Airborne Metal Analyzer

PRODUCT BROCHURE

Letter from Scentroid's CEO

Scentroid's mission is to empower our clients with vast in-depth knowledge, state-of-the-art instruments, and the most extensive customer support. To this end, we strive in every aspect of our operation to put our client first and to use our research expertise to develop the most innovative and effective products and services in the sensory industry. We envision a future where environmental impacts will be easily and accurately measured and mitigated.

Ardevan Bakhtari

**Dr. Ardevan Bakhtari**
CEO, Scentroid

Quantify the Concentration of Heavy Metals in the Air

You can now rapidly detect multiple heavy metals in the air and measure the total metal concentration of various elements in air samples, with results available in just ten minutes. Ideal for compliance checks with both environmental and occupational health regulations.

How The Airborne Metal Analyzer Works

An ambient air sample is taken through a port into the Airborne Heavy Metal Analyzer. The sample is then filtered using a special membrane filter paper. Our X-Ray Fluorescence (XRF) sensor, which is a proven measurement principle and non-destructive analytical technique, scans the sample on the filter and measures the concentration of heavy metal in the air.

Users can view instant results in our SIMS3 Software. Autocalibration options are available, and the device can collect and continuously analyze air samples. Scentroid's Airborne Metal Analyzer is a unique and cutting-edge solution in today's market.

STEP 1 **STEP 2** **STEP 3** **STEP 4**
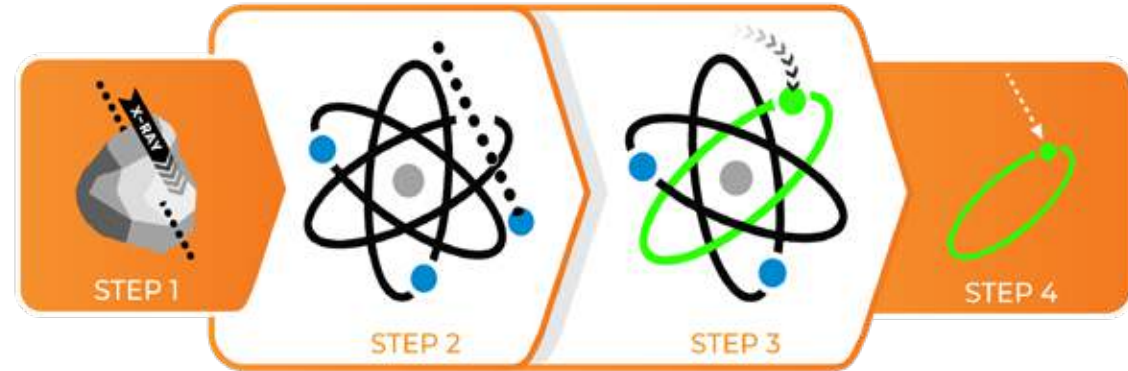
X-ray Excitation
High-energy X-rays are directed at the material.

Electron Displacement
The X-rays knock out inner electrons from the atoms in the material.

Energy Emission
The atom becomes unstable, and outer electrons jump to fill the gaps, emitting energy in the form of X-ray fluorescence.

Element Identification
The emitted X-rays have unique energies depending on the element, allowing the instrument to detect and identify the elements present.

Features at a Glance

Metal Standard Compliance
Complies with General Industry Standard for Metals (29CF1910.1025)

Lowers Total Costs
Significantly lowers regulatory costs for compliance compared to XRF or lab methods such as NIOSH 7082

Your Regulatory Assistant
Assists you with following occupational and environmental regulations

Low Maintenance Requirement
Periodic replacement of only the membrane filter depending on usage for continuously metal air testing

Less Than $2 Per Sample
Total sampling and analysis costs less than $2.00 per sample

Wide Variety of Industries
Mining Operations, Shooting Ranges, Automotive Supply Chains, Construction, and more...

Airborne Metal Sensors

Our Heavy Metal Analyzer can measure up to 40 varieties of airborne metals based on your sensor option.

If you're looking to monitor lead in the air, Scentroid also offer a similar product, the Airborne Lead Analyzer. Contact our sales representative to find out which product works the best for your facility!

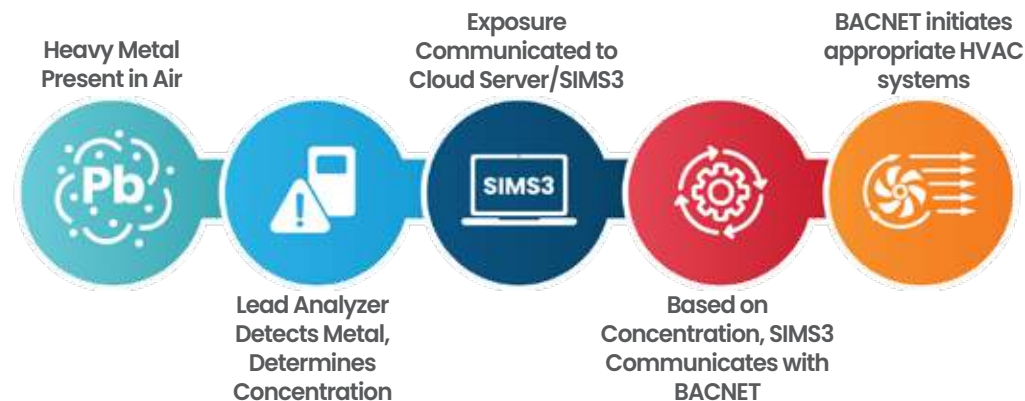|	
Aluminum (Al)	Nickel (Ni)
Antimony (Sb)	Niobium (Nb)
Arsenic (As)	Phosphorus (P)
Barium (Ba)	Praseodymium (Pr)
Bismuth (Bi)	Rubidium (Rb)
Cadmium (Cd)	Selenium (Se)
Calcium (Ca)	Silicon (Si)
Cerium (Ce)	Silver (Ag)
Chlorine (Cl)	Strontium (Sr)
Chromium (Cr)	Sulfur (S)
Cobalt (Co)	Tantalum (Ta)
Copper (Cu)	Thorium(Th)
Gold (Au)	Tin (Sn)
Iron (Fe)	Titanium(Ti)
Lanthanum (La)	Tungsten (W)
Magnesium (Mg)	Uranium (U)
Manganese (Mn)	Vanadium (V)
Mercury (Hg)	Yttrium (Y)
Molybdenum (Mo)	Zinc (Zn)
Neodymium (Nd)	Zirconium (Zr)

METAL ANALYZER

SCENTROID

HVAC Automation with Scentroid Heavy Metal Analyzer

The Scentroid Metal Analyzer integrates seamlessly with HVAC systems through BACNET (Building Automation and Control Networks), ensuring real-time response to elevated metal levels. When the analyzer detects an increase in airborne metal concentrations, it can be setup to automatically trigger the building's HVAC system to optimize air quality, further minimizing metal exposure by adjusting airflow, filtration, and ventilation based on the specific contamination levels detected.

The communication between the Metal Analyzer and the HVAC system through BACNET allows for immediate intervention, reducing potential health risks by enhancing air circulation and ensuring harmful lead particles are quickly removed from indoor environments. This setup can be customized to match the building's unique needs, providing tailored responses to metal contamination while maintaining energy efficiency.

Heavy Metal Present in Air

Lead Analyzer Detects Metal, Determines Concentration

Exposure Communicated to Cloud Server/SIMS3

Based on Concentration, SIMS3 Communicates with BACNET

BACNET initiates appropriate HVAC systems

Airborne Metal Analyzer Overview

Our Metal Analyzer takes ambient air samples through a port and filters the air using a membrane filter paper. Then, it uses X-Ray Fluorescence (XRF) Technology to scan the filter paper and measure the concentration of metals in the air.

Specifications

Product Name	Scentroid Airborne Metal Analyzer
Sensors	Up to 40 theoretical metals
Detection Method	X-Ray Fluorescence (XRF)
Sample Methods	Airborne, Threshold
Sampling rate	Every 10 mins/ 1 hour/ 8 hour/ 12 hour/ 24 hour
Min. Detection of Air Sample	0.89 ug/m^3 (1 hour sampling)
Min. Detection of Threshold Sample	2 ppm
Power Input	110-220V 2.5A
Weight	20 kg
Size	460mm x 400mm x 590mm
Internal Storage	64 GB
Communication	WiFi, MODBUS
Cloud Server	SIMS3 Data Logging, Analysis, Alarms, Remote Management
Device Health	Daily Sensor Health & Replacement Check and Reminders
Warranty	24 Months Full Warranty (Parts, Including Sensors)

Ideal for Multiple Industries

The Airborne Metal Analyzer is great for conducting odour Laboratory Research and it can be used in other industries, such as Mining Operations, Shooting Ranges, Automotive Manufacturing and Construction.

Mining Operations

Several stages of the mining process can release airborne heavy metals. For example, blasting and excavation, which use explosives to break up rock formations, can release particles. After excavation, metals such as copper, zinc, nickel, and chromium may be emitted during crushing and grinding, depending on the ore being processed. High-temperature processes like roasting and smelting, which extract valuable metals like gold, copper, or zinc, can volatilize metals such as mercury, lead, and arsenic, releasing them as vapors or fine particulates.

Mining operations can also contaminate surrounding ecosystems, as heavy metal particles settle on soil, water bodies, and vegetation. Once these contaminants enter the food chain, they can affect wildlife and disrupt the entire local ecosystem. Many countries enforce strict regulations regarding the permissible levels of airborne heavy metals in both the workplace and the environment. Monitoring helps ensure compliance with health and environmental standards, reducing the risk of legal penalties and sanctions.

Shooting Range

In addition to lead, other heavy metals such as antimony (Sb), barium (Ba), and copper (Cu) can be found in shooting ranges. These metals are commonly used in ammunition, and when a bullet is discharged, fine dust is released into the air. While the health risks associated with these metals are typically less severe than those of lead exposure, they can still pose significant concerns. Antimony is linked to respiratory issues and skin irritation, while prolonged exposure to barium and copper can contribute to lung irritation and other health problems.

Our analyzers can measure airborne metals concentrations, allowing users to implement better ventilation systems in the facility and establish necessary safety protocols. Installing our lead analyzers can help ensure compliance with regulations and improve overall safety.

Automotive Manufacturing

Different types of airborne metal particles are released during automotive manufacturing. Welding materials such as steel, aluminum, and other alloys can release metals like lead (Pb), zinc (Zn), nickel (Ni), chromium (Cr), and manganese (Mn) into the air. Casting, commonly used to form engine blocks, wheels, and other parts, can also release metal particles. The painting and coating processes often involve the use of chromium-based compounds for corrosion resistance and to create durable finishes.

Fine metal particles are also generated during metal grinding, sanding, and polishing. Additionally, processes like stamping and cutting metal sheets to form automotive parts, such as body panels, release fine heavy metals. Regular monitoring and proper ventilation systems are essential to prevent high exposure to heavy metals among workers and ensure compliance with regulatory limits.

Construction

Construction processes such as welding, soldering, and brazing can release metal fumes into the air, especially when metals are heated to high temperatures. Other activities, like painting, electroplating, and coating with metal-based materials, can also release metals into the air.

Inhalation of metal dust or fumes can lead to respiratory conditions, neurological damage, and an increased risk of cancer. To ensure the health and safety of workers, air monitoring is essential.

Introducing SIMS3: Sensor Information Management System

The sensor information management software, SIMS3, is our all-inclusive software used to view and analyze historical data, run diagnostics, make predictions, and configure various settings for your supported Scentroid device. It offers a complete and integrated suite for ambient air chemical analysis and odor management. SIMS3 can collect data from thousands of devices covering an entire area, using a unique and highly intuitive facility control system.

Facility Organization

All facilities are separately organized so that the users of each will only see data from their own units. Regulators will have an overall view of all facilities within their monitoring scope.

SIMS3 AI

SIMS3 AI utilizes both continuous pollution monitoring and live weather data to calculate a real-time odor plume model, displaying an exact location and spread of odor emissions.

Complaint Designation

Nearby complaints are automatically assigned to facilities, and even sources within facilities, so that the system provides a perfect blend of real-time odor impact estimation, with the registration and further management of odor complaints from neighboring residents.

Modules

The map module itself displays a wealth of information including locations of your air quality monitoring devices, their live sensor readings, the location of sensitive receptors, odor complaint locations, and their justification status. The map module is complemented by a diverse series of user analytics to assist you with determining a wealth of parameters with the click of a button!

User Settings

The system is further supported by a robust settings component, allowing the quick change of user permissions, access privileges, notifications settings and more, all in one convenient window!

Real-Time Data Accessibility

You can now quickly measure total lead concentration in air samples, with results available in just seven minutes for easy compliance with environmental and occupational health regulations.

SMS Notifications

The Scentroid "Sensor Information Management System" (SIMS3) provides the capability for the Scentinal platform to **set up alarms and notifications.** Alarm levels can be set up based on individual pollutants or on the odor concentration. Breaching the designated alarm thresholds will trigger SMS and/or emails alerts to be sent out to the authorized operators. Additionally, Scentinal can be setup to provide localized visual and audible alarms. An authorized user can remotely configure each Scentinal; providing it with the desired sampling rate, transmission rate, purging frequency and more. **Scentinal can also transmit data over WIFI or LAN networks to a local server running a client SIMS database – providing additional security**.
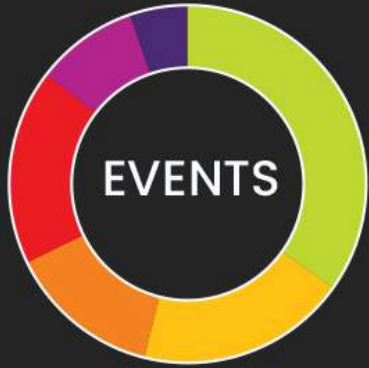
EVENTS

- Odor: 35
- OCU Maint.: 19
- Sludge Delivery: 15
- Settling Tank Mnt.: 17
- Mister 1: 8
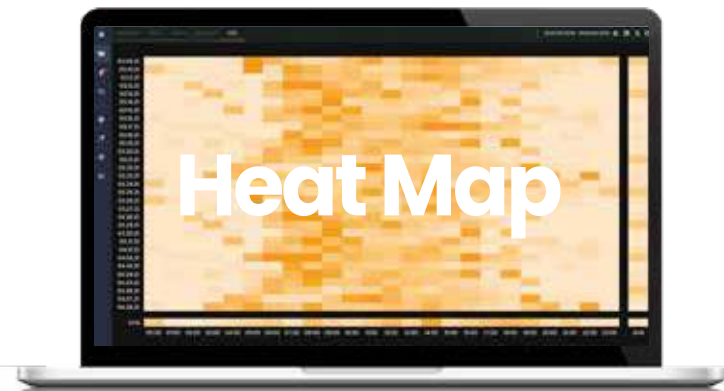- Mister 2: 4

46 New Events

23 Hidden Events

29 Read Events

Event Notification List

Status	Type	Registrant	Event Time	Justification	Correlation	Description	...ark
New	Odour	SR: Stanley Homes	2022.06.14 7:30 – 14:25	Manual Not Justified	View Correlation	Stanley Homes residences, creat... sensitive receptor, repeated com...	✓
New	Alarm: H2S	System	2022.06.16 14:05 – 15:30	Manual justified	None	Exceedance alarm triggered 14 tin... consecutively within timeframe.	✓
New	OCU Maint.	Benjamin	2022.06.16 15:00 – 17:00	Auto Justified	View Correlation	Scheduled maintainence	✓
New	OCU Maint.	Benjamin	2022.06.17 5:00 – 7:30	Auto Justified	View Correlation	Emergency maintainence	✓
New	Sludge Del...	Benjamin	2022.06.18 18:30 – 20:30	Auto Justified	View Correlation	Scheduled process.	✓
New	Settling Ta...	Benjamin	2022.06.21 8:45 – 11:00	Auto Justified	View Correlation	Scheduled weekly maintainence	✓
New	Odour	SR: Stanley Homes	2022.06.21 9:30 – 14:25	Manual not yet justified	View Correlation	Stanley homes filed a complaint,... recorded immediately.	✓
Read	Odour	EXT: Leslie	2022.06.21 9:40 – 17:00	Auto Justified	View Correlation	HI It smell bad outside today very... hot day pls remove smell thank y...	✓
Read	Odour	EXT: Paolo	2022.06.21 10:20 – 13:20	Auto Justified	View Correlation	Automatically provided by: Neighborhood Odor Watch App	✓

Event & Notification Log

The SIMS3 Event Log contains event data, time frame, justification, occurrences, intensity, and a brief description. At a glance, users can determine the most logged event types, determine the weekly frequency of logged events, and track the most active day, most active time, and total events registered. A series of filters allows users to quickly find a specific event, notification, event type, new or read status, event time, justification status, occurrences, intensity, and more.

Our notification center allows you to quickly view your instrument's alarms through a clean and organized interface. Here, you can access your device, look up a specific sensor, display all of your established alarms, and obtain a detailed breakdown of your alarm status.

Temporal

Statistical

AQI

Heat Map

Events

Justification

Robust User Analytics

The SIMS3 analytics module provides you with the tools you need to make informed decisions regarding your monitoring projects. This module allows you to view data in several formats including temporal view, statistical view, AQI Analysis view, and heat map. Take your analytic capabilities even further by analyzing your recorded events, event types, and overall event activity.

For more details on our SIMS3 platform, please see our **SIMS3 Brochure** available at **www.Scentroid.com**

Automated Reporting

Our SIMS3 reporting auto-generated report module will generate visual reports at a user-defined frequency. Users will be able to schedule weekly, monthly, or annual reports. Once generated, reports will be sent to the user, and they can be downloaded within our reports module.

Training

Scentroid provides worldwide training programs for our clients and distributors. Training can be conducted by Scentroid or your local distributor. Scentroid training tools include: online training, videos, brochure, operation manual and on-site workshops. We also offer a hands-on training program using our high-tech simulation room. Scentroid's state of the art simulation room is located at our headquarters in Toronto, Canada. You are more than welcome to visit us and meet with the people behind these products

Warranty

We are so confident of the reliability of our products, that we are glad to offer our clients a comprehensive 24 month warranty for your equipment. Additionally, warranties can be extended for the 3rd, 4th and 5th year. For more information about our extended warranties, speak to us today.

Technical Support

We are responsible for any products that exit from our manufacturing warehouse! Our support team offers different ways to help you. Choose the one most convenient for you below!

Local Support
We have developed a vast growing network of distributors and repair facilities. To find your local support please check our distributors map.

Phone Support
Our highly professional customer services are here to serve you, for any technical issue reach them easily via phone: 416.479.0078 – Ext 210

SME Support
Connecting you to the Subject Matter Experts! Our customer support is unique in that you can talk directly to the designer or programmer of each product.

Live Chat
If you feel more convenient to solve your technical issue via chat, No problem! Reach our highly professional customer services through our website-hosted Live Chat.

Email Support
For any technical issue you our engineers are happy to assist via email. For fast and efficient support, simply email our team at   support@scentroid.com

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