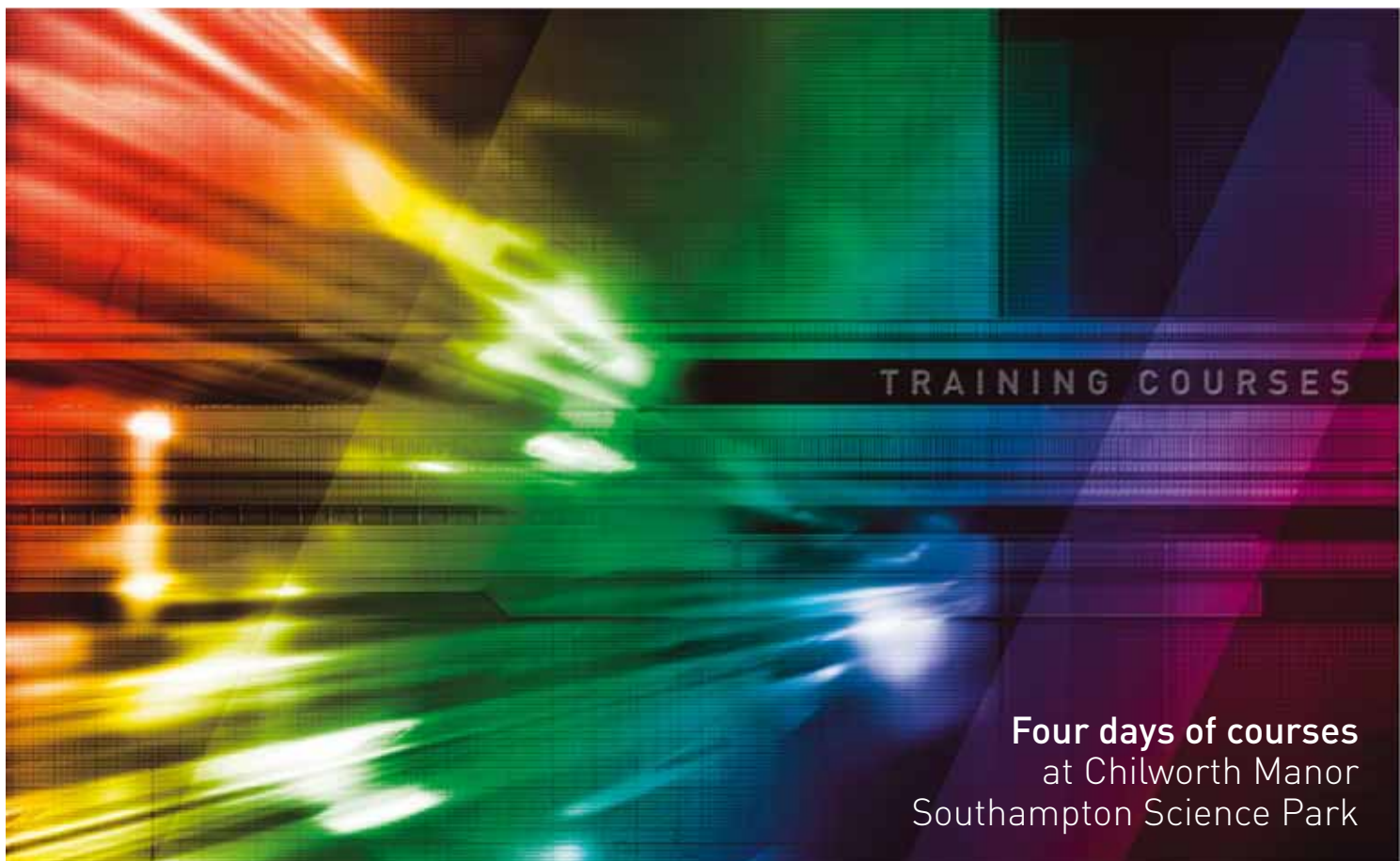


# Process Safety Training Event



## **Dust, Gas & Vapour Explosion Hazards**

21st April 2009, 9am-5pm

(registration at 8.45am)

## **Hazardous Area Classification**

22nd April 2009, 9am-5pm

(registration at 8.45am)

## **Industrial Electrostatic Hazards**

23rd April 2009, 9am-5pm

(registration at 8.45am)

## **Non-electrical (Mechanical)**

### **Ignition Risk Assessment**

24th April 2009, 9am-3pm

(registration at 8.45am)

**Chilworth**  
**Technology**

the experts in process safety

## DAY 1 DUST, GAS & VAPOUR EXPLOSION HAZARDS

21st April 2009

Although the principles of explosion prevention and protection are well known, dust and gas explosions still continue to occur in process plants. This course provides guidance on the selection of an appropriate basis of safety for a particular situation. We will consider how flammable atmospheres arise, how to identify potential ignition sources and the test data you need to undertake a risk assessment. We will also address explosion protection measures for cases where flammable atmospheres and ignition sources are unavoidable. The course provides practical techniques and relevant case histories.

### YOU WILL LEARN:

- Overview of the requirements of DSEAR/ATEX.
- How control of gas, vapour and dust explosion hazards are essential for compliance with DSEAR/ATEX.
- How flammable atmospheres arise.
- What flammability characteristics are needed for assessment and control of explosion hazards.
- How to identify potential ignition sources.
- What measures can be taken to prevent and protect against explosions.

### WHO WILL BENEFIT:

- Health & Safety Personnel
- Engineering Personnel
- Plant/Operations Personnel
- Regulatory Compliance Staff
- Employees working in hazardous areas

### SPECIAL FEATURES:

- Small scale dust explosion demonstration.
- Workshop on explosion risk assessment and specification of prevention and protection measures.

(Lab tour on day 3 only.)

## DAY 2 HAZARDOUS AREA CLASSIFICATION (HAC)

22nd April 2009

Hazardous area classification uses a systematic approach to identifying flammable atmospheres and their persistence. In this way you can classify areas of your site for various levels of risk.

This course presents current best practice and procedures for carrying out a HAC for flammable gases/vapours and dusts on your plant. It also provides an understanding of how HAC fits into compliance for DSEAR/ATEX

### YOU WILL LEARN:

- How HAC is the cornerstone of compliance with DSEAR/ATEX.
- Flammability and physical properties and its application to HAC.
- The different techniques for performing gas, vapour and dust hazardous area classification and the relevant standards.
- What information and documentation is needed for carrying out HAC.
- The rules for selecting/assessing equipment in hazardous areas.

### WHO WILL BENEFIT:

- Health & Safety Personnel
- Engineering Personnel
- Plant Personnel
- Regulatory Affairs Staff
- Employees working in hazardous areas

### SPECIAL FEATURES:

- Workshop for gas explosion hazardous area classification.
- Workshop for dust explosion hazardous area classification.

(Lab tour on day 3 only.)

# Process Safety Training Event

## Workshop Tutors

**Chilworth Technology** brings together leading experts in the field of process safety with state-of-the-art GLP compliant safety laboratories to provide a single point of contact for all your process safety needs. Our GLP compliant laboratories cover four areas of process safety, fire and explosion hazards, chemical reaction hazards, electrostatic properties and regulatory testing.

Supporting our laboratories and providing independent and impartial advice is our consultancy team.

A group of dedicated engineers and scientists who specialise in the field of industrial explosion hazards, chemical process evaluation, vent sizing (DIERS), HAZOP, electrostatic hazards and production problems, incident investigation, SIL studies, expert witness and process safety training.

### Ian Pavey M.Phil, BSc (hons), M.Inst.P, C.Phys, Industrial Electrostatic Hazards

Ian graduated from Bath University with a BSc in Chemical Engineering. After acquiring some practical experience of electrostatic hazards while working as a process development engineer, he gained an M.Phil. in applied electrostatics and thereafter specialised in electrostatic applications, problems and hazards. Ian worked for ICI for 11 years on projects involving electrostatic process research and development. Now Ian is currently working as Principal Electrostatics Specialist.

Whilst at Chilworth Technology, Ian has been responsible for a variety of problem solving and research projects where electrostatics is involved. These have included powder and liquid handling problems and applications. Ian has led multi-national research projects under EC Framework programmes, including one investigating powder handling and processing problems caused by static electricity in industrial processes, and one aimed at developing new tests for anti-static footwear. Ian is a member of the Static Electrification Group of the Institute of Physics, and a past member of the group's committee.

During 25 years working in the field of electrostatics, Ian has published numerous articles covering subjects from new electrostatic applications to powder handling problems to fundamental research leading to new understanding of hazardous situations. In addition, he is a named inventor on a number of patents in areas from electrostatic sprays for agricultural purposes to electrostatic fibre production for liquid crystal displays.

## DAY 3 INDUSTRIAL ELECTROSTATICS HAZARDS

23rd April 2009

Electrostatic discharges are explicitly cited as potential ignition sources that must be assessed when considering the risk of fire and explosion as part of compliance with DSEAR/ATEX.

This course is designed to explain how electrostatic charges occur and how charge builds up in people, liquids, powders, plastics and plant. Understanding electrostatic properties is essential in avoiding electrostatic discharges which can trigger fires and explosions. The course provides practical techniques and relevant case histories.

### YOU WILL LEARN:

- How electrostatic charge is generated and accumulates.
- How to identify the various types of potential electrostatic discharges.
- Flammability and physical properties and application to static hazards.
- The energy of different types of electrostatic discharges.
- How to minimise electrostatic charge/accumulation to reduce risk of electrostatic discharges to comply with DSEAR/ATEX.
- Which electrostatic material properties can indicate the potential for process handling problems and hazards.

### WHO WILL BENEFIT:

- Health & Safety Personnel
- Engineering Personnel
- Plant/Operations Personnel
- Regulatory Compliance Staff

### SPECIAL FEATURES:

- Demonstration of electrostatic charging and discharging and measurements that can be made on plant.
- Workshop with relevant case histories.
- **Tour of the Electrostatics/Industrial Explosion Hazards Laboratory.**

## DAY 4 NON-ELECTRICAL (MECHANICAL) IGNITION RISK ASSESSMENT

24TH APRIL 2009

The NEMIRA course will cover how to assess the ignition risk from existing non-electrical (mechanical) equipment operating in hazardous areas.

In practical terms, how do you ensure compliance for existing non-electrical (mechanical) equipment used in potentially explosive atmospheres, identified from your Hazardous Area Classification Work?

This seminar will seek to answer common questions relating to non-electrical (mechanical) equipment risk assessment, from clients undertaking DSEAR compliance work.

### YOU WILL LEARN:

- Why you need to carry out a risk assessment of existing non-electrical (mechanical) equipment in hazardous areas, what can go wrong and how that differs from electrical equipment.
- The key elements to consider in carrying a non-electrical (mechanical) equipment ignition risk assessment.
- What information is required – material properties, equipment data etc.
- How to document and maintain the risk assessment.

### WHO WILL BENEFIT:

- Production Managers
- Engineering Managers
- Process Managers
- Safety, Health & Environment Managers
- Project & Design Engineers
- Equipment Manufacturers

### SPECIAL FEATURES:

- Two workshop examples – one for gases and vapours and one for dusts.

[Lab tour on day 3 only.]

Day 3 includes a tour of our laboratories

Registration is at 8.45am for a prompt 9.00am start

Courses will finish at approximately 5pm (except Day 4 which finishes at 3pm)

### Richard Montgomery BEng (Hons)

#### Dust, Gas & Vapour Explosion Hazards and HAC

Richard joined Chilworth Technology in 1997 as a Process Safety Specialist in the industrial explosion hazards group and is currently a Senior Process Safety Specialist.

Since joining Chilworth Technology, Richard has worked on a number of wide ranging projects for a variety of clients throughout Europe, including the generation of an Explosion Protection Document (EPD) for ATEX compliance; Electrostatic hazard assessments for industries; handling highly flammable liquids, and ignition sensitive powders; Hazardous area classification for clients handling flammable powders, vapours and gases; HAZOP Project leader for a working group representing Polyurethane Foam (PU) manufacturers; Hazard and risk assessments for powders, vapours and gases. These assessments include identification of potential ignition sources, explosion vent area calculations and identification of a Basis of Safety.

### Richard Ball

#### Dust, Gas & Vapour Explosion Hazards and Industrial Electrostatic Hazards

Richard has been with Chilworth Technology since its inception over twenty years ago. He ran the Industrial Explosion Hazards (IEH) laboratory for the first six years and is currently a Senior Process Safety Specialist. Richard regularly undertakes process safety audits for a broad spectrum of companies from food to pharmaceutical and chemical industries. He has also developed in-company standards on explosion / electrostatic hazards

Before joining Chilworth Technology, Richard worked on a multi-sponsored industrial-scale research project at the University of Southampton on electrostatic hazards of pneumatic conveying powders into silos. His specialist areas are the prevention of dust explosions and its practical application to explosion protection of plant, electrostatic hazards, hazardous area classification, and the interpretation of test data.

## Call +44 (0)23 8076 0722 to reserve your place

To reserve your place telephone Kate Gillett on **+44 (0)23 8076 0722** to confirm availability and fax this form on **+44 (0)23 8076 7866**. A location map will be sent to you with course confirmation once we receive your completed application form.

Payment may be made by a cheque payable to Chilworth Technology Ltd or an official company purchase order. Please send these to:-

Marketing, Chilworth Technology Ltd, Beta House, Southampton Science Park, Southampton, Hants, SO16 7NS

### REGISTRATION DETAILS - fax back to +44 (0)23 8076 7866

Dr/Mr/Mrs/Ms/Miss: \_\_\_\_\_

Name: \_\_\_\_\_

Job Title: \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Postcode: \_\_\_\_\_ Country: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

I am a Chilworth website subscriber and I wish to claim my 5% discount

#### Please tick which day you wish to attend:

- Dust, Gas and Vapour Explosion Hazard 21st April
- Hazardous Area Classification 22nd April
- Industrial Electrostatic Hazards + Lab Tour 23rd April
  - Optional complimentary course dinner- Evening of Day 3 23rd April
- Non-Electrical (Mechanical) Ignition Risk Assessment 24th April

#### At Chilworth Technology Ltd.

Beta House, Southampton Science Park, Southampton, Hants SO16 7NS, UK

Any single full day	£199+ VAT
Any two full days	£359+ VAT
All three full days	£537+ VAT
NEMIRA	£129+ VAT
	[£99+ VAT if taken with any full day course.]
<b>Entire Four days</b>	<b>£599+ VAT</b>

Prices include lunch (please advise of any special dietary requirements).

I cannot attend any of the above courses, but would like a FREE consultation with a Process Safety Specialist

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Cancellations: All reservations in writing are subject to cancellation conditions. Written cancellations received up to 5 working days before the course date will be subject to an administration charge of £50. No refunds will be made for cancellations received after this date, or for non-attendance, but copies of the course documentation will be sent. Substitutions may be made at any time up to the start of the course. Chilworth Technology reserves the right to modify or cancel the course up to 5 working days prior to the commencement date.

#### Chilworth Technology Ltd.

Beta House, Southampton Science Park, Southampton, Hants. SO16 7NS, UK

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