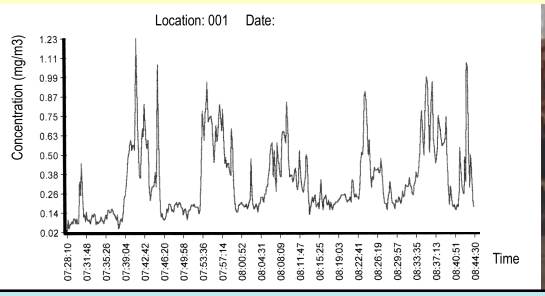
Welding Fume Exposure



The **Haz-Dust® IV** monitor being worn by a welder to monitor welding fume exposure during welding operations *(left)*.

Photo courtesy of Rooney Welding - Plaistow, NH

Data is easily downloaded to a PC *(right)*.

Environmental Devices Corporation is a manufacturer of scientific instrumentation specializing in real-time monitoring of airborne particulates. Since its incorporation in 1990, EDC has designed and commercialized several advanced product lines of air monitoring equipment. A product of significant importance is the **Haz-Dust® IV** model HD-1004 Personal Dust Monitor which was jointly developed with the Occupational Health Foundation for measuring a worker's exposure to lung damaging aerosols. All products are highly portable, light weight and compact. EDC has gained world wide recognition and is committed to ISO-9001 quality standards in accordance with the requirements and procedures of ANSI/ASQC.

Also available:

Hand Held Dust Survey Tool
Haz-Dust I HD-1100 Particulate Monitor

Direct Reading Ambient PM-10 and PM 2.5 Air Sampler
EPAM 5000 Real-Time Environmental Particulate AirMonitor

Indoor Air Quality Monitor
Air-Aide AA-3000 Airborne Particle Monitor

Fix Point Continuous Aerosol Monitor
AQ-10 Industrial Air Quality Monitor

Low Cost Filter Based PM-2.5 and PM-10 Air Sampler
Dust-Sol DS-2.5 Portable Particulate Ambient Air Sampler

Multi Sensor Weather Station
Air Scan AS-2000 Multi Modular Weather Station Monitoring

Custom manufacturing design services available

Manufactured by:
Environmental Devices Corporation
4 Wilder Drive, Bldg. 15
Plaistow, NH 03865-2856 USA
Tel: 603-378-2112 • Fax: 603-378-2113
Email: sales@hazdust.com
www.hazdust.com

HD-1004 Specifications

Display: Alpha-numeric LCD-4line, 20 character mg/m³ concentration reading
Operations: Four key splash proof membrane switch – menu driven
Calibration: NIOSH gravimetric reference – NIST traceable – SAE fine test dust
Accuracy: +/- 10% to filter gravimetric SAE fine test dust
Sensing range: 0.01-200 mg/m³
Particulate size range: 0.1 to 100 µm
Precision: +/- 0.02-mg/m³
Sampling Flow Rate: 1.0 – 3.3 liters/minute
Filter cassette: 37mm disposable
Analog output: 0-2 vdc
Alarm output: 90db at 3ft
Recording time: 1 second to 21 weeks
Sampling rate: 1 sec., 1 min. and 10 min. intervals
Data storage: 21,500 data points
Security code: 4 digit combinations
Memory & time storage: ≥ 5 years
Real-time clock and data display: Hours, min., sec., day, month, year
Data display: concentration in mg/ m³ & TWA, MAX, MIN, STEL, date, time
Digital output: RS-232
Operating temperature: 0 to 50° C
Storage temperature: -20 to 70° C
HazComm Software: Windows™ driven
Power: Ni-Cad rechargeable battery
Operating time: ≥ 8 hours
Charging time: 10-12 hours
Humidity: 95% non-condensing
Dimensions *(case)*: 5.4" x 3.3" x 2.7"
Sensor Dimensions: 1.75" x 1.5"
Weight: 1.5 lbs.

Optional Radio Modem

Transceiver
Frequency range: 380…470 MHz

Transmitter
Carrier power: 10mW…1W / 50 ohm
Adjacent channel power: according to EN 300 220-1 / ETS 300 113

Receiver
Sensitivity: -116…-110 dBm *(BER < 10 E-3)*
Co-channel: > -12 dB

Data Modem
Interface: RS-232 or RS-485, RS-422
Data speed of RS interface: 300 – 38400 bps
Data speed of radio interface: 19200 bps *(25kHz Channel)*
9600 bps *(12,5 kHz Channel)*
Data formats: Asynchronous data

General
Operating voltage: +9…+30 Vdc
Power consumption: 1.8 VA typical *(Receive)* / 6.0 VA typical *(transmit)*
Antenna connector: TNC, 50 ohm, female

Distributed by

ISO-9001 Certified

CE

HAZ-DUST®

Real-Time Particulate Air Monitors

Model HD-1004

Personal Real-Time Aerosol Monitor for
Measuring Lung Damaging Airborne Particles

The only dust monitor that allows true size selective breathing zone measurements & comprehensive graph reporting

Exposure monitoring of all dusts & aerosols including:

- lead
- concrete/cement
- pharmaceuticals
- toxic soil remediations
- cadmium
- construction dusts
- welding fumes
- nuisance dusts
- paint spray
- silica
- chromate
- dry chemicals
- coal
- grinding dusts
- grain
- wood/paper
- tobacco smoke
- oil mists

Haz-Dust® IV identifies potential dust problems before they become a health concern

Airborne particulate matter or dust is becoming an increasing concern and making current headlines due to its adverse effect to human respiratory health. Lung damaging particulates in the work place can be detrimental to a worker's health as well as a company's legal responsibility.

The **Haz-Dust® IV** is a Real-Time Personal Dust Monitor with an internal air sampling pump that is microprocessor controlled. This allows for large data storage and on screen statistical calculations. The detached sensor is miniaturized and easily attaches to the individual's lapel for true breathing zone measurements. The sensor is further improved by the addition of optional interchangeable sampling heads for OSHA defined respirable, thoracic and inhalable particulates. An in-line 37mm filter cassette, after the optical sensor, allows the user to collect concurrent filter based air samples consistent with gravimetric methods. The unique internal "smart" microprocessor mathematically corrects for difference in particulate size.

Haz-Dust® IV provides comprehensive graphs of time vs. dust concentration that allows the investigator a more accurate state-of-the-art technique for defining and analyzing workplace exposures to lung damaging particulates. While a real-time profile of dust loading is impossible with the pump/filter gravimetric method alone, the addition of a miniature optical dust sensor provides a more dynamic assessment that could never be obtained before.

When used as part of a routine air-monitoring program **Haz-Dust® IV** can significantly reduce the number of filter gravimetric tests and laboratory analysis. For example: OSHA compliance air monitoring program may dictate air monitoring for particulates on a monthly basis to determine that work practices are below Federal Regulations. If a company has 10 or more employees at risk of exposure this can result in as many as 10 to 20 tests per month and subsequent lab analysis. By implementing a **Haz-Dust® IV** real-time dust monitor, particulate concentrations can be determined immediately and in real-time. No special skills are needed and no laboratory analysis is required. **Haz-Dust® IV** actually pays for itself by reducing the number of filter gravimetric tests by 25 to 50%. **Haz-Dust® IV** alerts you in seconds and allows you to take immediate corrective action.

Haz-Dust® IV is a valuable tool for industrial hygienists and health safety professionals in reducing potential health liabilities, reducing the cost of acquiring data for regulatory compliance and assists in complying with federal regulations for respiratory safety.

Benefits of Using Haz-Dust® Monitors

Haz-Dust® IV can be used for a variety of applications that aid the air quality investigator in complying with federal regulations for respiratory safety and reduces the cost of acquiring data for regulatory compliance. **Haz-Dust®** Air Monitors provide the fastest way possible to determine the concentration of airborne particulates and reduce potential health liabilities.

Other benefits include:

- Easy set-up and operation – User friendly design allows monitor to be set up and ready to use within 15 seconds.
- Automatically stores data and prints graphs of the dust profile – this is impossible to obtain with using only traditional filter based methods.
- Reduces the number of filter based manual tests – which reduce total air monitoring costs for regulatory compliance.
- **Haz-Dust®** monitors allow the investigator more accuracy in defining and analyzing human exposures to lung damaging particulates.

Haz-Dust® IV Pers

The **HD-1004** Real-Time Personal Dust Monitor is a completely portable package that allows true breathing zone measurements and comprehensive graph reporting. The product is designed for aerosol and dust monitoring for industrial Hygiene and Environmental air investigations. HD-1004 is individually worn and offers immediate determination and data storage of airborne particulate concentrations in milligrams per cubic meter. The patent pending sensor design that allows the interchange of sampling heads for inhalable, thoracic and respirable separations. The in-line disposable cassette allows the user to simultaneously collect filter samples for further gravimetric or chemical analysis.

The signal processing electronics and microprocessor are enclosed in a compact case that attaches to the individual's waist. A real-time display reports concentrations in milligrams per cubic meter. Statistics such as: TWA, STEL, Max and Minimum can instantly be viewed on the display. The internal user adjustable alarm can be preset to alert the user of approaching threshold limits.

HD-1003 can be used for a variety of applications including lead, silica, welding fumes, pharmaceutical and construction dusts. Accompanying software provides management ready graphs and reports. HD-1004 is an excellent OSHA survey compliance tool for determining worker exposure to airborne contaminants, evaluating levels of respiratory protection, or any application that requires immediate and accurate air monitoring of lung damaging particles.

Applications

- Determining levels of worker respiratory protection for OSHA compliance
- Compliance program reviews
- Evaluating work practices and controls of any dust generating practice
- Safety audits
- Can be combined with NIOSH Video exposure monitoring for real-time graphical overlays
- Welding fume exposures
- Air quality studies in occupational health and industrial hygiene
- Haz-Mat air quality investigation and waste site remediation
- The **Haz-Dust® IV** Monitor is a useful tool for all air monitoring applications involving lung-damaging particulates

Features

- Comfortable Light Weight
- Miniaturized Sensor Design
- Easy to Operate
- Data Logging
- On Screen Display of Statistics
- Splash-Proof
- Data Security Code
- Adjustable Alarm Signal
- Enhanced Accuracy
- RFI/EMI Protection
- Optional Radio Modem

sonal Real-Time Dust Monitor Model HD-1004

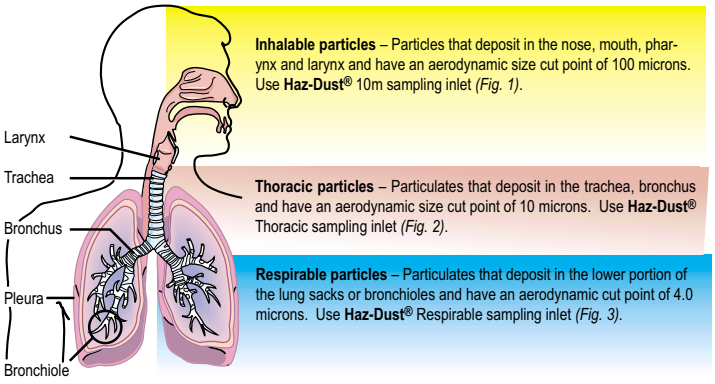
Three interchangeable size selective sampling inlets

Inhalable *Thoracic* *Respirable*

Size Selective Regions of the Lungs

The human respiratory system is divided into three regions where particles of certain sizes or aerodynamic diameter are likely to be deposited. OSHA *(Occupational Safety and Health Administration)* sets strict guidelines and methods for these different particle sizes.

An understanding of how and where particles are deposited is necessary to properly evaluate the hazards. The **Haz-Dust® IV** has the proper size selective features for measuring the three respiratory regions that are applicable to both EPA and OSHA standards.



Real time display of dust concentration and statistics; TWA, STEL, MAX, MIN.

"Smart" micro-processor allows mathematical correction for different particle sizes.

Superior Benefits…Two Instruments in One

A Personal Air Sampling Pump with filter cassette & A Real-Time Dust Monitor in one E-Z to use package:

- Immediate display of concentration
- Accurate size selective separations
- Early warning audible alarm signal of approaching threshold limits
- Time vs. concentration graphs
- Complete profile of dust patterns
- In-line filter can be weighed or analyzed
- Interchangeable sampling heads
- Fast documentation for compliance
- Reduced sampling time & costs

NEW!
Smaller Size, Light Weight & Improved Performance

HAZ-DUST
Model HD-1004
Personal Real-Time Aerosol Monitor for Measuring Lung Damaging Airborne Particles

The HD-1004 Real-Time Dust Monitor is a completely portable package that allows true breathing zone measurements and comprehensive graph reporting. The product is designed for aerosol and dust monitoring for industrial Hygiene and Environmental air investigations. HD-1004 is individually worn and offers immediate determination and data storage of airborne particulate concentrations in milligrams per cubic meter. The patent pending sensor design that allows the interchange of sampling heads for inhalable, thoracic, and respirable separations. The in-line disposable cassette allows the user to simultaneously collect filter samples for further gravimetric or chemical analysis.

The signal processing electronics and microprocessor are enclosed in a compact case that attaches to the individual's waist. A real-time display reports concentrations in milligrams per cubic meter. Statistics such as: TWA, STEL, Max, and Minimum can instantly be viewed on the display. The internal user adjustable alarm can be preset to alert the user of approaching threshold limits.

HD-1004 can be used for a variety of applications including lead, silica, welding fumes, pharmaceutical and construction dust. Accompanying software provides management ready graphs and reports. HD-1004 is an excellent OSHA survey compliance tool for determining worker exposure to airborne contaminates, evaluating levels of respiratory protection, or any application that requires immediate and accurate air monitoring of lung damaging particles.

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- Safety audits
- Can be combined with NIOSH Video exposure monitor for real-time graphical overlays
- Welding fume exposures
- Air quality studies in occupational health and industrial hygiene
- Haz-Mat air quality investigation and waste site remediation
- The Haz-Dust IV Monitor is a useful tool for all air monitoring applications involving lung damaging particulates

New Personal Dust Monitor
Model HD-1004

Three Interchangeable Size Selective Sampling Inlets

Inhalable

Thoracic

Respirable

Features

- Comfortable Light Weight
- Miniaturized Sensor Design
- Adjustable Alarm Signal
- Enhanced Accuracy
- On Screen Display of Statistics
- Splash-Proof
- Data Security Code
- Easy to Operate
- Data Logging
- RFI/EMI Protection

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Data Display: Concentration in mg/m^3 & TWA, MAX, MIN, STEL, date, & time
Digital Output: RS-232
Operating Temperature: 0 to 50º C
Storage Temperature: -20 to 70º C
DustComm Pro Software: Windows™ Driven
Power: NiMH Rechargeable Battery
Operating Time: ≥ 8 hours
Charging Time: 10-12 hours
Humidity: 95% non-condensing
Dimensions *(case)*: 5.5" x 3.25" x 2.75"
Sensor Dimensions: 1.75" x 1.5"
Weight: 2 lbs

Environmental Devices Corporation
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www.hazdust.com