

The Australian **MINE VENTILATION**

CONFERENCE

31 AUGUST – 2 SEPTEMBER 2015 | SYDNEY, AUSTRALIA

Final Program

Platinum Sponsor



Hosted by



A photograph of an industrial refrigeration facility. In the foreground, there are several large, green, ribbed cylindrical storage tanks. Behind them are white industrial units with various pipes and components. The background shows a large white building and other industrial structures under a cloudy sky. A green square with the word 'gordon' is overlaid in the top left corner.

gordon

Gordon Brothers provides complete industrial refrigeration solutions, including design, construction and comprehensive servicing for a wide range of sectors including mining, chemical, food and beverage.

Our extensive experience in providing solutions to complex refrigeration problems allows us to engineer a customised solution to solve any mine heat problem, with due consideration of factors specific to each mine.

www.gordonbrothers.com.au



General Information

CONFERENCE ORGANISING COMMITTEE

Conference Chairperson

Duncan Chalmers MAusIMM, UNSW Australia

Deputy Conference Chairperson

Jerry Tien MAusIMM, Monash University

Organising Committee

Basil Beamish MAusIMM(CP), B3 Mining Services Pty Ltd
 Editorial: Bharath Belle MAusIMM(CP), Anglo American Coal
 Rick Brake FAusIMM(CP), Mine Ventilation Australia
 Jakes Raubenheimer MAusIMM, BBE Group
 Ting Ren MAusIMM, University of Wollongong
 John Rowland*, Dallas Mining Services Pty Ltd
 Mick Tuck MAusIMM, Federation University Australia
 Leon van den Berg MAusIMM, BBE Group
 Guang Xu, Western Australian School of Mines
 *retired committee member

EVENT MANAGEMENT: THE AUSIMM

Alison McKenzie, Senior Manager, Events
 Leon Clarke, Manager, Event Operations
 Eliza Sanneman, Senior Coordinator, Events
 Claire Stuart, Coordinator, Publishing
 PO Box 660, Carlton South, Victoria 3053
 Telephone: +61 3 9658 6105
 Mobile: +61 409 946 857
 Email: esanneman@ausimm.com.au
 Web: www.ausimm.com

CONFERENCE VENUE

The University of NSW Australia
 Leighton Hall, John Niland Scientia Building (G19)
 Library Walk, Gate 11, Botany Street, Sydney 2052
 Web: www.unsw.edu.au

REGISTRATION DESK

The registration desk will be open:

Sunday 30 August 4.00 pm – 6.00 pm
 Monday 31 August 7.30 am – 5.30 pm
 Tuesday 1 September 7.30 am – 6.00 pm
 Wednesday 2 September 7.30 am – 2.00 pm

WAIVER OF LIABILITY

Attendees are advised that the AusIMM, UNSW Australia and MVSA accepts no liability to any persons or body for any loss, injury or damage caused, organised, promoted or sponsored by the AusIMM, & UNSW Australia and MVSA.

SOCIAL FUNCTIONS

Conference Dinner – Monday 31 August

Time: 7.00 pm for 7.30 pm sit down
 Venue: Oceanic Ballroom,
 Crowne Plaza Coogee Beach
 Cost: Complimentary for all delegates
 Guests: \$122 per person
 Dress: Smart casual

The Conference Dinner is a ticketed event. Only pre-booked delegates and guests will be allowed entry.

Proudly sponsored by



Networking Reception – Tuesday 1 September

Time: 5.50 pm – 6.50 pm
 Venue: Tyree Room,
 The University of NSW Australia
 Cost: Complimentary for all delegates
 Guests: \$33 per person

Proudly sponsored by



SPEAKER PREPARATION

Audio visual technicians will be on hand throughout the conference to assist with uploading your presentation. Speakers are required to meet with their session chair and load their presentation during the break prior to their session. Your presentation should be provided on a USB stick.

NAME TAGS

You will be issued with a name tag upon registration. Your name tag is the official pass to all sessions and must be worn at all times. Lost name tags can be replaced at the registration desk.

Proudly sponsored by



CONFERENCE PROCEEDINGS

All delegates will receive a printed copy of the conference proceedings containing full papers. Additional copies and a USB stick version may be purchased via the registration desk during the conference. After the conference, you will have access to PowerPoint presentations via the conference website.

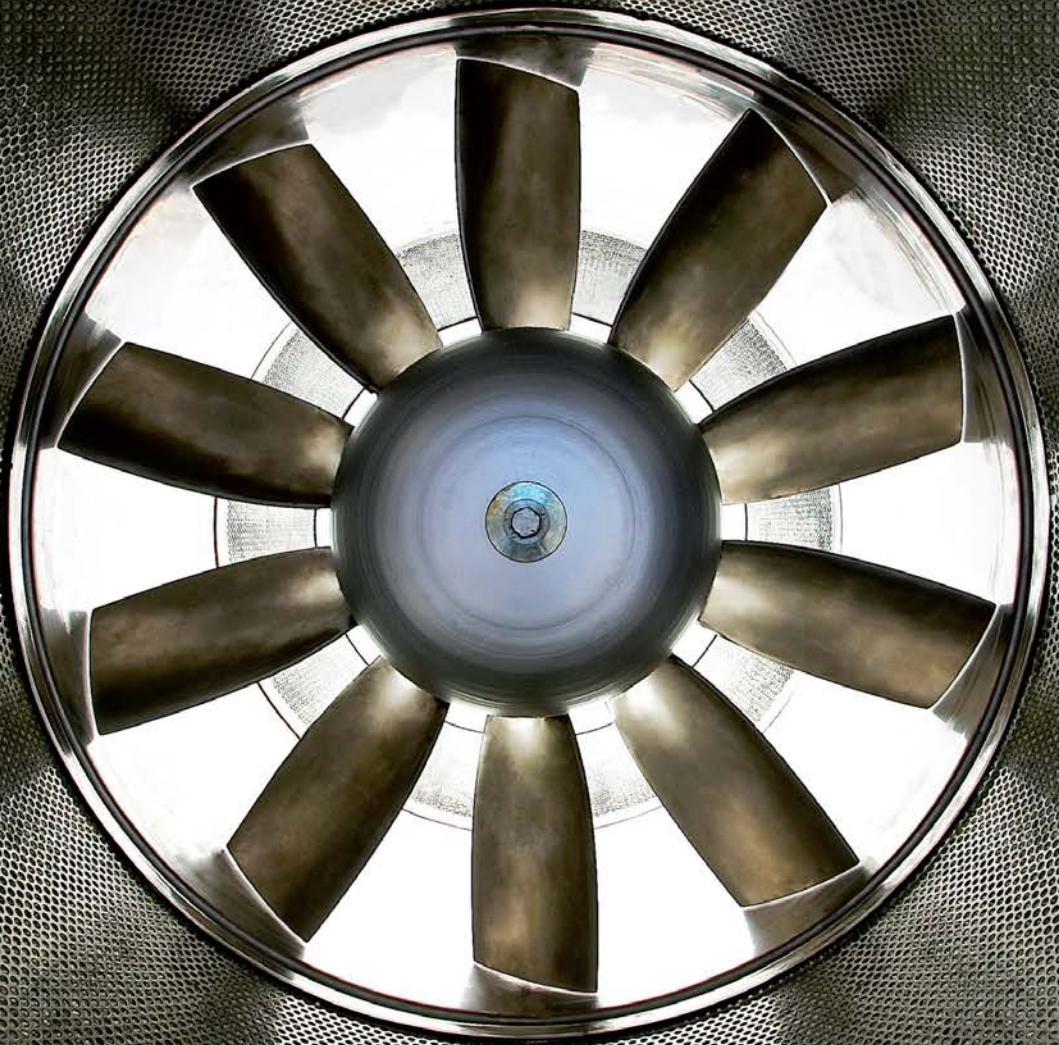
Proudly sponsored by



CONFERENCE BUS TRANSFERS

Shuttle buses will depart from the Crowne Plaza Coogee Beach between 7.15 am and 8.15 am, Monday 31 August to Wednesday 2 September 2015.

A return shuttle will depart from UNSW Australia at the conclusion of each day.



....., there is only one Zitron

At Zitron Australia, we pride ourselves on our reputation as innovative and progressive mine ventilation experts, located in Henderson Western Australia, where we manufacture our secondary fans and supply all around Australia, New Zealand, New Guinea, Indonesia and Africa. We also refurbish both primary and secondary fans from our Henderson location.

Zitron provides all the design, manufacture and service capabilities to meet all your secondary and primary ventilation project requirements. This includes initial design concepts, computer modelling of air flows, manufacturing and testing, installation and commissioning.

ZITRON AUSTRALIA PTY LTD
3 Redemptora Rd
Henderson, WA

Phone: + 61 8 6498 9450
zitronaustralia@zitron.com.au
www.zitron.com

Day 1 - Monday 31 August 2015
Leighton Hall, UNSW Australia

8.30 am - 10.20 am	Session 1: Official Opening Session Chair: Duncan Chalmers MAusIMM, The Australian Mine Ventilation Conference Chairperson 2015	
8.30 am - 8.40 am	Welcome & OH&S: <i>Duncan Chalmers MAusIMM, The Australian Mine Ventilation Conference Chairperson 2015</i>	
8.40 am - 8.50 am	Official Opening: <i>Miriam Way MAusIMM, Deputy Chief Executive and Director, Member Services, The AusIMM</i>	
8.50 am - 9.20 am	Keynote Presentation I: <i>Ensuring an Effective Principal Hazard Management Plan — Andrew Clough, General Manager, Peabody Metropolitan Underground Coal Mine</i>	
9.20 am - 9.45 am	<i>Quality Assurance Standards for Mine Ventilation Models and Ventilation Planning — D J Brake</i>	
9.45 am - 10.10 am	<i>South-west Ventilation Shaft Project at Newstan Mine — D Piason</i>	
10.10 am - 10.20 am	<i>Status of Ventilation Research-Industry Needs – ACARP Project — B Robertson</i>	
10.20 am - 10.50 am	Morning Tea Break and Exhibition, Tyree Room	
10.50 am - 12.35 pm	Session 2: Prevention and Fighting of Mine Fires Session Chair: Javier Fernandez, Zitron	Proudly Sponsored by: 
10.50 am - 11.15 am	<i>Gas Evolution Trends for Coal from Two Different Areas at Clarence Colliery — B Beamish, J Sargeant, T Levi and J Theiler</i>	
11.15 am - 11.40 am	<i>The Potential Use of Mine Fire Simulation Software as an Enhancement for Mine Safety and Mine Rescue Training — C Slaughter and J C Tien</i>	
11.40 am - 12.05 pm	<i>Experimental Study on Extinguishing Characteristics of Coal Fire in Confined Space — B W Lei, B Wu and B J Duan</i>	
12.05 pm - 12.30 pm	<i>Key Techniques and Engineering Applications of Stereoscopic Liquid Nitrogen Infusion for Coalmine Fire Prevention — F Zhou, B Shi, Y Li and L Ma</i>	
12.30 pm - 12.35 pm	<i>AusIMM Mining Society Presentation — Duncan Chalmers MAusIMM, AusIMM Mining Society Committee Member</i>	
12.35 pm - 1.30 pm	Lunch Break and Exhibition, Tyree Room	
1.30 pm - 3.15 pm	Session 3: Coal Mine Ventilation Session Chair: John Mott, Gordon Brothers	Proudly Sponsored by: 
1.30 pm - 1.55 pm	<i>Computational Modelling Studies of Ventilation Management for Underground In-seam Drilling Sites — T Ren, F Hungerford and Z Wang</i>	
1.55 pm - 2.20 pm	<i>Development of Goaf Gas Drainage Strategies for Start-up Areas of Highly Gassy Longwall Panels — K Tanguturi, R Balusu and B Belle</i>	
2.20 pm - 2.45 pm	<i>Developments in Tube Bundle Gas Monitoring — M Watkinson</i>	
2.45 pm - 3.10 pm	<i>Improved Trigger Action Response Plan Development Based upon Mine-specific Data — B Belle and D Cliff</i>	
3.10 pm - 3.15 pm	<i>AusIMM Chartered Professional Presentation Program — Joe Luxford FAusIMM(CP), CP Board Member</i>	
3.15 pm - 3.45 pm	Afternoon Tea, Tyree Room	
3.45 pm - 5.25 pm	Session 4: Heat and Refrigeration Session Chair: Rick Brake FAusIMM(CP), Mine Ventilation Australia	
3.45 pm - 4.10 pm	<i>The Design, Installation and Commissioning of an Absorption Refrigeration System at Gwalia Gold Mine in Western Australia — A Broodryk, J de vries, P Kyselica and K McLean</i>	
4.10 pm - 4.35 pm	<i>Ventilation Planning Considerations when Dealing with Hot Groundwater — L van den Berg and S Bluhm</i>	
4.35 pm - 5.00 pm	<i>The Use of Psychrometric, Thermodynamic and Transport Property Software in Mine Ventilation and Gas Drainage Calculations — T J M Harvey</i>	
5.00 pm - 5.25 pm	<i>Novel Use of Ice Thermal Storage for Energy Management on a Mine Refrigeration Plant — A R Branch, R W Wilson and T S Poole. Presented by S Bluhm.</i>	
5.30 pm - 6.00 pm	<i>Mine Ventilation Society of Australia – Annual General Meeting</i>	
7.00 pm for 7.30 pm	Conference Dinner, Oceanic Ballroom, Crowne Plaza Coogee Beach	Proudly Sponsored by: 



Day 2 - Tuesday 1 September 2015
Leighton Hall, UNSW Australia

8.30 am - 10.40 am	Session 5: Prevention of Methane and Coal Dust Explosions Session Chair: Bharath Belle MAusIMM(CP), Anglo American Coal / Extra-Ordinary Professor, University of Pretoria
8.30 am - 9.00 am	Keynote Presentation II: Lessons Learnt from Mine Explosions — <i>Professor Huw Phillips, Professor Emeritus, The University of Witwatersrand</i>
9.00 am - 9.25 am	Computational Fluid Dynamics Modelling of Coal Dust Explosions and Suppression Systems — <i>D Proud, G Collecutt and D Humphreys</i>
9.25 am - 9.50 am	Thin Spray-on Liners Potential in Reducing Dilution of <i>In Situ</i> Gas in Underground Coalmines — <i>J M Tenney, D Chalmers and Z Li</i>
9.50 am - 10.15 am	The Impact of Facility Construction and Scale on the Characteristics of Experimental Coal Dust Explosions — <i>D Humphreys, G Collecutt, J Greenwood and T O'Beirne</i>
10.15 am - 10.40 am	Enhanced Risk Reduction Using Early Warning Technologies Embedded in Active Explosion Suppression Systems — <i>A Spaeth and J J L du Plessis</i>
10.40 am - 11.10 am	Morning Tea Break and Exhibition, Tyree Room
11.10 am - 12.55 pm	Session 6: Health Hazard Management I Session Chair: Alan Loudon, Aggreko Proudly Sponsored by:
11.10 am - 11.35 am	Specification and Selection of Hand-held Gas Monitors (Detectors) for Underground Mines — <i>D J Brake</i>
11.35 am - 12.00 pm	What is the Oxygen Depletion Potential of Water Vapour? — <i>MA Tuck</i>
12.00 pm - 12.25 pm	Real-time Methane Detection – Modern Digital Laser Spectroscopy for Hostile Environments — <i>C C Harb and D Chalmers</i>
12.25 pm - 12.50 pm	Occupational Diseases in China, with the Emphasis on its Occurrence in Chinese Mine Workers — <i>Y Cao and J C Tien</i>
12.50 pm - 12.55 pm	Mine Ventilation Society Australia Presentation — <i>Johannes Holtzhausen, Vice President, The Mine Ventilation Society of Australia</i>
12.55 pm - 1.50 pm	Lunch Break and Exhibition, Tyree Room
1.50 pm - 3.40 pm	Session 7: Health Hazard Management II & Diesel Forum Session Chairs: Aleksandar Bugarski, NIOSH OMSHR & Jozef Stachulak, MIRARCO
1.50 pm - 2.15 pm	Technology of Dust Suppression by Foam for Fully Mechanised Heading Face — <i>D Wang and H Wang</i>
2.15 pm - 2.40 pm	Diesel Exhaust and the Underground Miner in Western Australia — <i>O Jones. Presented by F Perry.</i>
2.40 pm - 3.40 pm	Diesel Forum Panel Chair: Jerry Tien MAusIMM, Monash University Panel members: - Aleksandar Bugarski, NIOSH OMSHR - Jozef Stachulak, MIRARCO
3.40 pm - 4.10 pm	Afternoon Tea, Tyree Room
4.10 pm - 5.50 pm	Session 8: Detection and Control of Spontaneous Combustion & Diesel Emissions Control and Measurement Session Chair: Basil Beamish MAusIMM(CP), B3 Mining Services Pty Ltd
4.10 pm - 4.35 pm	Implementation of a Zoned Trigger Action Response Plan Associated with Changing Mine Conditions at Narrabri Mine — <i>H Baxter, C Claassen, O Salisbury, M Brady and B Beamish</i>
4.35 pm - 5.00 pm	The Novel Technology of Inorganic Solidified Foam with High Expansion for Preventing Coal Spontaneous Combustion — <i>B T Qin, Q L Shi, Y Lu, C Zhu, F L Li and Y W Jia</i>
5.00 pm - 5.25 pm	Trigger Action Response Plans for Diesel Exhaust Exposures — <i>P G Knott, C Evans, F Velge and J Jeffery</i>
5.25 pm - 5.50 pm	Review of Ventilation Optimisation Strategies During Longwall Moves — <i>H W Wu and A D S Gillies</i>
5.50 pm - 6.50 pm	Networking Reception, Tyree Room Proudly Sponsored by:

Day 3 - Wednesday 2 September 2015
Leighton Hall, UNSW Australia

8.30 am - 10.15 am	Session 9: Ventilation Monitoring and Control Session Chair: Kevin Lownie, Howden Australia Pty Ltd	Proudly Sponsored by: 
8.30 am - 9.00 am	Keynote Presentation III: Strategy and Tactics Implemented to Achieve Energy-efficient Ventilation and Cooling of Mines — <i>Professor Jan du Plessis, Associate Professor, Sasol Chair in Mining, Engineering Safety, Health and Environment, University of Pretoria</i>	
9.00 am - 9.25 am	Application of Tracer Gas Flow Profiling to Improve Secondary Ventilation Practice – A Pilot Study — <i>S Wilkinson, L van den Berg and S Black</i>	
9.25 am - 9.50 am	Design and Development of Energy-efficient Secondary Axial Flow Fans — <i>J J L du Plessis, G Ratner and S Viviers</i>	
9.50 am - 10.15 am	Development of a Low-cost Instrument for Barometric Pressure Surveys — <i>A S Derrington</i>	
10.15 am - 10.45 am	Morning Tea Break and Exhibition, Tyree Room	
10.45 am - 12.55 pm	Session 10: Case Studies Session Chair: Mick Tuck MAusIMM, Federation University Australia	
10.45 am - 11.10 am	Innovative Tailgate Mobile Goaf Gas Management in Two Gate Road Longwall Panels – Concept to Implementation — <i>B Belle</i>	
11.10 am - 11.35 am	Advanced Ventilation Control – An Analysis of Innovation and Environmental Sustainability — <i>M J Shearer and V S Mutton</i>	
11.35 am - 12.00 pm	Heat Load Estimation from Conveyor Systems in Mass Mines — <i>L van den Berg, R Moreby and J Kok</i>	
12.00 pm - 12.25 pm	Secondary Ventilation as a Value Proposition – A Case Study — <i>A Golsby</i>	
12.25 pm - 12.50 pm	The Development of a Dustless Dry Gunite Pump System in Underground Coal Mining – A Case Study — <i>A Golsby</i>	
12.50 pm - 12.55 pm	Women in Mining Network (WIMnet) Presentation — <i>Jody Asquith, WIMet Committee Member</i>	
12.55 pm - 1.50 pm	Lunch Break and Exhibition, Tyree Room	
1.50 pm - 3.45 pm	Session 11: Coal Seam Gas, Including Gas Drainage/Storage and Utilisation Session Chair: Greg Runge, Lucas Drilling Services	Proudly Sponsored by: 
1.50 pm - 2.15 pm	Theory of Safe and Efficient Co-extraction of Coal and Gas and its Applications — <i>Y-P Cheng, L Wang, H-Y Liu, S-L Kong, Q-L Yang, J-T Zhu and Q-Y Tu</i>	
2.15 pm - 2.40 pm	Surface-to-Inseam (SIS) Drilling at Oaky Creek Coal Mine – SIS Design Aspects and Drilling Environment — <i>E Corpuz, R Evans, J Weissman and S Winter</i>	
2.40 pm - 3.05 pm	Character of Simulation Material of Coal – Rock and Gas Solid-gas Coupling and Engineering Application — <i>S Li, P Zhao, H Lin, C Bie, H Pan and P Xiao</i>	
3.05 pm - 3.30 pm	Multi-parallel Fan Method to Prevent Significant External Air Leakages through a Goaf Area of a Shallow Covered Coalmine — <i>F Wu, W Chen and H Wang</i>	
3.30 pm - 3.45 pm	Official Conference Close: Duncan Chalmers MAusIMM, The Australian Mine Ventilation Conference Chairperson 2015	

Platinum Sponsor



Diamond Sponsors



Silver Sponsor

Proceedings & Networking
Reception SponsorConference Dinner
& Name Tags

Conference Supporters



Note Pads and Pens



Media Supporters



Over a century of protection for the mining industry



Howden equipment has evolved over 160 years to provide the mining industry with outstandingly safe, reliable and efficient operation. Working constantly in the background to keep mines ventilated and viable, our products provide the highest levels of energy efficiency and robust dependability, bringing peace of mind to one of the world's most vital industries.

For more information contact:

Howden Australia

Unit 23, 38-46 South Street, Rydalmere NSW 2116, Australia

t: 1800 HOWDEN (1800469336)

e: sales@howden.com.au

Revolving Around You™

www.howden.com



© Howden Group Ltd. All rights reserved. 2015