HazMat 2008 Conference and Exhibition Overview

Over 225 chemical industry professionals converged on the Sebel Hotel in Melbourne during May for the annual HazMat Conference and Exhibition. Delegates took full advantage of the networking opportunities on offer and enjoyed the focused conference program and large trade exhibition.

Pieter Rienks, Director, Hazard Management Division at Worksafe Victoria opened the conference, outlining the industry's approach to handling risks and the potential outcomes over the next ten years. With networking a major drawcard of the two-day event, Pieter emphasised the need for industry cooperation and healthy competition, rather than isolation between state and territory authorities. Pieter set the scene for an informative conference, stating that the industry needs to be "improving safety performance by learning from experience".

A summary of presentations from the two day conference is provided below. Please follow the links to view the presentation summary.

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Presiding Commissioner
Australian Government Productivity Commission
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Director
National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
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General Manager Hazardous Substances
ERMA New Zealand
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Dr Lou Gallagher
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Dr Barry Reville
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Dangerous Goods Manager
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Implementing the Australian Dangerous Goods Code 7th Edition

Dr Rob Floyd
Assistant Secretary CBRN, National Security Division
Department of Prime Minister and Cabinet
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Chris Watt
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MFB
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Jane Bremmer
WA National Toxics Network, Member of NICNAS Community Engagement Forum
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Dr Susanne Tepe
Associate Professor of OH&S
RMIT University
Workshop: How Should We Train Our Professional and Technical People in HazMat Regulations, Compliance and Application?

Professor Terry Turney
Centre for Green Chemistry
Monash University
CEO
Asia Nanomaterials
Fabricating and Handling Nanoparticlces in Industry.

Dr Paul Wright
Associate Professor of Immunotoxicology and Unit Leader of Toxicology
School of Medical Sciences
RMIT University

and

Dr Neale Jackson
Senior Lecturer in Occupational Health and Safety
School of Applied Sciences
RMIT University

Practical Protocols for Nanoparticles of Concern

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Review of the Australian Chemical and Plastics Regulations March 2008 Draft Report

Mike Woods

Presiding Commissioner

Australian Government Productivity Commission

Mike Woods is the Presiding Commissioner, Australia Government Productivity Commission and is currently the lead commissioner on the *Annual Review of Regulatory Burdens on Business* and the *Study into Chemical and Plastics Regulation.* Mike's presentation outlined the review of the Australian Chemical and Plastics Regulations March 2008 Draft Report.

Mike noted that many Ministerial Councils and other mechanisms are present in the management of chemicals and plastics, but no single council can cover all of these issues. To address this issue, Mike pointed out that the commission has proposed a Standing Committee on Chemicals comprising senior officials from relevant Ministerial Councils.

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NICNAS Current Review and Reform Activities

Dr Marion Healy
Director
National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

When determining risks to workers, public and the environment, NICNAS interacts with and provides information and recommendations to 36 Authorities and agencies around Australia.

Marion explained how NICNAS has reduced the coverage of phthalate plasticisers from 100 down to just nine with hazardous effects. These nine are now undergoing a Priority Existing Chemicals (PEC) assessment (due in late 2008). The draft PEC for Triclosan antibacterial, included in many domestic and industrial products, is due for release in mid 2008.

Marion also covered issues associated with formaldehyde, as it is released from textiles, accommodation units and in cosmetics, but no date to officially amend its hazardous effects classification was given. NICNAS is considering prohibiting lead compound for all use in the workplace (not just inks and surface coatings).

Similar to non-therapeutic cosmetics, non-therapeutic disinfectants are likely to come out from Therapeutic Goods Administration (TGA) control and go under NICNAS control. A key problem with information exchange from overseas is that confidential business information “sanitises” the information, making it of much lower value. The EU REACH is seen as generating useful data particularly with downstream users having to feed back their experience to manufacturers.

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NZ HSNO Legislation – What Should Australian Companies Be Doing Now?

Andrea Eng
General Manager Hazardous Substances
ERMA New Zealand

All substances imported into, or manufactured in, New Zealand must be covered by a Hazardous Substances and New Organisms (HSNO) Approval or a Group Standard. Hazardous substance product mixtures must be classified according to the HSNO criteria (based on the Globally Harmonised Systems (GHS)) and assigned to a group standard (there are 200). New hazardous ingredients must be notified for the NZ Inventory of Chemicals. Hazardous substance single substances which are new must be approved and added to the New Zealand Inventory of Chemicals with their full approval annotated. From 1 July 2008, fully compliant NZ safety data sheets are required.

Jeff Simpson: This may not be achieved by many companies (and NZ is a very small market), but from early 2009 the EU GHS requirement should be fully in place, so EU SDSs can have the GHS classification in them.

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Workplace Hazardous Chemicals Framework

Martin Merrit
Standards Branch
Office of the Australian Safety and Compensation Council (ASCC)

Work towards amalgamation of the workplace hazardous substances and dangerous goods regimes using the Globally Harmonised Systems (GHS) framework is underway. There was no clear timeline given for the completion of a hazardous effect criterion. It has been indicated that Australia will closely follow the EU-GHS criteria plus include Combustible Liquids in the 60-150ºC flash point range (rather than the GHS 60-93ºC flash point range). The importance of allowing Australian Material Safety Data Sheets to include GHS hazardous effects, when these start arriving from the EU in early 2009, was raised by a delegate.

There is a national review into model Occupational Health and Safety (OHS) Laws currently underway. Public consultation on this review will occur in July. Following this consultation, the review will report to the Workplace Relations Ministers' Council by 31 Oct 2008. A new independent national OHS body is likely to replace the ASCC before the end of 2008.

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GHS International Implementation – What Does Australia Need to do Beyond Industrial Chemicals?

Greg Hooper
Office of Chemical Safety

Globally Harmonised Systems (GHS) was designed to be implemented beyond industrial chemicals. However in Australia there are concerns from some Authorities and industry groups about using GHS pictograms and GHS hazardous effects statements for domestic and agriculture products. These groups regard our existing risk assessment process as more effective. Others don't agree.

A delegate suggested that maybe the concern over the use of pictograms needed to be re-evaluated, as some were concerned that the hazardous effect pictograms tell the wrong story for small quantities. Internationally there is quite a range of how and when various countries will implement GHS. The UN Transport of Dangerous Goods classifications from GHS are already being implemented and harmonised around the world.

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Harmonising the GHS Timeline With Our Trading Partners

Geoff MacAlpine
Director, Industry Development – Chemicals
Plastics and Chemical Industries Association (PACIA)

There are many emerging brands of Globally Harmonised Systems around the world, resulting in a need to consolidate on an agreed basic approach.

For the EU-GHS they are allowing three years for single substances, and 4.5 years for mixtures. The APEC group of countries (our main trading partners) are still in discussions and are looking at opportunities for mutual recognition rather than full harmonisation.

The main GHS benefit is for countries that do not have an existing dangerous goods / hazardous substance system. GHS data coming from these countries will also meet Australian requirements without unnecessary reclassification, relabelling and re-MSDSing. Australia has a unique opportunity to gain benefits of the GHS if it phases GHS implementation to follow behind that adopted in major economies and trading partners.

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ASCC National Hazard Worker Exposure Survey

Dr Lou Gallagher
Principal Epidemiologist
ASCC

Dr Lou Gallagher, Principal Epidemiologist from the Australian Safety and Compensation Council (ASCC) discussed the ASCC National Hazard Worker Exposure Survey (NHWES). According to Dr Gallagher existing workers' compensation and other health data does not provide an accurate picture of current hazard exposures and more comprehensive data would inform the industry of where prevention efforts are needed.

The NHWES provides national hazard exposure data along with an estimate and profile prevalence of exposures to workers by industry and occupation. NHWES also documents reported hazard controls. In relation to chemicals, priority diseases include occupational cancers, respiratory disease and contact dermatitis.

Chemical hazard specialists were encouraged to participate with the ASCC, through sharing exposure study results and undertaking the NHWES.

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What Chemical Issues are Dropping Through the Cracks?

Dr Mariann Lloyd-Smith
National Toxics Network

The World Summit for Sustainable Development 2020 goal is "…chemicals are used and produced in ways that lead to the minimisation of significant adverse effects on human health and the environment." The average person believes "They wouldn't sell it if it wasn't safe", but this is not always so. For example PBDEs in electronic goods and furnishings; tricolosan in paints, personal care and kitchen products; nonylphenolethoxylates from towels. The average person is subject to the combined impact of hundreds of chemicals where there may be additive and synergistic affects.

The "absence of a single national system of generic consumer product safety regulation … hindering the effective and efficient management of chemicals in articles." – Productivity Commission. Mariann discussed the four principles of chemical policy reform, which are:

- Right to know
- No data – no market
- Precautionary principle
- Substitution principle

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National Framework for Chemicals Environmental Management (NChEM)

Dr Barry Reville
Assistance Secretary, Environment Protection Branch
Department of the Environment, Water, Heritage and the Arts

1. There is currently no mechanism for national consistency in risk management of environmental impacts of industrial chemicals (or therapeutics): The Therapeutic Goods Administration doesn't ask; NICNAS has inadequate power; States and Territories are variable.

NChEM proposed a solution: State and Territory Environment Agencies implement NICNAS hazard, risk assessment and risk management decisions, in a nationally consistent way using existing powers (NChEM Manual of Environmental Controls)

2. There is little systematic measurement of what happens in the environment after chemicals are approved for use.

NChEM proposed a solution: Environment agencies will submit information to advise of potential adverse impacts. Develop national chemicals monitoring database that lists existing monitoring information

3. Australian Environment agencies do not have the statutory power to require a label or MSDS to include information on chemical hazards to the environment for industrial chemicals (nor for therapeutics).

NChEM proposed a solution: Once agreed the GHS will provide a basis for labelling and then the GHS needs to be enabled across all jurisdictions and may take until 2015.

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Sustainability and Water Disposal Issues

Terry A'Hearn
Director, Sustainable Development
Victorian Environment Protection Authority

Terry A'Hearn, Director of Sustainable Development at the Victorian Environment Protection Authority (EPA) spoke on sustainability and waste disposal issues.

The Hon John Thwaites, former Minister for Water, Environment and Climate Change has said that the EPA "will be equipped to ensure Victoria becomes one of the first places in the world where the environment routinely becomes a business opportunity rather than a business cost." In support of this goal, the Victorian Government has established the EPA Hazardous Waste Fund (HazWaste) to support the manufacturing industry in investing in new technologies for reuse, recycling, reprocessing and recovery of industrial waste.

Terry discussed the HazWaste fund, noting that it can support companies who wish to upgrade existing plants or equipment, install new technology to minimise or recover hazardous waste, or undertake research and development to investigate hazardous waste reduction opportunities.

The second day of the event moved away from chemical regulations and management, with a focus on risk assessment, dangerous goods and major hazards. The conference finished with presentations relating to nanoparticles and industry concerns.

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PACIA Sustainability Leadership Framework

Maree Lang
Director, Industry Development – Sustainability
PACIA

The Framework: is a strategy to build in social and environmental values upfront in business; and provides a platform for action by companies and PACIA; which must be relevant and practical for the plastics and chemical industry; and expects companies to move beyond continuous improvement to fundamental change.

The Priority Areas are:

- water
- energy
- materials
- waste /emissions
- products and innovation
- community and stakeholders
- health and safety
- security

PLUS

- workforce engagement
- accountability

It is a Strategic Approach to:

- Optimise process efficiency, reduce waste and on site impacts.
- Make whole of supply chain improvements and product innovation, with new capabilities such as life cycle assessment skills and stakeholder engagement; and finally expects.
- Transformation with step changes in material and resource use, eliminating of risk and linking to global issues such as poverty. Transformation will require new collaborative and technological approaches.

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Transport of Dangerous Goods Around The World

Ken Price
Riskom International Pty Ltd

Opening day two, Ken Price from Riskom International Pty Ltd presented an interesting talk regarding the Transport of Dangerous Goods around the World. Ken provided a brief background to the history of the UN Transport of Dangerous Goods process and emphasised the need to become accustomed to the two yearly update cycle for both UN Transport of Dangerous Goods and the UN GHS non-transport hazardous effects. Ken commented that the regulatory process needs to handle this continually moving target and our current ten year update cycle is not acceptable.

Ken also highlighted concerns over remanufactured intermediate bulk containers (IBCs) and the problems that purchasers must be alert to, including redesigned packages retaining old marks, cross bottled IBCs with inaccurate marks and poor quality closures. Ken emphasised the importance of ensuring that all IBCs comply to UN requirements.

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MHF Lessons from Victoria, BP Texas and Buncefield

Pieter Rienks
Director, Hazard Management Division
Worksafe Victoria

In Victoria for Major Hazards we link directly to the Corporate Safety Management System and then have a Facility Safety Management System which is evaluated in terms of threats, prevention controls, loss of control and mitigation controls. The UK Buncefield fire showed us a variety of mitigation controls. The BP Texas and Buncefield Terminal disasters both occurred from a very similar overfilling scenario with no proper feedback loops or other ways to prevent these two disasters from occurring.

Small to medium operators in Victoria who are below the MHF threshold should use the Safety Case approach which:

1. Documents to confirm current practice.
2. Prepares a Strategic safety case.
3. Provides detailed risk assessment so management to improve risk, and is Consultative, documented & practically implemented.

The need is to transition from solely experience based management to “systems and experience combined”. Medium employers should invest in the simplest practical system to link to control measures (know what is important!) – do not use generic systems. Small employers should not rely solely on experience; but ensure you have the depth of systems.

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Workplace Chemicals Strategy

Ross Bootes
Hazard Management Division
Worksafe Victoria

Four aspects of Chemical Safety to OHS include:

- Occupational disease (cancer; respiratory diseases, e.g. asthma; dermatitis)
- Major incidents
- High frequency (obvious and immediate, e.g. chemical burns); and
- Community expectations.

WorkSafe's Strategic Direction for Chemicals includes:

- Projects will be targeted to chemicals posing the highest risk;
- High risk facilities will have resources allocated in a similar way to major hazard facilities; and
- Industry sectors/facilities with higher risk (e.g. ports and rail yards) may also receive dedicated oversight if required by the risk.

Projects for 2008 include:

- Anhydrous ammonia (stakeholder concern, increasing usage, level of controls and an Ammonia Task Force has been formed) and
- Wood dust (identified from occupational asthma research), and is also linked to other OHS risks (other respiratory diseases; cancer; dermatitis; irritant effects; fire and explosion risks).

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Risk Assessment of Hazardous Chemicals: What is Expected?

Barry Pratt
Consultant
Dangerous Goods and Hazardous Substances Legislation and Management

There is a misunderstanding about risk assessments. Risk assessments under the proposed framework for hazardous chemicals (combine both the existing requirements for dangerous goods and hazardous substances).

Risk assessments must:

• Identify the hazardous chemicals, their properties and the nature of their interaction with the processes, activities, plant and structures associated with their use (what harm or injury may be caused?).
• Assess the probability and severity of harm/injury.
• Enable an evaluation of the current or proposed controls.

Risk assessments need to be tools to get the right answers and may be:

• 'Simple' , a review of the MSDS in the context of the application of the hazardous chemical(s) - minimal documentation (But be careful not to apply beyond the scope of the MSDS and a delegate also raised concerns about how MSDSs group hazard information.)
• 'Detailed' risk assessment using an appropriate tool to estimate the level of risk (e.g a risk calculator, table or nomogram). Documentation sufficient to summarise risk considerations and decisions.
• Quantitative risk assessment (Complex with substantial documentation).

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Implementing the Australian Dangerous Goods Code 7th Edition

Adrian Simonetta
Dangerous Goods Manager
Worksafe Victoria

New Australian Dangerous Goods Code 7th Edition (ADG7) Legislative Package expected to be implemented from 1 January 2009. The expected transition period starts on 1 July 08 and ends 31 Dec 08 (but the legislative package will probably not be finalised until well into this period). During this time Duty Holders are permitted to comply with either ADG6 or ADG7. A delegate asked that the transition period be 12 months. ADG7 will then align with the IMDG Code, IATA Regulations, ICAO Technical Instructions, and be more easily updated with the two yearly UN Dangerous Goods revision cycle.

A key jurisdictional discrepancy is that QLD has opposed the reduction in ignition source separation distances for fuel tankers at Service Stations from 8m to 3m minimum combined with using the hazard zones Australian Standard.

Environmentally Hazardous classified Dangerous Goods UN 3077 & 3082 are transported to Tasmania to the IMDG Code, but are not subject to ADG7 when transported by road and rail in Packaging, IBCs or any other receptacle not exceeding 500 Kg/L (except if labelled as UN 3077or 3082 they will be treated as Class 9 dangerous goods for road and rail transport).

Storage and Handling of Dangerous Goods will rely on ADG7 for the purposes of classification, package specifications, marking, compatibility and the specific requirements that arise from the classification of the dangerous goods

Note: Key ADG6 to ADG7 changes are detailed in the ADG Code Information Guide (end of book two).

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Chemicals of Security Concern: Getting the Balance Right

Dr Rob Floyd
Assistant Secretary CBRN, National Security Division
Department of Prime Minister and Cabinet

Some key issues raised by stakeholders are:

- Security sensitive ammonium nitrate arrangements should not be replicated.
- Avoid unintentional consequences.
- Closely examine of the costs and impacts on industry and users of chemicals.
- Effective communication is required on the threats and risks posed by chemicals.
- National consistency is important.
- Reward those that operate with security in mind rather than penalise them.

Some key points from Rob Floyd are:

- There is a sustained terrorist interest in the use of a few chemicals of interest.
- Extensive arrangements are already in place and steps are being taken to improve security.
- The security around chemicals of most interest to terrorists needs strengthening.
- Combination of appropriate strategies specific to individual chemicals, groups of chemicals or industry.
- No extra regulation of chemicals is proposed.
- It is not possible to eliminate all risk.

A delegate highlighted that there may be a clash between emergency response information versus security requirements.

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Ammonia Accidents (Or Are They?)

Chris Watt
Dangerous Goods Executive Manager and Chairman of the Ammonia Taskforce
MFB

Chris Watt, Dangerous Goods Executive Manager at the Metropolitan Fire and Emergency Services Board (MFB) stressed the dangers associated with ammonia. Ammonia is the third most frequent dangerous material involved in an emergency in Victoria, and these accidents have required significant emergency service resources. Chris pointed out that these accidental releases often occur from poorly maintained equipment in refrigeration installations (such as valve failures and maintenance shortcomings).

The ammonia taskforce, of which Chris is the Chair, was set up to focus on gaining competent staff and qualified maintenance contractors, in addition to having risk management, OHS and ammonia emergency response plans in place.

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Uncontrolled Release of Lead Carbonate in WA: What Needs to be Changed?

Jane Bremmer
WA National Toxics Network, Member of NICNAS Community Engagement Forum

Magellan Metals mined Lead Carbonate in Wiluna and transported the material 900 km to the Esperance Port where it was stored and loaded onto ships for export. The transport, storage and loading of the Lead Carbonate led to widespread contamination of the Esperance Port and residential areas.

This was an accident waiting to happen: Magellan commenced mining in November 2004 without an MSDS and obtained an MSDS in April 2005 which classified Lead Carbonate as Class 9 Environmentally Hazardous Dangerous Good, however they did not transport the Lead Carbonate as Dangerous Goods (Note: ADG Code 6th Edition does not require this) and Esperance Port Authority also did not handle it as Class 9. When finally tested In May 2007 for solubility in dilute hydrochloric acid this was clearly soluble and then finally classified as Class 6.1 Toxic – Lead Soluble Salts, NOS.

A large range of WA agencies failed to protect the environment and health. This incident illustrates the dangers posed when companies and regulators lack knowledge and expertise to protect public health and the environment from the dangerous release of toxic materials. There was a lack of clear delineation of the various agencies' responsibilities, extended delays in providing information and results to community members and unnecessary impediments to the sharing of relevant information.

To protect against such incidents occurring we need the Community to have a 'Right to Know', industry and regulators to be educated in environmental health and toxics reduction programs for mining and extractive industries (which starts with accurate Dangerous Goods and Hazardous Substance classifications).

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Workshop: How Should We Train Our Professional and Technical People in HazMat Regulations, Compliance and Application?

Dr Susanne Tepe
Associate Professor of OH&S
RMIT University

Dr Susanne Tepe, Associate Professor of OH&S at RMIT University held a *w*orkshop session, which addressed training needs for professional and technical personnel within HazMat regulations, compliance and application. The workshop highlighted the current lack of professional level training in regards to HazMat regulations and requirements. While some training is incorporated into general OH&S courses, most professionals learn on the job.

Dr. Tepe put forward the need for a combination of university and short courses, networking groups, conferences and seminars. In addition, she noted that a simplification of information is needed to increase the accessibility of HazMat education.

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Fabricating and Handling Nanoparticlces in Industry.

Professor Terry Turney
Centre for Green Chemistry
Monash University
CEO
Asia Nanomaterials

A nanoparticle production process requires:

- Ability for cost-effective scale-up.
- No or minimal waste products (as there are environmental and cost issues).
- No or minimal handling of free solid nanoparticles (there are occupational and cross-contamination issues).
- Appropriate surface chemistry (needs inhibition of re-agglomeration after formation and in subsequent use).
- Precise particle size control.

Various methods of producing nanoparticles were discussed: pecipitation, mcroemulsion, vpour phase reactions, atrition mlling, and ractive ginding.

Nanoparticle hzards are not well understood and much work needs to be done on nanoparticle toxicology. Workers may be exposed by: inalation, igestion and tansdermal contact. Industry needs to adopt appropriate controls. Traditional particle measuring methods are inadequate for nanoparticles.

The dose makes the poison – it may be the number of particles that is important, the mass, or the surface area in other cases – which is highly dependent on toxicology. Develop appropriate risk management strategy. Commercial filters are efficient at nanoparticle removal from aerosols

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Practical Protocols for Nanoparticles of Concern

Dr Paul Wright
Associate Professor of Immunotoxicology and Unit Leader of Toxicology
School of Medical Sciences
RMIT University

and

Dr Neale Jackson
Senior Lecturer in Occupational Health and Safety
School of Applied Sciences
RMIT University

There are now a large range of nanoparticles used in the research and development field. There is known respiratory amd cardiovascular toxicity from ultrafines. Surface chemistry and area is important. Nanoparticle toxicity varies with different cell types. Other concerns are:

- Absorption and translocation.
- Bioaccumulation.
- DNA damage.
- Metabolic inhibition.
- Oxidative stress from oxyradicals.

A novel toxic potential most likely for nanoparticles of concern are:

- *Insoluble* nanoparticles.
- *Penetrates* biological membranes.
- *Persists* in the body to cause biological effects not seen in bulk material.

Care needs to be taken as nanoparticles cannot be “lumped together”, due to differences in size, shape, surface area amd activity and nano-structure, which all affect bioavailability, bioactivity & toxic potential

For nanoparticles of concern you need to:

1. Risk assess the toxicological, chemical and physical properties and all parts of life cycle and research and development of nanoparticles of concern.
2. Use the 'As Low As Reasonably Practical' (ALARP) approach for setting exposure controls.
3. Move to higher order controls for scale-up from research phase to development and process implementation.
4. Develop appropriate monitoring (if feasible) to assess controls.

A delegate raised the issue of release of nanoparticle silver from anti-odour socks. The speakers said that the silver nanoparticles cause a toxic scenario for lower aquatic organisms and we need to be cautious. Another delegate suggested the need for clear legislation to protect the workers, community and the environment from nanoparticles. The speakers all agreed and it was suggested clear Codes of Practice were also needed.

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Closing Comments

Jeff Simpson
Haztech Environmental

The conference closed with Jeff Simpson asking everyone to take part in Industry, Professional or Community Association networks and a request for possible topics & speakers for Hazmat 2009 to be sent to FPA Australia by the end of June.

The HazMat conference and exhibition is managed by FPA Australia, with WorkSafe Victoria the major sponsor at this year's event. The event was supported by key chemical industry, professional and community associations including:

- Plastics and Chemical Industry Association
- Accord
- Royal Australian Chemical Institute
- Dangerous Goods Advisory Group
- Australasian Institute of Dangerous Goods Consultants
- Australasian Fire Authorities Council
- Australian Institute of Occupational Hygienists
- Australian Paint Manufacturers Federation
- National Toxics Network.

FPA Australia would like to thank all parties involved for making HazMat 2008 such a success. We look forward to working with you again for HazMat 2009.

A CD containing a full copy of HazMat 2008 conference presentations is available to purchase from FPA Australia for $65 inc. GST, for more information please contact our events department on events@fpaa.com.au or 1300 731 922.

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