

Health and Safety in Laboratories: Have We Got It Right?



Speaker
Abstracts

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Monday 12 November 2012 ALControl Laboratories, CH5 3US

Organised by SCI's Health and Safety Group and Liverpool and Northwest Group

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Introduction

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This event will provide experiences from a range of knowledgeable practitioners from a broad sector of laboratory environments addressing Chemical, Biological, Physical and behavioral hazards with respect/purpose to developing a sustainable health and safety culture and associated current safe working practices in academic, industrial and public sector laboratories. The presentations will provide expert knowledge from the point of view of legislation, regulation and documentation, through to the practical common sense application of health and safety. The day is intended to try and briefly cover most relevant H&S legislation/guidelines, currently available training, handling, labeling and transport of samples; GLP, COSHH & Risk Assessments.

The organizers also hope to show a very relevant and sobering short video relating to the longer-term effects of a major chemical incident. This resulted in blindness for the person involved, and various people involved, including the victim, will speak about the incident and its aftermath. Over coffee and lunch, AUK-Learning and Serious Games International will be showing how a 'virtual lab' and 'serious games' can be used to train technicians and promote laboratory safety. They will be asking "Would the industry like to collaborate in the creation of such tools?"

The event should be of great benefit to both experienced and more junior laboratory staff. It will also provide a unique opportunity to network with fellow Health and Safety practitioners with laboratory responsibilities and to share best practice. Attendees will also have the opportunity to take part in two discussion sessions with the speakers, and a poster session is also offered, along with plenty of opportunities for networking. The day will provide a valuable platform to access the experience and knowledge of a wide range of health and safety professionals.

A certificate of attendance will be provided for CDP purposes.

The Classification, Labelling and Packaging of Substances and Mixtures Regulations (CLP)

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The Classification, Labelling and Packaging of Substances and Mixtures Regulations (CLP) came into force on the 20th January 2009 aligning the European systems of classification, labelling and packaging with the Global Harmonised System (GHS). The aim of the GHS is simple; **One Chemical, One Label – Worldwide**. The regulation stipulates that from the 1st December 2012 substances produced and released on to the European market must carry new labelling in line with the GHS, mixtures have a later deadline of 1st June 2015. The hazard symbol pictograms displayed on labels are the largest visual change and although they do have similarities to those used in CHIP, they have changed in style and increased in number. Along with the new pictograms, labels will also carry more safety information such as first aid instructions, storage and disposal considerations; information previously only found on material safety data sheets. A new classification system introduces the use of signal words, to indicate the severity of the substance, and hazard and precautionary statements. The changes imposed by this new regulation raise safety awareness for the end user and any anyone involved in the supply chain who may be exposed through legitimate use or by incident.

Ben Tranmer from ALcontrol Laboratories will discuss the new regulations, the changes to labelling and classification and how the signal words, precautionary and hazard statements can be used to develop a robust hazard led COSHH assessment programme.

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Health and Safety Management at ALcontrol Laboratories

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Behaviour-based safety is very topical and important at the moment, but only fulfils its potential when it's used in conjunction with suitable, sufficient and appropriate health and safety procedures.

Some companies think that once the policies have been developed they can rest easy, others think that behaviour-based safety courses will solve all their problems. This presentation clearly demonstrates that both are important, and for a long-term successful outcome will only be fully effective when used together.

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SME Facing HSE

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HARMAN technology Ltd is an SME that manufactures photographic films, papers and chemicals, inkjet papers, antimicrobial agents as well as some other novel technologies.

I will be talking about the practical application of health, safety and the environment on a small manufacturing site. We buy in raw materials (chemicals, papers, plastics) and take them through several manufacturing processes to produce products that are either sold directly to customers or sent to distributors around the world. Manufacturing includes formulating, dispersing, coating, finishing, bottling, packaging and labelling.

I will talk about how HARMAN technology has set up a health, safety and environmental system that is both manageable and practical for an SME that is at the manufacturing stage. This will include a practical risk management process, reporting HS&E performance to staff and directors, keeping on top of regulations and I will review the main problems we face. Other talks cover lab safety and SDSs, this talk will cover post lab scale developments.

Extended Safety Data Sheets: Dealing with Exposure Scenarios

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Everyone **handling hazardous chemicals** in the EU will already be familiar with the safety data sheet (SDS). However, under REACH, the requirements for SDS have changed. Users of chemicals are now receiving **extended SDS** for hazardous substances that have been registered in their supply chain; an obligation that will eventually apply to all hazardous substances registered at 10 tonnes or more per year. The new annex to the SDS contains **exposure scenarios** (ES) relevant to the registered uses of the substances which users and their customers must either comply with or demonstrate an equivalent level of safe use. In some cases this means a restriction on the type of applications that a substance can be used for and on who can use it. This is now starting to have an effect on the availability, use and supply of raw materials in the EU, and is a business continuity issue from which the laboratory sector cannot escape. This talk will outline what an exposure scenario is and what effects it is having on the laboratory sector.

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Dangerous Germs in Science, 'Fiction and Safety'

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International classifications of infectious agents place organisms in one of four Hazard Groups based on their potential to cause serious harm to human health. In the UK, the Advisory Committee on Dangerous Pathogens (ACDP) defines the composition of each hazard group, and publishes guidance on appropriate laboratory practice to protect laboratory staff, the public, animals and the environment from laboratory associated infections. Similar regulations exist for animal pathogens, currently administered by DEFRA as the Specified Animal Pathogens Orders (SAPO classification). The principles of working safely with any micro-organism are extremely simple: keep the germ in one place, and the worker in another, and prevent contact between the two that might allow the organism to enter the user. The degree of protection required, and the laboratory and controls and personal protective equipment needed to achieve it, become more stringent the greater the hazard from the organism, but the basic principles remain unchanged. However, as the hazard group increases other factors of fear and emotion intervene, and the level of "protection" rises disproportionately. Additional regulations are invoked, from laboratory procedures and rules on laboratory construction to security controls such as Schedule 5 of the Counter Terrorism Act. Worse still, mention of the name of Lassa or Ebola viruses causes panic, and magical properties are imputed to these viruses allowing them to move around and infect people in defiance of the rules of physics, let alone common sense. The talk will look at how micro-organism cause disease, what they can do, what forces act on them and what mechanisms they have for spreading in the environment and the human body. It will also discuss what they cannot do, despite popular views to the contrary such as escape from a completely closed bottle, with O-ring seals, enclosed in an outer sealed box. The aim is to allow the audience to make their own rational assessment of how to work safely on these agents in the context of their own needs and the vicissitudes of the Law.

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Health and Safety in Forensic Laboratories

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Health and safety issues facing the forensic scientist, from crime scene to court, will be outlined.

Dealing with potential hazards fall broadly into three categories: Physical, Biological, and Chemical. However, dealing with unknown substances can prove to be a health and safety risk and challenge. This is in particular unpredictable during the examination of crime scenes which is one of the most hazardous activities a Forensic Scientist can undertake. However, at many crime scenes not all hazards are immediately obvious, and some may come up as the investigation unfolds. The work is often carried out under pressure in less than ideal surroundings where safe controlling/management for biological, chemical and physical hazards cannot be planned to the same extent as in the laboratory. Simple things such as poor lighting, objects placed in an unsafe haphazard way, sharps hidden amongst general items and im-proper treatment of waste at scenes can be a major health and safety risk.

Safety should remain a priority for the forensic scientist throughout the process of crime scene examination.

Beyond the hazards encountered at the scene itself, laboratory personnel may be exposed to hazards when receiving items collected at the scene. The personnel working at the scene play an important role in minimizing hazards to others handling collected evidence later in the forensic process (e.g. identifying the type of hazardous material by using appropriate packaging and warning labels).

As with all laboratories analysis of material generates some waste. Proper management of hazardous biological and chemical waste is important for maintaining safety. Waste material must be segregated into various waste streams and collected at points of generation.

Apart from the specific related safety concerns, the forensic scientist is also exposed to the possibility of physical danger as result of their evidence in court, albeit this is rare.

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Laboratory Safety Guidance Targeted at Universities

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The law places specific duties on university staff and laboratory users with regard to health and safety. Heads of departments, academic staff, researchers, university health and safety advisers and others need to understand the general principles of health and safety law and how it applies to them. In particular, the Management of Health and Safety at Work Regulations, which requires those in charge of university laboratories to identify hazards and to undertake the assessment, management and control of risks to both persons at work and others who may be affected by work activities. This presentation outlines a good laboratory practice relating risk assessment and management in the context of relevant statutory controls.

How to Herd Cats – Ensuring Safety Works in an Academic Environment

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The organisation and management of health and safety within a University department is often challenging, this is especially the case in departments which are large, undertake a diversity of work and are research active. Within academia, the desire to discover new facts is driven by a vigour and enthusiasm which often results in work occurring day and night, with experiments being undertaken without, perhaps, all the planning which commercial organisations would wish to see. Hence, health and safety must be a cornerstone of the departmental culture whilst not being seen as an obstruction to discovery or regarded as a reason to not undertake research.

This talk will present the experiences of a Safety Officer from within a large university department which has over 800 personnel and risks covering a multitude of activities including: Structural failure, Chemical and Biological Hazards, Laser use and drowning. Methodologies used to help guide the academics and researchers through the legal requirements will be explained and the organisational approach used by the University to support the safety structure discussed. Although the term “herding cats” has frequently been used to describe the wilfulness of academia, this talk will help to dispel the analogy from a safety perspective - it is possible to herd academic cats and to achieve a working environment where safety is important and matters.

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Nerves of Steel: Working with Chemical Warfare Agents in the Laboratory

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Defence research has been carried out at Porton Down for nearly 100 years, and since the 1950s, one of its central roles has been to ensure the UK Armed Forces are provided with effective protective measures against the threat of chemical and biological weapons. In order to do this, researchers must work with reagents that can be fast-acting and lethal even in minute doses.

This poster includes a brief history of Porton Down and chemical warfare agents, describes the physiological consequences of exposure and the control measures required to work safely with these materials.

Process Safety in Laboratories

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This presentation will discuss:

- An introduction to Tata Steel Research, Development and Technology and its in process and product development for Tata Steel
- Overview of the Sour Laboratory - main purpose and main hazard - H₂S gas
- Process Safety and why this is applicable to the Sour Laboratory
- What is process safety (link between the Sour Laboratory and the high-hazard facilities in steel manufacturing)
- Process Hazard Review - scope of study
- Explanation of key concepts - ALARP, LOPA, Phast modelling
- What we learned
- Benefits and outcomes

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Safety in Laboratories – DPT’s Approach – ‘We are all Responsible so Let’s Work Together’

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Davy Process Technology develops and licences advanced process technologies for the oil and gas, petrochemicals, commodity chemicals worldwide, some of the technologies developed cover the following: Oxo Alcohols, Butanediol, Ethyl Acetate, Natural Detergent Alcohols, Carbon Conversion, Propylene Glycol.

Each of the processes developed have been conducted in DPT’s research facilities in the UK from the initial idea in conventional laboratories up to pilot plant scale and then onto world scale production facilities. At each of these development stages although the chemical hazards are the same, other safety related considerations have to be taken into account namely process operations at pilot plant scale in which DPT follow the same HAZOP system as employed for commercial scale operation. As all of these commercial facilities are overseas and are normally part of a larger complexes then hazards associated with other adjacent facilities need to be taken into account when completing the process & site specific travel risk assessment.

Davy Process Technology has a global reputation for leading process development that operate in a safe and efficient manner this is achieved by continuously evaluating the safety systems that are in place and by actually testing that the systems/procedures that are in place are followed.

DPT have and are continuing to develop the EHS culture within the company, this encompasses staff training coupled with a system of pro-active and reactive monitoring, and at all times ensuring that feedback is giving to staff in a timely manner. This presentation will outline the evolving approach to EHS over all of the different phases of the development encountered by DPT.