



IOHA

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GLOBAL EXPOSURE MANAGER

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Validating the RotaDust: A Practical Tool for Pre-Work Risk Assessment of Respirable Crystalline Silica

Author: David Dennis Tettey Noi, PhD, dnoi@uow.edu.au

Picture this: a team of miners and geologists are preparing to begin exploration at a new location. As an occupational or industrial hygienist (OH/IH), you are tasked with defining controls to protect these workers from exposure to respirable crystalline silica (RCS). Unfortunately, there is no data to rely on, and you have no idea of the RCS levels in the air, so you're left to recommend full protective equipment and engineering controls, even if the actual risk may be low.

This common dilemma in the field inspired nearly four years of research and development into a practical solution: validation of a dust generation system that can help determine RCS content of an ore body before work begins.

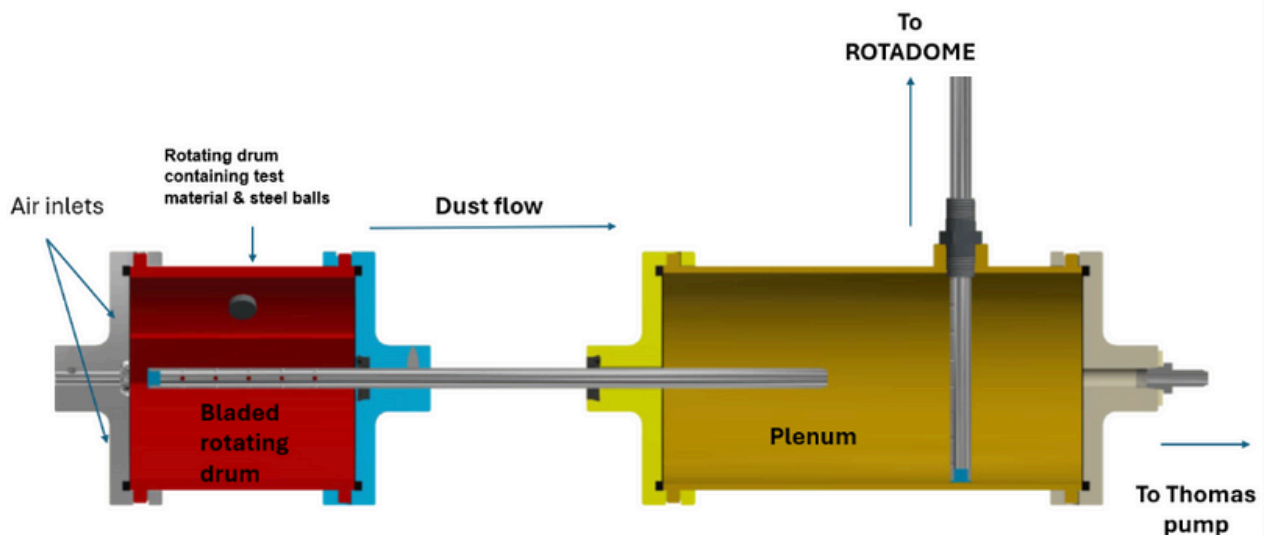
Knowing RCS levels ahead of time could dramatically improve how we approach workplace exposure risks – especially in remote or exploratory settings where

there may be a lack of existing data or real-time sampling isn't always feasible.

Through a collaboration with DEAS Pty Ltd in Australia, we worked to validate a device called the "RotaDust" and pair it with a portable Fourier Transform Infrared Spectroscopy (FTIR) to provide fast, reliable onsite data. The result is a practical system that allows the OH/IH professional to make informed decisions about exposure risk and apply the right controls in scenarios such as above.

The RotaDust is a prototype dust generator originally designed by DEAS Pty Ltd and inspired by the work of Mendez et al. (2012). It consists of a rotating drum connected to a plenum via a hollow pipe. A vacuum pump draws dust from the rotating drum into the plenum, creating a measurable dust cloud. The system can operate on a 12V rechargeable battery, though for long use, it performs best on direct current.

Schematic of ROTADUST®



Dust generation occurs through agitation or mechanical dispersion (source material drops from top to bottom), and for more resistant materials, steel balls can be added to help grind the sample during rotation. This feature allows for flexible adaptation depending on the material's properties.

The validation process began in the laboratory. It involved putting 1.5g of finely milled ore (minus 500 μm) through the RotaDust, followed by collecting the dust via SKC plastic cyclones (or 25mm modified Higgins and Dewell cyclones) attached to vacuum pumps set to a flow rate of 3.0 L/min. This process was repeated for various ore types with differing mineral profiles.

A calibration curve was developed using the Australian Quartz Standard Material (A9950, or Aust I) to relate dust concentration to FTIR absorbance. A known mass of the standard material was weighed, placed in the RotaDust, and a dust cloud was generated. The dust was sampled at different time intervals for sixty minutes onto pre-weighed PVC filters. All filters were treated in accordance with AS 2985-2009.

All filters with standard material on them were analysed using the portable FTIR.

The result was a calibration curve with an R^2 value of 0.9888, indicating a strong correlation between mass and absorbance. This equation was then used to calculate alpha-quartz (RCS) mass after FTIR analysis and the concentration was determined considering the volume of air that passed through each filter.

After successful laboratory validation, field sampling was conducted at active quarries, using the same sampling train set-up (PVC filter in SKC plastic cyclones, sampling pumps, and flexible tubes). Filters collected in the field were returned to the laboratory for FTIR analysis, including gravimetric analysis and RCS concentration determination using the established calibration curve. The same filters were sent to a NATA-accredited laboratory for X-ray diffraction (XRD) analysis. The FTIR results closely matched those from the XRD analysis. Statistical analysis showed p-values greater than 0.05, indicating no significant difference and confirming that the XRD and FTIR results were comparable.

ROTADUST® & ROTADOME® Calibration system



The conclusion of the research was that the calibration curve developed with the RotaDust and standard material (A9950, Aust I) for the FTIR was accurate and appropriate for determining the concentration of alpha-quartz in any ore sample.

So, what does this mean for the OH community?

Pre-work risk assessments can become more informed and control measures can be better aligned to actual risk. The RotaDust can be used in pre-work risk assessments to estimate RCS concentration in dust clouds generated from a particular work location or an ore body, and determine appropriate controls before workers are allowed into any work area or to work on an ore body.

Fit for field use and flexibility for dust generation. The system is field deployable, allowing onsite teams to conduct testing in remote areas with near immediate results. During dust generation, the dust cloud concentration can be increased, and dust cloud generation time decreased by adding or increasing the number of steel balls, or increasing the drag off flow rate.

Ultimately, the RotaDust can be used in exploration or remote projects to enable quick screening of materials for silica content, ensuring controls are put in place early and health risks are correctly estimated.

Although this project focused on RCS, there is strong potential for further development. We are now exploring the application of the RotaDust to be used for asbestos analysis, offering broader applications for airborne contaminants.

Acknowledgement

This doctoral research was conducted under the supervision of Prof. Brian Davies, Dr. Vinod Gopaldasani, and Mrs. Linda Apthorpe. I am very grateful to Mr. Paul Bartley of DEAS Pty Ltd. for his engineering expertise and support throughout the testing and validation of the RotaDust.

Reference:

Mendez, MJ, Panebianco, JE & Buschiazzi, DE 2013, 'A new dust generator for laboratory dust emission studies', Aeolian Research, vol. 8, pp. 59-64.

Member News

SOFHYT Successfully Concludes its Annual Conference in Paris

Author: Nathalie Argentin, SOFHYT, presidence@sofhyt.fr

From April 31 – May 1, 2025, the SOFHYT (French Society of Occupational Hygienists) successfully held its annual conference in Paris, bringing together experts, professionals, and enthusiasts in the field.

This edition featured the presence of leading institutional speakers, including The French National Research and Safety Institute for the Prevention of Occupational Accidents and Diseases (INRS France), the French General Directorate for Labor (DGT), and Pension and Occupational Health Insurance Fund (CARSAT Centre Ouest), as well as recognized experts in occupational hygiene. Their presentations addressed current and future challenges in the sector, fostering constructive and enriching discussions.

One of the highlights of the event was the presentation of the SOFHYT 2025 Student Prize, which was awarded to an HSE student for his work on ergonomics. This well-deserved recognition underscores the importance SOFHYT places on its collaboration with HSE training programs and universities.

We would also like to express our deep gratitude to our sponsors 3M, Soter, and International Safety Systems, Inc. for their invaluable support, which greatly contributed to the success of this conference.

Other highlights included keynote addresses by renowned experts, presentations on innovations in risk prevention, and discussions on future challenges facing the profession. The event also provided an opportunity to strengthen ties between stakeholders in the field and encourage collaboration to improve professional practices.

Key topics covered included new regulations on carcinogenic, mutagenic, and reprotoxic (CMR) substances, noise, ototoxic agents, maternity protection, welding, and sensitizing products. A toxicologist and an occupational hygienist also shared their views on Registration, Evaluation, Authorisation, and Control of Hazardous chemicals (REACH) providing an insightful perspective on this key regulation in chemical management.

A particularly memorable moment was the presentation by a specialized lawyer, who explained the financial implications of occupational exposure. This presentation provided a better understanding of the economic issues related to occupational risks and the responsibilities of companies.

Since the conference was held on April 1st, we also respected French tradition by incorporating an April Fool's Day presentation. This focused on the benefits of wearing superhero clothing to boost self-confidence. For the occasion, the

entire organizing team wore T-shirts depicting an occupational hygienist as a superhero, bringing a touch of humor and conviviality to the event.

True to its mission, SOFHYT continues to play a key role in raising awareness and promoting best practices in occupational health. See you next year for an even more enriching edition!



Photograph made by Aymeric Bencib: After the first conference day, many participants joined together for a nice dinner. A good way to improve networking.



Image: SOFHYT's occupational hygienists as superheros

Partnerships Corner

Author: Nancy Wilk, IOHA President, ACGIH IOHA Board Representative, nancy.wilk@wsp.com

IOHA took part in several meaningful forums during the second quarter (Q2) of 2025. Thank you to IOHA member associations and IOHA affiliate partners for their significant and important contributions during these events. Together, we are driving change in occupational health and hygiene and supporting and building the global occupational hygiene network. Well done.

Global Occupational Safety and Health (GOSH) Coalition

IOHA continues to be an active participant in the Global Occupational Safety and Health (GOSH) Coalition. Established in June 2024, the Coalition has grown to a group of 22 non-governmental organizations (NGOs) and international associations. It continues to meet virtually to advocate for and elevate OSH globally, call for greater worker protections, advance the United Nations Sustainable Development Goals (SDGs), and work to advance and implement the OSH-related International Labour Organization (ILO) Conventions among ILO member states. This specifically includes ILO Conventions 155, 161, 171, 187 and 192, respectively calling for national OSH policy and framework, basic occupational health services, night work provisions, a promotional framework for OSH, and prevention of disease and injury related to biological hazards in the working environment.

The GOSH Coalition held its first webinar on June 11, 2025, with over 400 registrants and over 200 attendees, addressing the topic of Global Advocacy for Occupational Health. Facilitated by Nick Pahl, CEO of The Society of Occupational Medicine, the covered the following: a global alliance for occupational health advocacy (by Marianne Levitsky, GOSH Coalition and Founder of Workplace Health Without Borders); occupational health advocacy leverage points and the UN SDGs and ILO Conventions (by Nancy Wilk, IOHA President), what does this mean in practice (by Dr. Dingani Moyo, Baines Occupational Health Services, Zimbabwe), and advocacy tactics and theory of change (by Nick Pahl). You can watch the webinar [here](#), and download the advocacy toolkit [here](#). Learn more about the GOSH Coalition [here](#) and consider supporting the calls to action. More reference material for your access is available [here](#) including an analysis of the 17 UN SDGs and how occupational health supports the SDGs, and detailed information on the OSH-related ILO Conventions. Well done and thank you, to the GOSH Coalition and all those supporting and aligning with the Coalition's efforts!



GOSH
Global Occupational
Safety & Health Coalition

Japan Society for Occupational Health (JSOH)

IOHA President Nancy Wilk was invited by the Japan Society for Occupational Health (JSOH) to virtually present at the 98th Annual Meeting of Japan Society for Occupational Health in May 2025 providing update on IOHA and speaking to the status of occupational hygiene globally, the shift from compliance-based to risk-based management practices, and the changing work and workplace and the impact on the worker. The presentation emphasized that the profession of occupational hygiene is equipped to lead and support this transition, aligning with work underway by the United Nations Sustainable Development Goals and the International Labour Organization, and highlighting opportunities for partnerships that can improve prevention of occupational disease and injury and worker well-being. Thank you to JSOH, for your work and providing opportunity to collaborate, build capacity, inspire, and take meaningful action on behalf of workers and their families and communities everywhere!



American Industrial Hygiene Association (AIHA) International Affairs Committee (IAC)

Matthew Olota, IOHA President Elect, provided an IOHA update to the AIHA International Affairs Committee (IAC) at AIHA Connect 2025 in Kansas City, Missouri, US in May 2025.

presentation included the year of strategic planning for 2026 to 2030, the focus on building and strengthening meaningful and productive partnerships, and highlighting the EXPO2025 safety, health, and well-being days in Osaka, Japan. Thank you AIHA IAC for your work across the globe to support, educate and equip OEHS professionals including supporting IOHA and its 43 member associations in ensuring a healthy and safe working environment for all! Well done.



New Zealand Occupational Hygiene Society (NZOHS)

Thank you to the New Zealand Occupational Hygiene Society (NZOHS) for hosting the IOHA Board meeting in Auckland, New Zealand in May 2025. IOHA appreciates every opportunity to meet with our member associations in-person and continue to advance occupational hygiene locally and globally and advance our mutual aims of occupational disease prevention and improved worker well-being.

While in Auckland, President Nancy Wilk provided an IOHA update and delivered a keynote at the NZOHS annual work-related health conference 2025 in support of the conference theme of “Challenges. Change. Solutions.”

The key note focused on driving change in occupational health and hygiene. Acknowledging that workers, workplaces, and organizations are in challenging times, a call was issued to examine our individual and collective commitments and to stay the course on behalf of the people we serve and drive change through identifying and implementing innovative solutions. The question was posed: What does innovation in occupational health and hygiene really look like? It was suggested that it includes integrated, holistic approaches; partnerships; it is silo free; there is meaningful investment in workers, families, communities – investment in prevention and well-being; and it is aligned with efforts like Environmental, Social, Governance, Corporate and Social Responsibility, the United Nations Sustainable Development Goals and other important strategies to future proof our world and its people – such that “we leave no one behind”. Also highlighted was the importance of building and maintaining diverse partnerships, as there is strength in our collective and benefits in our diversity. Several issues emphasizing the need to drive change in occupational health and hygiene were outlined including the need for a lot more nationally-accredited occupational hygienists – everywhere. Currently, there are only have two accredited, recognized occupational hygienists for every one million workers globally. And this is assuming a homogeneous distribution, so in reality, some geographies have even less than 2 ppm.

Several take aways were suggested for those present. You can listen to this keynote by accessing an IOHA webinar

under the same title that was recorded on July 3, 2025 (see IOHA Member Access at www.ioha.net). You can also take away some of the suggestions to further impact others and effect change. And together, we can drive change in occupational health and hygiene.

Thank you to the NZOHS and the conference organizing committee for an excellent 2025 work-related health conference and many networking opportunities. Great job and congratulations!



British Occupational Hygiene Society (BOHS)

The British Occupational Hygiene Society (BOHS) generously sponsored IOHA President Nancy Wilk’s attendance at OH2025 The Workplace Health Protection Conference in Newcastle, UK June 16 to 19, 2025.

The first day included Professional Development Courses (PDCs) for attendees followed by two days of educational sessions and exhibition. Events included a Casella Social as well as a Conference and Awards Dinner.

A very creative line up of PDCs and sessions included a “**New Tech Dragon’s Den – Assessing Innovations in Occupational Hygiene**”, Dr. Johanna Feary’s delivery of the **John Cherrie**

Lecture: Artificial Stone Silicosis: Global Lessons, United Action, Adrian Hirst's engaging keynote on **Parallels with public health – What can we learn from allied professions** (and a few endearing Minions!), and a very energetic and fast pace **IGNITE** session.

Thank you to BOHS for an excellent event, to the organizing committee for a job well done, and for your ongoing work in advancing occupational hygiene and safeguarding the UK's current and future health through effective management of the workplace environment.



GEM READERSHIP SURVEY

IOHA WANTS TO HEAR FROM
YOU! HELP SHAPE THE FUTURE
OF GEM BY SHARING WHAT
CONTENT AND TOPICS MATTER
MOST TO YOU.

TAKE A FEW MINUTES TO
COMPLETE OUR SHORT SURVEY
AND MAKE YOUR VOICE HEARD!



UPCOMING EVENTS

BOHS LEV 2025: Healthy Air in the Workplace

Date: 7 - 8 October 2025

Place: Birmingham, United Kingdom

Join LEV designers, testers, duty holders and hygienists for two days packed with real-world guidance and debate. The programme covers duty-holder responsibilities, smarter LEV procurement, on-tool extraction, HSE updates, DRAMs in commissioning/TEXT, plus hands-on commissioning and competency workshops. Cap it off with the networking dinner.

[More Information](#)

10th Panamerican Congress on Occupational and Environmental Hygiene, hosted by the Association of Hygienists of Argentina.

Date: 12 - 16 October 2025

October 12th: IOHA Board Meeting

October 13th: Pre-conference activities

October 14th – 15th: Conference

October 16th: Post-conference networking

[More information](#)



International On-Demand (ION) Performance Evaluation Program



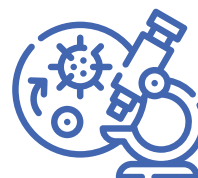
ION by PAT Programs provides on-demand samples to assess laboratory performance using robust evaluation statistics. Use the ION Report to comply with accreditation, regulatory, or contractual requirements.



**Train
Analysts**



**Meet
Requirements**



**On
Demand**

Available Samples

Industrial Hygiene/Occupational Health and Safety Analysis

- Airborne Particulates, Asbestos, Metals, and Silica in air samples, on-demand, just when you need them.

Environmental Lead Analysis

- Lead in Air, Dust Wipes, Paint Chips, and Soil

Bulk Asbestos

- Classify asbestos types and % asbestos in bulk building materials.

Environmental Microbiology

- Identify bacteria and fungi commonly found in air, fluids, and bulk environmental samples

Learn More
<https://bit.ly/ION-PT>





International On-Demand Proficiency Testing

Trusted Third-Party Analytical Verification, Right Now.

At AIHA PAT Programs, we are dedicated to helping laboratories achieve excellence in Industrial Hygiene and indoor air quality (IAQ) analysis. With nearly 50 years of experience, we are the leading authority in proficiency testing services trusted by organizations like NIOSH, US EPA, US State Health Departments, and laboratory accreditation bodies.

We are thrilled to announce that our services are expanding to include on-demand proficiency testing for any interested laboratory outside the US and Canada*. This means that you can get the same reliable, accurate evaluation of competency you've come to expect from AIHA PAT Programs, no matter where you are or what your testing needs may be.

Learn more about the ION Program: <https://bit.ly/ION-PT>

NIOSH: National Institute for Occupational Safety and Health

US EPA: United States Environmental Protection Agency

*US and Canadian laboratories are required to enroll in on-going proficiency testing, based on regulation, testing methods, and/or accreditation body requirements.



Learn More
<https://bit.ly/ION-PT>



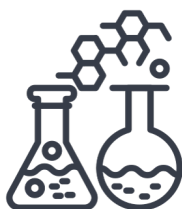
Programa de Evaluación de Desempeño Internacional a Demanda



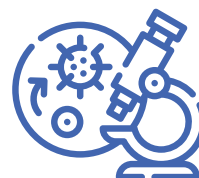
ION por Programas PAT proporciona muestras a demanda para evaluar el desempeño de los laboratorios utilizando estadísticas de evaluación fiables. Puede utilizar el “Informe ION” para cumplir con requisitos de acreditación, regulatorios o contractuales.



Analistas capacitados



Cumplir normativas



Cuando se requiera

Available Samples

Análisis de higiene ocupacional/salud y seguridad ocupacional

- Partículas en el aire, asbesto, metales y sílice en muestras de aire, disponibles a demanda, justo cuando los necesitas.

Análisis Ambiental para plomo

- Plomo en el aire, toallitas para muestreo de superficies, fragmentos de pintura y suelo.

Muestras sólidas de asbesto

- Clasificar los tipos y porcentajes de asbestos en materiales de construcción

Microbiología ambiental

- Identificar bacterias y hongos comúnmente encontrados en aire, fluidos y muestras ambientales a granel.

Para
más información
<https://bit.ly/ION-PT>





Programa de Evaluación de Desempeño Internacional a Demanda

Certificación analítica por expertos externos confiables, sin largas esperas.

En los programas de AIHA PAT, estamos dedicados a ayudar a los laboratorios a alcanzar la excelencia en análisis de higiene ocupacional y calidad del aire interior (IAQ). Con casi 50 años de experiencia, somos la autoridad líder en servicios de pruebas de competencia, confiados por organizaciones como NIOSH, US EPA, Departamentos de Salud Estatales de EE.UU. y organismos de acreditación de laboratorios.

Nos complace anunciar que nuestros servicios se están expandiendo para incluir pruebas de competencia según necesidad para cualquier laboratorio interesado fuera de EE.UU. y Canadá*. Esto le permite acceder a la evaluación de competencia confiable y precisa característica de los programas AIHA PAT, independientemente de su ubicación geográfica o requisitos específicos de análisis.

Para más información sobre el programa ION: <https://bit.ly/ION-PT>

NIOSH (por sus siglas en inglés): Instituto Nacional para la Seguridad y Salud Ocupacional
US EPA, (por sus siglas en inglés): Agencia de Protección Ambiental de los Estados Unidos

*Los laboratorios de EE.UU. y Canadá deben inscribirse en pruebas de competencia continuas, según las regulaciones, métodos de análisis y/o requisitos de los organismos de acreditación.



<https://bit.ly/ION-PT>



THE 10TH IIHA CONNECT 2025

PDC - Conference - Exhibition

Industrial Hygiene as a Pillar of Sustainability:
Recognizing Industrial Hygiene as an Essential Key for Succeeding SDGs

21st - 24th October 2025 | JS Luwansa Hotel, South Jakarta

CALL FOR PAPER

26th Jun - 15th Aug 2025



- ✓ We're inviting groundbreaking research and innovative ideas on topics including:
IH Competencies, Exposure Measurement, Health Risk Assessment, Chemical Management, Fatigue Assessment, Respiratory Protection, Hearing Conservation, Emerging Issues, HSE-Related Topics, IHOH Leadership & Management, Psychosocial Risk Assessment, Technology & Innovation in IH.
- ✓ Abstract Submission
Deadline: **August 22, 2025.**
Don't Miss Out!

Professional Development Courses (PDC)

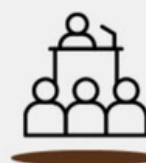
21st - 22nd October 2025



- ✓ Led by top academicians & IH-OH practitioners.
- ✓ Covering high-impact topics:
 - Health Risk Assessment
 - Health Impact Assessment
 - Hearing Conservation
 - Water Quality Risk Management
 - Heat Stress Management
 - Exposure Monitoring
 - Chemical Risk Assessment & Exposure Modelling
 - Air Sampling Methods & Equipment

Conference & Exhibition Highlights

23rd - 24th October 2025



- ✓ **Meet the Experts:** Featuring distinguished guests from government, academia, and IH-OH practitioners.
 - ✓ **Paper Presentation:** Selected authors will showcase their work.
- Bonus: Papers published in JIIHA are eligible for a cash reward!

REGISTER NOW

<https://s.id/registrationIIHACONNECT10>

Please note that the registration link will be deactivated on **October 10, 2025.**





INHALED PARTICLES AND INTERNATIONAL PARTICLE TOXICOLOGY CONFERENCE

GLASGOWMARRIOTT 11-14MAY2026

In 2026, two globally respected scientific conferences, **Inhaled Particles** and the **International Particle Toxicology Conference**, will come together for the first time. This joint event offers a unique opportunity to explore and share the latest knowledge surrounding particle inhalation and toxicology, both within and beyond the lungs. Held over four days in Glasgow, the conference will feature two parallel strands, with shared sessions and full flexibility for delegates to attend any session of interest.

Inhaled Particles Conference

First held in 1960, the Inhaled Particles series is a long-running conference organised by the British Occupational Hygiene Society (BOHS). It brings together a multi-disciplinary community of scientists focused on the inhalation of particles and fibres in various environments.

International Particle Toxicology Conference

Established in 1979, IPTC rotates between continents and covers broad applications of particle toxicology. Its scope includes workplace safety, environmental impact, consumer exposure, and medical developments, bringing together toxicologists, regulators, and public health professionals.

Call for Abstracts We are delighted to open the call for abstracts for oral and poster presentations. We also welcome proposals for themed sessions. Submissions are welcome across a broad range of topics, including but not limited to:

- Indoor and outdoor air pollution
- Emerging pollutants and hazards
- Mixture toxicology
- Systemic health effects (neurological, reproductive, cardiovascular)
- Sustainability in particle exposure and hazard evaluation
- Environmental (eco-)toxicology
- Aerosol and exposure measurement
- Biomonitoring and biomarkers
- Nanomedicine
- AI-assisted risk assessment and toxicology
- Occupational and human health risk assessment
- Adverse outcome pathways, IATAs, grouping, and read-across
- Epidemiology and epigenetics
- Innovations in toxicology and exposure methodologies

Abstracts (250 words maximum), if accepted will be published in a supplementary issue of *Annals of Work Exposures and Health*.

Deadline for abstract submission for this conference is 7 th November 2025.

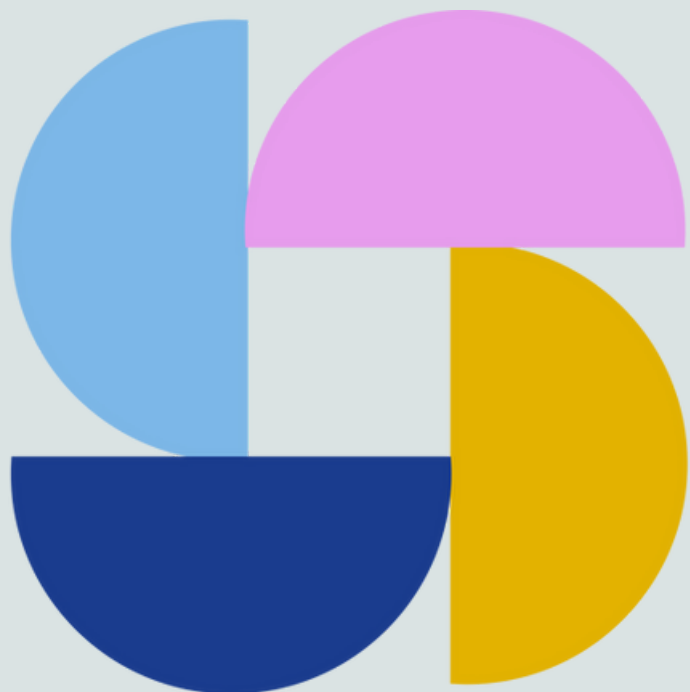
Submit here: <https://app.oxfordabstracts.com/stages/78467/submitter>

Registrations are now open!

[Register here](#)

MONDAY 1ST DEC —
WEDNESDAY 3RD DEC
— **ICC SYDNEY**

aioh.org.au/conference



We're thrilled to announce that registrations for AIOH25 have officially opened!

In 2025, we are embracing the theme of 'Evolution, Insights, Into Impacts' a concept at the heart of our profession as occupational hygienists, in the beautiful city of Sydney, New South Wales.

Since AIOH21, our themes - Challenge for Change, Simple Sustainable Solutions, Future Ready, and Scientific Storytelling - have all pointed to one word: Evolution. AIOH25 explores the ongoing evolution of occupational hygiene and the challenges shaping our industry.

Post 2020, changes have placed occupational hygienists in greater demand than ever. Driven by legislative updates, technological advances, rising workplace expectations, and a world-class commitment to progress, it's an exciting time for our profession. But key questions remain: Have we done enough? Are we truly future-ready? Are we guiding the next generation? What insights can we provide to make meaningful impacts?

AIOH25 will explore:

- The next generation of occupational hygienists - how we promote, train, and inspire
- Insights, the changes in legislation and what impact it is having
- New sampling methodologies and cutting-edge technologies
- How we continue to anticipate, recognise, evaluate, and control
- And most importantly: Are we there yet, or is there still more to do?

Event details:

Conference dates Monday 1st December - Wednesday 3rd December

Continuing Education Sessions Saturday 29th November - Sunday 30th November

Venue International Convention Centre (ICC), Sydney

[Register here](#)

Early bird pricing ends
on Friday 19th
September

