



**Thermo Scientific
Aerosol and Dust Monitoring Solutions**



**Innovative solutions for better
health protection**

Thermo
SCIENTIFIC

Identify. Define. Inform.

The knowledge to do more than inform can make all the difference when it comes to monitoring aerosols and dust. Ensuring compliance, as well as the health of your workers, community, and environment are all crucial parts of monitoring at required levels. By providing products that do more, that provide more reliable, precise and accurate results, we can help you to identify the source of a problem, define a course of action... empower you to do more than inform.



preserving clean air

Industry Expertise Built In

Our in-house team of scientists, engineers and technicians continuously strive to develop and investigate the latest technologies, drive product advancement, and partner with all other functional teams to ensure that only quality products, with the best price and performance, are available to our customers. Utilizing patented, field-proven technologies, in addition to industry preferred methods, we offer innovative, customer-focused solutions.

Direct Service and Support

We offer a full range of instrument and system services to meet the growing needs of the environmental market. We are committed to being the global leader in environmental monitoring applications, where our market knowledge, customer intimacy, application expertise, instrument technology, and global service footprint help our customers succeed in protecting people and the environment.

Contents	2	Ambient and Area Monitoring
	6	Personal Monitoring
	8	Services and Support

Ambient and Area Monitoring

Monitoring for aerosols and dust within a designated area, whether for research or routine input, requires more than direct measurement. Our line of Thermo Scientific particulate instrumentation includes various industry-proven particulate matter technologies, such as gravimetric sampling, light scattering, beta attenuation, and inertial weighing TEOM technologies to ensure your monitoring needs are met.

Continuous and Real-Time Monitoring

Applications Include:

- Air quality monitoring networks, including background sites
- Special studies and supersites
- Routine input for air quality index
- In and around industrial and material-handling facilities
- Remediation projects (Superfund, hazardous waste)
- Indoor air quality, exposure assessment, and industrial hygiene measurements
- Ambient sulfate particulate monitoring

Certifications and Approvals:

U.S. EPA PM-10:

- TEOM 1405 Continuous Ambient Particulate Monitor
- FH62C14 Beta Gauge Continuous Ambient Particulate Monitor
- 5014i Beta Continuous Ambient Particulate Monitor

U.S. EPA PM-2.5:

- TEOM 1405-F Continuous Ambient Particulate Monitor with FDMS
- TEOM 1405-DF Continuous Dichotomous Ambient Particulate Monitor with FDMS
- 5014i Beta Continuous Ambient Particulate Monitor



5030i SHARP Synchronized Hybrid Ambient Real-time Particulate Monitor



5014i Beta Continuous Ambient Particulate Monitor

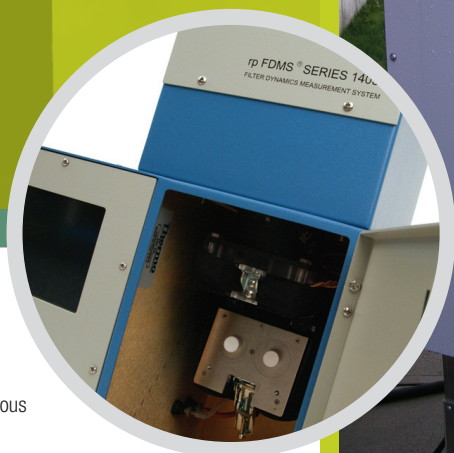
Beta attenuation

Thermo Scientific Beta monitors use a low emitter Carbon-14 (C14) source in conjunction with a detector. A filter tape is located between the C14 source and the detector and as a constant flow of air is drawn across the tape and aerosol is deposited a direct correlation is made between the attenuation of the beta signal and the mass collected. Beta attenuation is best suited for remote sites or long-term unattended monitoring. The Beta monitors are capable of PM measurement in a range of 0 to 10,000 $\mu\text{g}/\text{m}^3$ with a mass accuracy of +/- 5% when used with the NIST-traceable mass calibration foil set.

Products include:

- 5014i Beta Continuous Ambient Particulate Monitor
- 5030i SHARP Synchronized Hybrid Ambient Real-time Particulate Monitor
- FH62C14 Beta Gauge Continuous Ambient Particulate Monitor

1405 TEOM Series of Continuous Ambient Particulate Monitors



Light-scattering Photometer (Nephelometer)

Light-scattering photometry, as used in the Thermo Scientific ADR-1500 and Model 5030i SHARP, is a highly sensitive and precise approach to particle monitoring. The intensity of the light scattered by airborne particles passing through the sensing chamber is linearly proportional to their concentration and can provide real-time measurements, as compared to a gravimetric standard. This optical configuration produces optimal response to particles, providing continuous measurements of the concentrations of airborne particles for total particulate and cut-points ranging from PM-10 down to PM-1. On some models, particulate collection on the filter media can provide post analysis for speciation and gravimetric validation.

Products include:

- ADR-1500 Area Dust Monitor
- Model 5030i SHARP Synchronized Hybrid Ambient Real-time Particulate Monitor



ADR-1500 Area Dust Monitor

Tapered Element Oscillating Microbalance (TEOM®)

Thermo Scientific TEOM® series of monitors are the only instrumentation that contains the technology to provide a NIST traceable, continuous, direct mass measurement of airborne particulates. The TEOM product line has the ability to measure particulate in the range 0 to 1,000,000 µg/m³ (1 g/m³) while maintaining a resolution of 0.1 µg/m³. The TEOM technology has a mass accuracy of ±0.75%, making it the industry benchmark for precision and accuracy in particulate measurement. Additionally, the TEOM is available in the Filter Dynamic Measurement System (FDMS) variant, which can determine the volatile and semi-volatile particulate fractions. The conventional PM monitoring approaches do not account for the losses of volatile and semi-volatile compounds that can occur with traditional PM sampling. Utilizing the FDMS, the Model TEOM 1405-F and 1405-DF monitors overcome this challenge by automatically generating mass concentration measurements (µg/m³) that account for both non-volatile and volatile PM components.

Products include:

- TEOM 1405 Continuous Ambient Particulate Monitor
- TEOM 1405-D Continuous Dichotomous Ambient Particulate Monitor
- TEOM 1405-F Continuous Ambient Particulate Monitor with FDMS
- TEOM 1405-DF Continuous Dichotomous Ambient Particulate Monitor with FDMS

Speciation

Real-time speciation includes analyzing sulfate particulate in the ambient air to determine the concentration of the sulfate particulate. The sulfate particulate is captured through an inlet, and then converted thermally to sulfur dioxide. The sulfur dioxide is then measured using the pulsed fluorescence analyzer. Additionally, light-scattering technology, similar to that used in our pDR Series and Model 5030i SHARP, can be applied to the measurement of Black Carbon to measure absorption and reflection. This measurement is affected by reflection and the scattering of light in multiple directions due to particle size and shape.

Products include:

- 5020i Sulfate Particulate Analyzer
- 5012 Multi-angle Absorption Photometer (MAAP)

Ambient and Area Monitoring

Sample Collection

Applications Include:

- Air quality monitoring networks, including background sites
- Special studies and super-sites
- Routine input for air quality index
- In and around industrial and material-handling facilities
- Remediation projects (Superfund, hazardous waste)
- Lead monitoring

Certificates and Approvals:

U.S. EPA PM-2.5, PM-10 and PM-Coarse:

- Partisol® 2000i-D Dichotomous Ambient Particulate Sampler
- Partisol 2000i-FRM Ambient Particulate Sampler
- Partisol 2025i Sequential Ambient Particulate Sampler
- Partisol 2025i-D Dichotomous Sequential Ambient Particulate



convenient and flexible

High-Volume Samplers

Designed to meet International and U.S. EPA reference standards for High-Volume Air Sampling, our Thermo Scientific High-Volume Samplers use either a Volumetric or Mass Flow Control system for the sampling of airborne PM-2.5, PM-10, and TSP particulate matter. High-Volume samplers run at higher flow rates than the Partisol® and have a larger filter area which can also be used for speciation or TSP Lead. Additionally, using a number of different timer motors or chart recorders, the High-Volume Samplers are available in several configurations.

Products Include:

- MFC/VFC PM-2.5 High-Volume Air Sampler
- MFC/VFC PM-10 High-Volume Air Sampler
- MFC/VFC TSP High-Volume Air Sampler



High-Volume Air Sampler



Partisol 2000i-D Dichotomous Ambient Particulate Sampler

Partisol 2025i Sequential Ambient Particulate Sampler

Partisol® Samplers for PM-2.5, PM-10, PM-Coarse and TSP

Our line of Thermo Scientific Partisol® iSeries monitors form the backbone of the U.S. EPA national sampling network, and are being implemented by air monitoring organizations worldwide for the sampling of PM-2.5, PM-10, PM-Coarse and TSP particulate matter. Routinely utilized in a variety of ambient conditions, including extreme climates, these Partisol samplers provide a convenient and flexible means of collecting high-quality samples of ambient particulate as well as atmospheric species in gaseous and particulate, form for laboratory analysis. Non-dichotomous samplers can be paired to measure PM-Coarse.

Products Include:

- Partisol 2000i-D Dichotomous Ambient Particulate Sampler
- Partisol 2000i-FRM Ambient Particulate Sampler
- Partisol 2025i Sequential Ambient Particulate Sampler
- Partisol 2025i-D Dichotomous Sequential Ambient Particulate Sampler
- Partisol 2300 Speciation Sampler

Personal Monitoring

The ability to quickly identify unsafe particulate levels for personal exposure is critical in the prevention of health effects. Respirable particles can settle deep in the lungs, resulting in serious health and respiratory problems, such as decreased lung function, asthma, irregular heartbeat, Black Lung Disease and chronic bronchitis. These devices should not detract from the ability of the wearer to perform their required tasks, while still offering real-time protection and the knowledge to avoid potential overexposure.

Continuous and Real-Time Monitoring

Applications Include:

- Site remediation monitoring
- Fugitive dust applications
- Coal dust monitoring (CWP avoidance)
- Mine ventilation studies
- NIOSH Method 0500 and 0600 monitoring
- Research and epidemiology studies

Certifications and Approvals:

- pDR-1000AN Personal DataRam: MSHA Approval – 2G-4126-0 A&CC Par# 85832
- PDM3600 Personal Dust Monitor: MSHA Approved – 19-A040002-0, NIOSH Approved #TC-74CPDM-01 and State of Pennsylvania Approval # BFE 105-09



pDR Series of personal dust monitors

Light-scattering Photometer (Nephelometer)

Light-scattering photometry, as used in the Thermo Scientific ADR-1500 and 5030i SHARP, is a highly sensitive and precise approach to particle monitoring. The intensity of the light scattered by airborne particles passing through the sensing chamber is linearly proportional to their concentration and can provide real-time measurements, compared to a gravimetric standard. This optical configuration produces optimal response to particles, providing continuous measurements of the concentrations of airborne particles for total particulate and cut-points ranging from PM-10 down to PM-1. On some models, particulate collection on filter media can provide post analysis for speciation and gravimetric validation.

Products Include:

- pDR-1000AN personal DataRAM Monitor
- pDR-1500 personal DataRAM Aerosol Monitor
- DataRAM 4 Particulate Monitor

Tapered Element Oscillating Microbalance (TEOM®)

The Thermo Scientific PDM3600 uses a technology similar to the TEOM® series of ambient monitors to provide a continuous direct mass measurement of airborne particulates. It employs a momentum compensator to measure the frequency not associated with the mass of the particulate to provide a compensated mass reading in near real-time. The TEOM used in the PDM3600 is constructed of metal, providing robust performance in the most demanding of environments to accurately measure the critical exposure range.

Products Include:

- PDM3600 Personal Dust Monitor



PDM3600 Personal Dust Monitor

real-time protection

Sample Collection

Applications Include:

- Pharmaceutical research applications
- Studying ventilation
- Indoor or outdoor air quality



Viable and Non-Viable Impactors

First in their class, our Thermo Scientific Andersen Series of Cascade Impactors are the original designs cited as the world's reference for airborne particle sizing. The Andersen Cascade Impactors (ACI) are uniquely defined as the primary standard classification devices, thanks to performance verification through well-established, fundamental physical principles. With over 40 years of published performance, our multi-stage Andersen Cascade Impactors are the best instruments for determining medical and research aerosol particle-size distribution, indoor air quality applications including sterile and aseptic processing environments, and quiescent outdoor areas. Our complete line of Andersen Cascade Impactors is the simplest, low-cost, and adaptable way to sample airborne particulates and inhalation delivery platforms.

Products Include:

- N6 Single-Stage Viable Andersen Cascade Impactor
- Two-Stage Viable Andersen Cascade Impactor
- Marple 290 Marple Personal Cascade Impactor
- Six-Stage Viable Andersen Cascade Impactor
- Eight-Stage Non-Viable Andersen Cascade Impactor



Eight-Stage Non-Viable Andersen Cascade Impactor

Service and Support

We offer a full range of instrument and system-focused services to meet the growing needs of the environmental market. Tailored to our customer's technical and budgetary needs, our expert service team can provide a wide range of services and support that will help our customers to maintain required up-time and data accuracy to meet federal, state and local air-quality monitoring regulations.

Our Field Service, Technical Support, Customer Service and Depot Repair teams are trained using hands-on, classroom and real-world application techniques, ensuring you get the right answer the first time, every time. We also provide a number of service offerings to assist in the integration, installation and performance maintenance of your instruments. These services include application and maintenance training, depot repair, refurbishment and exchange services, calibration certification services, rental and loaner equipment programs, and on-site Field Support Engineers, technical and applications support.

We continue to support our customers with advanced online resources. Our Air Quality Instruments Online Library allows our customers access to product documents and information on a constant basis. Available 24-hours a day and seven-days a week, the online library provides quick access to information, regardless of time zone or office hours.

Choose the right service solution to meet your needs:

- Preventative Maintenance Contracts
- Installation and Start-up Assistance
- System Integration and Instrument Upgrades
- Certification and Audit Testing Support
- Extended Warranties and Service Contracts
- Emergency On-site Repair Services
- Spare Parts and Programs
- Factory Repair Service
- On-site and Factory Training
- Technical and Customer Service Phone Support
- Technical Support and Field Service
- Remote Diagnostics



investment made expertise delivered



Contact Us

Phone: 1-508-520-0430 or toll free 1-866-282-0430; Fax: 1-508-520-1460;

Email: aqiservice@thermofisher.com

For more information about Thermo Scientific Instruments, systems, components, service or support, please visit www.thermoscientific.com/aqi. For ordering information, please contact your Thermo Fisher Scientific representative.



Contact Us

Phone: 1-508-520-0430; Fax: 1-508-520-1460
Email: customerservice.aqi@thermofisher.com

For more information about Thermo Scientific Instrument, systems, components, service or support, please visit www.thermoscientific.com/aqi. For ordering information, please contact your Thermo Fisher Scientific representative.

Thermo Fisher Scientific Air Quality Instruments

USA
27 Forge Parkway, Franklin, MA 02038
Ph: 1-508-520-0430
Fax: 1-508-520-1460
customerservice.aqi@thermofisher.com

China
Units 702-715, 7th Floor, Tower West, Yonghe
Beijing, China 100007
+86 10 84193588
info.eid.china@thermofisher.com

India
C/327, TTC Industrial Area, MIDC, Pawane,
New Mumbai 400 705, INDIA
Ph: +91 22 4157 8800
india@thermofisher.com

Europe
Takkebijsters 1
Breda Netherlands 4801EB
+31 765795641
info.aq.breda@thermofisher.com

©2011 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific Inc. and its subsidiaries. Specifications, terms and pricing are subject to change.

www.thermoscientific.com/aqi

Lit_AQIAEDUSTBro_12.11

Thermo
SCIENTIFIC

Part of Thermo Fisher Scientific