the SLS-20 syringe liquid sampler
- Two view modes optimize instrument operation for very dirty or very clean applications
- Local data display
- Flexible communications systems support legacy data acquisition systems

APPLICATIONS

- Real-time particle monitoring for chemical distribution
- Point-of-process monitoring
- Chemical packaging operations monitoring
- Chemical filter performance and efficiency characterization
- Chemical QA and verification
- Performance testing of chemical handling components

Chem 20™ Chemical Particle Counter

PARAMETER	SPECIFICATION	
Size range	≥ 20 nm PSL and 9 nm Au minimum detection limit	
Channels	4	
Channel sizes	20, 50, 70, 100 nm	
Flow rate (ml/min)	35 ml/min ± 10%	
Zero count	< 100 counts per liter	
Maximum concentration ¹	High Resolution Mode 2500 P/ml ≥ 20 nm 1000 P/ml ≥ 100 nm	High Concentration Mode 500,000 P/ml > 20 nm 10,000 P/ml > 100 nm
Sample temperature	59 – 104 °F (15 – 40 °C)	
Maximum pressure	75 psi, max	
Wetted surface materials	PFA, PTFE, Sapphire, Kel-FR, KalrezR 4079	
Exterior surface	316L stainless steel enclosure	
External Dimensions (l, w, h)	20.0 x 16.8 x 11.1 in (50.8 x 42.7 x 28.3 cm)	
Weight	64.5 lb (29.2 kg)	
Power	100 - 240 VAC	
Laser classification	Class I complies with US21 CFR 1040.10 and EN60825-1. Internally an enclosed Class IV laser is used per EN60825-1.	
Communications	Ethernet (PMS protocol), 4-20 mA (5 outputs: 4 size channels, 1 sensor status), RS-232 (set up and diagnostics only)	
Status indicator	LCD display and one (1) tri-color LED. Indicates operation and communication status, and laser, sample flow or internal-leak status	
Calibration	Sensors calibrated using PSL particles in pure water. Materials used are traceable to National Institute of Standards & Technology (NIST) and/or Japanese Industrial Standards (JIS).	
Environment	Temperature: 64 – 82 °F (18 – 28 °C) ± 1 °C/hr Humidity: 5 - 90%, Non-Condensing Sensor must be installed in a conditioned environment with stable temperature control. Indoor use only; Pollution degree 2 Isolated from excessive machinery or vehicle vibration Over-voltage (transients) Category II Ordinary protection (not protected against harmful ingress of moisture) Class I environment (Electrical earth ground from the mains power source to the product input is required for safety purposes)	

¹ Less than 10% coincidence loss, measured at the maximum recommended concentration.

NEED MORE INFORMATION? Scan the QR code to connect with our team for guidance



HEADQUARTERS

7477 E. Dry Creek Parkway,
Niwot, CO, 80503 USA
T: +1 303 443 7100

Instrument Service & Support
T: +1 303-443-7100 ext.447

Service and Calibration
E: workorders@pmeasuring.com

Technical Support
E: techsupport@pmeasuring.com

Software or System Support
E: ssupport@pmeasuring.com

Customer Service
and Order Processing
E: customerorders@pmeasuring.com

GLOBAL OFFICES

AUSTRIA
T: +43 171 728 285
E: pmsaustria@pmeasuring.com

BELGIUM/BENELUX
T: +32 10 23 71 56
E: pmsbelgium@pmeasuring.com

BRAZIL
T: +55 11 5188 8227
E: pmsbrazil@pmeasuring.com

CHINA
T: +86 400 081 8020
E: pmschina@pmeasuring.com

FRANCE
T: +33 682 991 798
E: pmsfrance@pmeasuring.com

GERMANY
T: +49 351 8896 3850
E: pmsgermany@pmeasuring.com

IRELAND
T: +353 1 295 7373
E: Info.ie@pmeasuring.com

ITALY
T: +39 06 9053 0130
E: pmsrli@pmeasuring.com

JAPAN
T: +81 44 589 3498
E: pmsjapan@pmeasuring.com

KOREA
T: +82 31 286 5790
E: pmskorea@pmeasuring.com

NORDIC
T: +45 7070 2855
E: pmsnordic@pmeasuring.com

PUERTO RICO
T: +1 786 564 3356
E: pmspuertorico@pmeasuring.com

SINGAPORE
T: +65 6496 0342
E: pmssingapore@pmeasuring.com

SWITZERLAND
T: +41 71 987 01 01
E: pmsswitzerland@pmeasuring.com

TAIWAN
T: 886-3-5525300
E: pmstaiwan@pmeasuring.com

UNITED KINGDOM
T: +44 (0)1733 454 207
E: Info.uk@pmeasuring.com



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