

LIVE WEBINAR

**INDUSTRIAL
SCIENTIFIC**

Maximising Safety in the Workplace:

Detecting **VOCs** with the **NEW Ventis
Pro5** with **PID** Sensing Capability

March 28th, 2PM to 3PM AEDT



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Volatile Organic Compounds (VOC) Overview

- What are VOCs? Why is it important to detect VOCs? How are VOCs monitored?

VOC Detection

- Sensor Knowledge, Detection Challenges, Pain Points

Ventis Pro5 with PID Sensor

- Design, Operation, Features, User Benefits

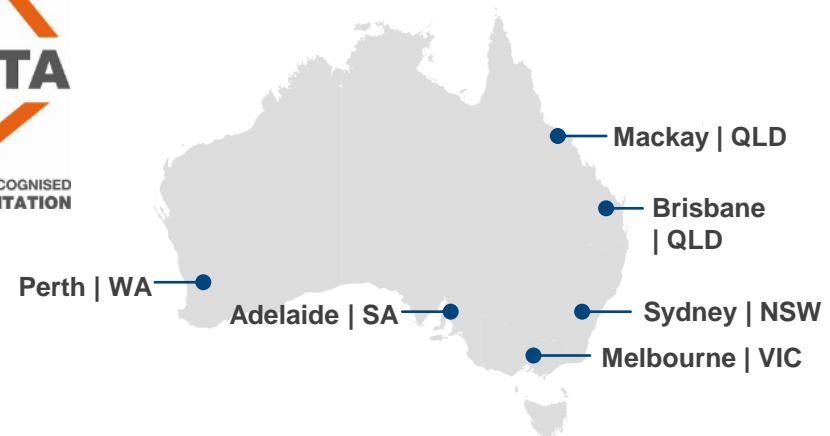
VOC Applications Study

- Emergency Response, Chemicals & Water Treatment

- Established since 1984, Air-Met Scientific is Australia's market leader in the supply, service, rental and engineering of reliable measurement and monitoring solutions to OHS and environmental professionals
- Local sales, service and rental support at **6 locations nationwide** for responsive support and knowledge of the local markets
- Committed to Quality: ISO 9001 QMS Certified
- NATA Accreditations:
 - ISO/IEC 17025 – NATA accredited on Calibration of Gas Detectors including On-Site
 - ISO/IEC 17025 – NATA accredited on Calibration and Testing of Air Sampling Pumps and Flow Meters
- Industry Sponsorships – AIOH, FAMANZ, RESP-FIT



About Air-Met Scientific



Our Vision

Industrial Scientific people are dedicating their careers to eliminating death on the job by the year 2050

- Founded in 1985
- Leaders in Portable Gas Detection & Connected Safety
- History of Innovation:
 - Multi-gas Monitors
 - Docking Stations
 - iNet Platform (Cloud Connected Gas Management)
 - Connected Safety Monitors
 - Intrinsically Safe Gateways
- Over 50 patents and >30 pending
- Acquired by Fortive (NYSE:FTV) in 2017
- Acquired Intalex and SAFER in 2019
- 1,500+ employees
- Customers in over 80 countries



Solutions to help you protect your workers, sites, community, and business



- Air-Met Scientific has been an Authorised Sales & Service Distributor of Industrial Scientific for over two decades
- In January 2022, Industrial Scientific appointed Air-Met Scientific as Master Distributor supporting all Australian channels and to facilitate operations of our Australian iNet Exchange Fulfilment Centre
- Partnering with Air-Met improves our response times providing Customers with the highest quality customer service fulfilled by an expert, local service team
- Together, we continue to provide access to reliable gas detection equipment & software to solve for Customer workflow pains to deliver on our Vision of eliminating death on the job by the year 2050



What are Volatile Organic Compounds (VOCs)?

- Volatile Organic Compounds (VOCs) are chemicals emitted as gases from certain solids or liquids. VOCs are a wide range of naturally and synthetically occurring chemicals which are found almost everywhere.
- VOCs can be found in glues & adhesives, paints, varnishes & lacquers, paint strippers, cleaning agents, pesticides, construction materials, fuels and combustion products etc.
- Some of these sources continue to produce VOCs when they are stored or transported. Some of the more familiar VOCs include **benzene, ethylene glycol, vinyl chloride, butadiene, toluene, styrene etc.**
- VOCs have a high vapor pressure (stays in a gas state in room temperature) and low water solubility – concentrations tend to stay higher indoors (10X) than outdoors.

Source: EPA, American Lung Association, CDC, NIOSH

Why is Volatile Organic Compound (VOC) Detection Essential?

- VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects due to their toxicity.
- They are described as volatile because they evaporate at temperatures found on Earth, releasing molecules into the atmosphere.
- Short-term exposure health effects include eye, nose, and throat irritation.
- Long-term exposure, including very low concentrations you may not be aware of, can damage the liver, kidneys, central nervous system, and cause certain cancers.

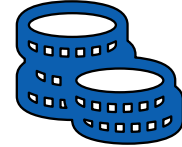
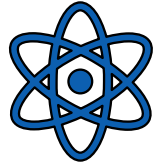
Typically, users want a 'general screening tool' that can identify a broad range of VOCs and collect exposure data to help them make informed, proactive decisions that provide long-term safety benefits to workers

Verticals with VOC Detection Needs:

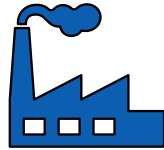
1. Chemicals
2. Oil & Gas mid & downstream, plastics & polymers, storage, transportation
3. Emergency Response & HAZMAT
4. Wastewater Treatment
5. Aviation
6. Food & Beverage



Detecting VOCs User Perspective: Safety Managers



Pain Points	Concerns & Priorities	Product Needs
<ul style="list-style-type: none"> • Risk Prevention – Constant concern that more can always be done to protect people and be compliant • Financial Support – Getting budget is a challenge without necessary tools and reporting to show safety impact • Safety Awareness – Workers may be reluctant to use devices if not simple, small & easy to operate • Staff Empowerment – Keeping employees trained and working compliantly for optimum safety is a never-ending struggle 	<ul style="list-style-type: none"> • Do we have the right procedures, equipment, systems, and people in place to eliminate or reduce our highest risks? • Can I muster the political goodwill and support for the expenses related to the above? • Does my team have the training and resources they need to keep our people safe? • Can we pinpoint the location of leaks to make informed decisions that are timely and protect our greatest asset? 	<ul style="list-style-type: none"> • Simple, reliable, accurate personal PID monitor that can track VOCs • Cost effective • Reduce dependency on paper and related manual processes • Automate wherever possible to stay OHS compliant as well as reduce related direct and indirect costs



Pain Points

- **Risk Investigation** – Limited data hinders ability to do a proper investigation
- **Financial Support** – Getting budget is a challenge without necessary tools and reporting to show safety impact
- **Change Management** – Achieving cross organizational alignment and buy-in from stakeholders is a constant battle

Concerns & Priorities

- What went wrong during that incident? Could it happen again? How do we prevent it?
- Am I seeing trends in data/results that indicate risk to our workers or to a certain process area?
- What impact are our operations having on the community? What's our plan to manage an incident that impacts the community?
- Are all confined space entries following OSHA or equivalent protocols?

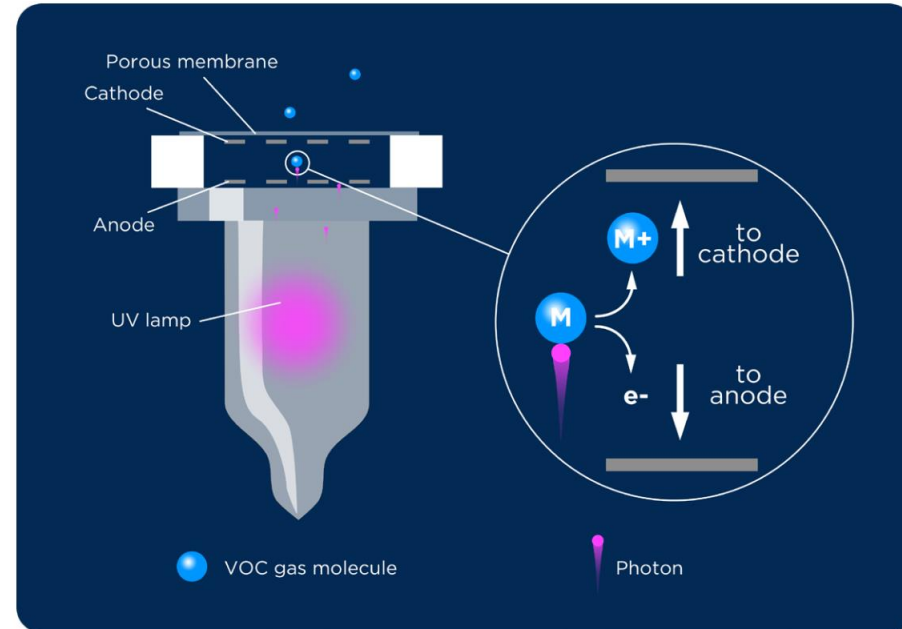
Product Needs

- Ensure worker safety from VOCs
- Digitize all exposure Records
- Collects data to help drive worker behaviour and develop clear improvements based off data
- Defend against future claims
- Have high confidence in quality of reported exposure metrics (prefers exact metrics versus reporting a range)

- Limited industry available personal monitor options to detect VOCs
- Available VOC gas detection monitor options are bulky, heavy and/or uncomfortable to wear and operate
- Multiple manufacturer devices meaning multiple docking and data systems to integrate and assimilate by industrial workers



- PID is the abbreviation for “**Photo-Ionization Detector**”. Photoionisation is produced by the absorption of a high energy photon by a molecule.
- If the energy of the photon is greater than the ionisation energy of the molecule it will be ionised.
- When a photon with enough energy strikes a molecule M, an electron (e-) is ejected. The M+ ion travels to the cathode and the electron (e-) travels to the anode, resulting in a current. This current is proportional to the gas concentration.
- A miniature UV lamp generates high energy photons, which pass through the lamp window into the ionisation/detection chamber. Sample gas diffuses through a membrane on the opposite side.



Why detect VOCs with Photoionization Detection (PID) sensor?

- VOCs can be measured in air using a variety of principles; however, many are cross-sensitive to common atmospheric gases including CO₂, CO, SO_x, NO_x, and water vapor at ppb levels
- The PID sensor is not sensitive to these and is recognized as the most accurate method for VOC detection

ION Science PID Sensor Advantages

1. World-leading humidity resistance & long-term stability
2. Offers the best temperature stability on the market



- Equipped with the most advanced and accurate PID sensing technology, the Ventis Pro5 is now the most compact and reliable, connected five-gas personal monitor available to reliably detect volatile organic compounds (VOCs)
- Versatile and dynamic tool for **Safety Managers** and **Industrial Hygienists**
- Equip yourself for **personal monitoring** needs, **confined space entries** and preparing your **emergency response** efforts

Ventis Pro5 with PID Sensor



Ventis Pro5 with PID Sensor: Key Product Features

- Sensor Configuration: PID, ULP IR LEL, COSH, and Long Life O₂
- Up to 23 hours of runtime
- 10.6eV lamp
- Calibrate with Isobutylene Gas (100ppm)
- The PID sensor used in the Ventis Pro5 uses patented technology for improved humidity resistance



Detect up to 5 gases including toxics



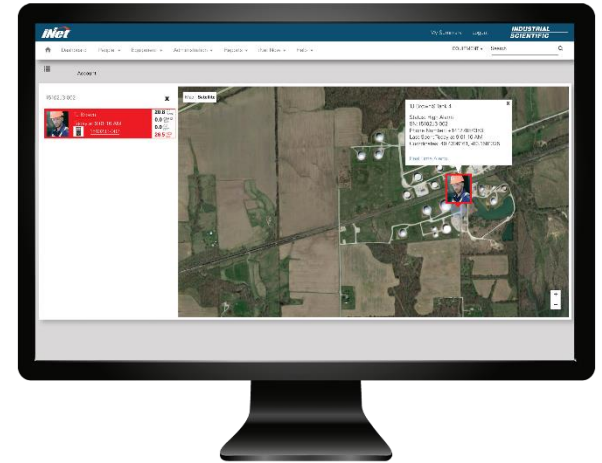
- ✓ Rugged
- ✓ Easy-to-use
- ✓ Flexible

Improve Team & Site Safety

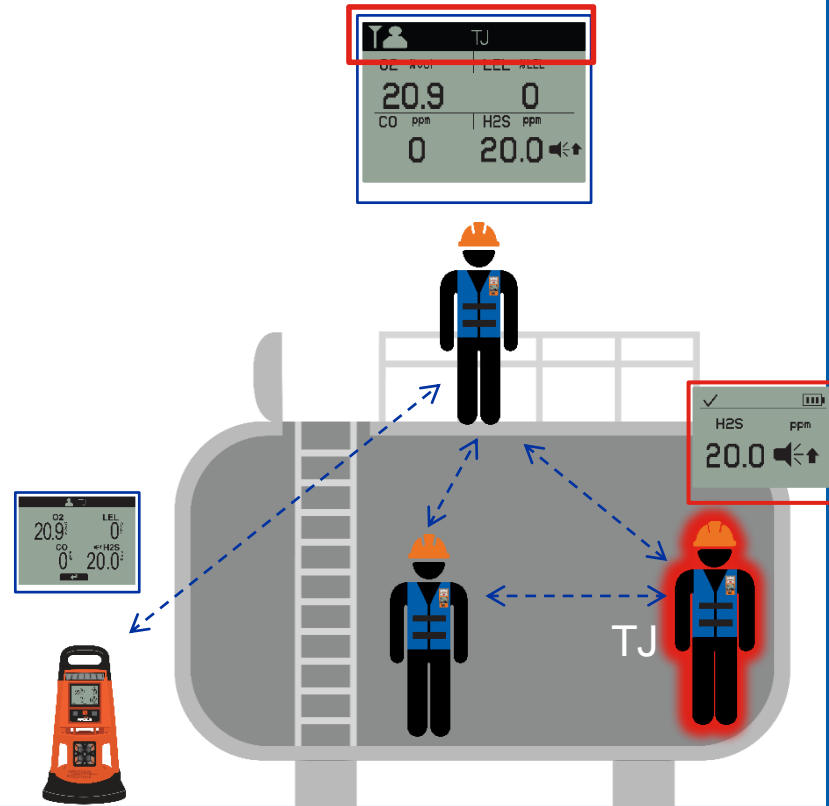


- ✓ Peer alarm sharing
- ✓ Increased awareness
- ✓ Include area monitoring

Manage Safety & Productivity



- ✓ Location/alarm data in real-time
- ✓ Muster Point Management
- ✓ Time on Tools
- ✓ Digital Permits to Work



Team-based Safety

Improve communication in confined spaces and other team-based projects with wirelessly connected gas monitors. The monitors can share gas readings and real-time alarm events with nearby peers improving team awareness and response times.

Ventis Pro5 monitors wirelessly join together to **share gas readings and real-time alarm events** with nearby peers improving team awareness.

Ventis Pro5 can send readings to a Radius BZ1 area monitor for increased site visibility.

Emergency Response



Chemical and Wastewater Treatment



- PID sensors play a key role in gas detection fleets for fire departments and emergency response teams (ERT) that need a quick way to confirm the presence of volatile organic compounds (VOCs) in the atmosphere or to locate the source of a leak
- The PID sensor will ionize any gas that it is capable of ionizing, giving the user a single cumulative reading of all those various gases (VOCs)
- The PID sensor does not make a distinction between the type of VOC gas, only *if* a VOC gas is in the atmosphere (or not) and help locate (or narrow down) the source of the leak



- Wastewater treatment facilities contain serious hazard and environmental risks emitting Volatile Organic Compounds (VOC) emissions and generating odors (from organic matter degrading over time) – this affects both plant workers as well as the communities surrounding and the environment
- Often these operations produce hazardous and toxic gases that can't be detected using a traditional gas monitor with a dedicated electrochemical sensor. For example, there is not a dedicated sensor readily available for methylamine, like there is for sulphur dioxide or ammonia.
- Most common components emitted on surface water are Benzene, Toluene, Xylene, Methane amongst others





Use the Ventis Pro5 when...

- PID single sensor applications
- Need to monitor for 5 gases or less
- When IR LEL sensor is an acceptable option
- Multiple connectivity options, like peer-to-peer or live monitoring are required
- Customers switching between VOC sampling and personal monitoring throughout their days



Use the MX6 iBrid when...

- All combustibles need to be monitored (Cat Bead Sensor Technology)
- Benzene specific readings are needed
- Need to detect for 6 gases
- Detecting H_2 , ClO_2 , NO , or HCL
- Comprehensive response factor list/or custom RF value is required



Increase Worker Safety

- Protect your workers from VOCs and the standard 4 gases
- Increase awareness of critical worker health data by tracking direct VOC exposure

Faster Emergency Response

- Protect your workers from VOCs and the standard 4 gases
- Increase awareness of critical worker health data by tracking direct VOC exposure

Smallest, Most Advanced PID Sensor

- Smallest, most advanced and reliable PID sensor on the market to detect VOCs
- The most rapid, accurate and consistent PID sensor
- Patented technology for improved humidity resistance

Increased Productivity

- Eliminate the need for two devices by using one monitor for personal monitoring and confined space entry
- Allow workers to wear a small, 5-gas monitor throughout their workday

Questions?

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Detecting
VOCs with the
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INDUSTRIAL SCIENTIFIC

DEDICATED TO ELIMINATING DEATH ON THE JOB BY THE YEAR 2050



