



3-Day Workshop*

Tuesday 5 - Thursday 7 Dec 2017

Sydney (Parramatta)

This workshop provides a sound understanding of electrical compliance and your responsibilities in Group II (flammable gases, liquids and vapours) and Group III (combustible dusts) hazardous areas. This workshop is suitable as first time or refresher training for personnel requiring a comprehensive understanding of electrical installations in hazardous areas.

Potential sources of ignition are often taken into hazardous locations where flammable liquids, gases, vapours and dusts are generated, processed, handled and stored. These flammable substances can easily ignite from an arc, spark or heat. It is essential you avoid accidental ignition of these flammable substances.

Based on the current Australian Standards, trainees will receive an introduction to hazardous area legislation and a detailed understanding of how hazardous areas are classified, and sources of ignition. This workshop also provides a sound understanding of how to use the relevant Australian Standards to select, install, inspect, test and maintain hazardous area electrical installations.

Ensure you remain compliant* and maintain your hazardous area skills and knowledge by booking this essential workshop today.

Workshop topics:

- How to prevent hazardous area fires and explosions
- Legislation, compliance and competency
- How Group II and Group III hazardous areas are classified
- How to read hazardous area classification drawings
- How to read equipment markings
- How to recognise sources of ignition
- How explosion protection techniques prevent explosions
- How to select, install, inspect and maintain:
Ex d, Ex e, Ex i, Ex iD, Ex m, Ex mD, Ex n, Ex o, Ex p, Ex pD, Ex q, Ex s, Ex v,
Ex tD and DIP equipment

**Continuing education or training is required – see clause 4.4 of AS/NZS600079.14:2009 and clause 4.2 of AS/NZS600079.17:2009*

Upon completion of this workshop trainees should:

- Understand how to prevent hazardous area fires and explosions
- Be up-to-date with changes in the relevant hazardous area Australian Standards
- Understand legislation, compliance and competency
- Have existing hazardous area knowledge reinforced
- Have a sound understanding of how Group II and Group III hazardous areas are classified
- Understand hazardous area classification drawings
- Understand equipment markings
- Have a sound understanding of sources of ignition
- Have a sound understanding of how:
 - Explosion protection techniques are used to make electrical equipment safe for use in hazardous areas.
 - To use the relevant Australian Standards to select, install, inspect, test and maintain hazardous area electrical equipment and wiring.
 - Hazardous area electrical equipment certified to other Standards is selected and assessed to ensure it offers the equivalent level of safety to the relevant Australian Standard.

Date of the Workshop: Tuesday 5 - Thursday 7 Dec 2017

Time: 7.30-8.00 am Registration

Workshop runs from 8.00 am to 5.00 pm

Venue: Parramatta City Motel

40-44 Great Western Highway (Cnr Marsden Street)

Parramatta, NSW 2150

Accommodation: Available at venue. A special rate applies when attending functions. Telephone 02 9635 7266 for a reservation.

CPD: This workshop provides 27 hours of Continuous Professional Development (CPD) to assist practicing professional engineers and technicians to develop and maintain their hazardous area technical skills and knowledge.

Recognition: *'Esso Training and Procedures Group has endorsed us as an approved provider of "Hazardous Area Wiring" refresher training for Esso maintenance and designated contractor technicians - Marlene Huty, EAPL training Coordinator*

Full Workshop Fee: \$1,080.00 + \$108.00 (GST) = \$1,188.00 per person.
Fee must be paid by start of the workshop.

Workshop fee includes:

- Comprehensive workshop notes
- Lunches
- Refreshments
- Workshop certificate

Early Bird Discount: Save an amazing **\$165.00** per person

Early bird fee: \$930.00 + \$93.00 (GST) = \$1,023.00 per person.

Fee must be paid by Monday 20 Nov 2017. Enrolment form and payment are required by the due date if discount is to apply.

Enrolment: Please complete and fax or email the enrolment form to secure your place on this workshop. Upon receipt of your enrolment an invoice will be forwarded to you for payment by MasterCard, Visa, cheque or EFT. Payment is required by commencement of the workshop.

Substitutes: If an enrolled person is unable to attend a substitute is allowed at no extra charge. Details must be faxed or emailed in advance.

Transfers: Enrolment transfers to another workshop are not permitted.

Cancellations: An \$82.50 fee applies to each cancelled workshop place received in writing by Monday 20 Nov 2017. Regrettably, no refunds are available after this date or if a trainee fails to attend and no substitute fills the place. The workshop folder will be posted to the enrolled trainee. A letter will be mailed following payment in full advising a 40% discount applies on one future 3-day workshop place for each cancelled or no show booking. This offer is valid for 12 months and no further discounts will apply.

Workshop Outline

1) Introduction

- Hazardous areas
- Who is responsible
- Statute laws and standards
- AS/NZS3000 non compliance issues
- Qualifications and competency

2) Hazardous Area Classification

- Ignition curves
- Zone classification - Group II
- Gas classification - equipment group
- Temperature classification - T Class
- Ambient temperature range of explosion protected equipment
- Area classification - Group II
- Combustible dusts - Group III

3) Ignition

- Sources of ignition
- Ignition triangle

4) Types of Protection

- Ex d - Flameproof
- Ex e - Increased Safety
- Ex n - Non-Incendive
- Ex p and Ex pD - Pressurization
- Ex m and Ex mD - Encapsulation
- Ex o - Oil Immersion
- Ex q - Powder/Sand Filling
- Ex s - Special Protection
- Ex v - Ventilation
- Ex tD and DIP - Dust Tight
- Ex i and Ex iD - Intrinsic Safety

5) Electrical Protection of Hazardous Area Equipment

- Isolation
- Locked in off position
- Overcurrent, internal short circuit and earth fault protection
- Protection of Intrinsically Safe equipment

6) Equipotential Bonding

7) Selection of Equipment

- List of Australian Standards
- AUS Ex, ANZEx and IECEx certified equipment
- Permitted electrical equipment
- Other standards certified equipment

8) Theory of Intrinsic Safety

- Zener diodes
- Zener barrier
- "Ex ia", "Ex ib" and "Ex ic" Zener barriers
- Earthing
- Isolation barrier theory

9) Certification

- Certification of electrical equipment
- Simple apparatus
- Energy storing Ex i equipment
- Cable parameters of Ex i equipment
- Matched power of Ex i equipment
- Matching Ex i equipment and Ex i barrier certificates

10) Installation of

- Ex d - Flameproof
- Ex e - Increased Safety
- Ex n - Non-Incendive
- Ex p and Ex pD - Pressurization
- Ex m and Ex mD - Encapsulation
- Ex o - Oil Immersion
- Ex q - Powder/Sand Filling
- Ex s - Special Protection
- Ex v - Ventilation
- Ex tD and DIP - Dust Tight
- Ex i and Ex iD - Intrinsic Safety
- Ex i - Insulation test

11) Inspection and Testing

- Inspection schedules
- Testing

12) Maintenance and Repair

13) Summary

14) Self Appraisal

- Appraisal questionnaire
- Appraisal questionnaire answers

15) Discussion

Delivery of Workshop

Workshops are presented using PowerPoint slides, a video clips, video tapes and real hazardous area electrical equipment.

The Workshop Author and Presenter

Colin Baker is a practising professional engineer, qualified workplace assessor (Certificate IV) and workplace trainer who has been involved with surge protection, intrinsic safety and hazardous area installations since 1970. He has worked for some of the major manufacturers of hazardous area instrumentation and has gained significant surge protection and hazardous area experience through designing, installing, commissioning and inspecting equipment and installations.

Colin has provided training and technical support to many chemical, petrochemical and public utility companies around the world and has written and presented numerous papers locally and internationally.

An H Class Licensed Electrical Inspector (Vic) and an Accredited Auditor (Qld), Colin is qualified to inspect hazardous area electrical installations under the 2009 Victoria Electricity Safety (Installation) Regulations and the 2002 Queensland Electrical Safety Regulation.

He sits on the joint Australian/New Zealand Standards committees MS-066 (was P-012) for hazardous area competency, EL-014 for equipment in explosive atmospheres and MS-011 for classification of hazardous areas. He sits on sub-committees EL-014-4 for standards on Intrinsic Safety, Encapsulation, Special Protection and Combustible Dusts; ME-026-02 for standards on industrial hazardous area trucks; EL-014-8 for standards on spray painting booths and has provided input for EL-014-9 for standards on gas detectors.

Explosion Protection Technology is a leading independent and Australian owned consulting and training organisations founded by Colin. The company specialising in the safety of hazardous area electrical installations based on the current Australian Standards including:

- Classifying hazardous areas
- Checking electrical installations located in hazardous areas
- Assisting clients to obtain certification of hazardous area electrical equipment
- Running hazardous area workshops

Enrolment Form

Hazardous Area Australian Standards Simplified 3-Day Workshop Tuesday 5 - Thursday 7 Dec 2017 Sydney (Parramatta)

Please print clearly when completing this form

Name: Mr / Ms / Dr

(First Name and Surname for Name Badge. If name is different for Certificate please print below.)

Job Title:

Company Name:

Address:

Postcode

Telephone:

Fax:

Email:

To secure your place in this workshop please complete this Enrolment Form and the Payment Form and fax to 03 9707 3110 or email sue@eptech.com.au

The payment can be made by credit card (MasterCard or Visa), cheque or EFT. A Tax Receipt will be forwarded to you upon receipt of payment.

Checklist: (Tick the box to ensure your booking is complete)

Remember if you book and pay by the due dates (see Page 3), you will receive substantial discounts off the full workshop price.

- Complete Enrolment Form
- Complete Payment Form
- Forward both completed forms by fax or email. Contact details below.

Payment Form

Please print clearly and fax or email this Payment Form together with your Enrolment Form and Purchase Order (if applicable).

Company Name: _____

Name of Person making payment: _____

Telephone: _____

Fax: _____

Email: _____

Date of Payment: _____

Amount being paid: _____

Workshop fees: Ensure we receive your Enrolment Form and your payment together.

By Monday 20 Nov 2017: \$930.00 + \$93.00 (GST) = \$1,023.00 per person

After Monday 20 Nov 2017: \$1,080.00 + \$108.00 (GST) = \$1,188.00 per person

The workshop fee must be paid by start of the workshop.

Please tick the method of payment.

EFT Bank: ANZ, 92 High Street, BERWICK, VICTORIA, 3806

BSB: 013 542 Account Number: 4094 25557

Account Name: Explosion Protection Technology Pty Ltd

Cheque Payable to: **Explosion Protection Technology Pty Ltd**

Post cheques to: Explosion Protection Technology Pty Ltd

PO Box 216, BERWICK, VICTORIA, 3806

Credit Card VISA MASTERCARD

Card Number: Expiry Date:

Name on card:

Credit Card CVV Number (last 3 digits of the number printed on signature strip):

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Signature of Authorisation:

Payment of Eptech Invoice Please pay invoice immediately upon receipt of your Eptech invoice.