ONE-DAY REFRESHER TRAINING
ELECTRICAL EQUIPMENT FOR PRACTICAL HAZARDOUS AREAS
FOR ENGINEERS AND TECHNICIANS
(WITHIN EUROPE)

YOU WILL LEARN HOW TO:

- Describe recent developments in Hazardous areas
- Comply with the Requirements of IEC 60079
- Work safely in Hazardous Areas
- Design and install safe working systems in hazardous areas
- Explain the terminology used with hazardous areas
- Assist in hazardous area classification
- Detail the types of apparatus that can be used in a given hazardous area
- Explain the types of equipment that can be used
- Detail system limitations in using hazardous areas protection
- Detail the key areas of the national codes of practice

WHO SHOULD ATTEND:

Anyone involved in design, specification, installation, commissioning, maintenance or documentation of industrial instrumentation, control and electrical systems, including:

- Electrical and instrument tradespersons
- Electrical engineers
- Instrumentation and control engineers
- Design engineers
- Instrumentation technicians
- Tradespersons working in Potentially Explosive Atmospheres (PEAs)

IDC TECHNOLOGIES

Technology Training that Works

The Workshop

This workshop provides you with an understanding of the hazards involved in using electrical equipment in potentially explosive atmospheres. This refresher workshop is suitable for you if you have a good understanding of the requirements for electrical equipment in hazardous areas (if not; contact us for further suggestions). It is based on the international IEC60079 series of standards that are now replacing many of the older national standards. Installation utilising Explosion-Protected (Ex) equipment can be expensive to design, install and operate. The wider approaches described in these standards can significantly reduce costs whilst maintaining plant safety.

The associated terminology and its correct use are explained throughout the workshop. It covers area classification, selection of explosion protected electrical apparatus as well as describing how protection is achieved and maintained in line with these international requirements. Standards require that engineering staff and their management are trained effectively and safely in hazardous areas and this workshop is designed to help fulfil that need.

The IEC 60079 Requirements

The International Standard IEC 60079.14 (Electrical Equipment for explosive atmospheres) requires that the design, construction, maintenance, testing and inspection of installations covered by these standards shall be carried out only by competent persons. The competent person's training must include instruction and experience on the various types of protection and installation practices, relevant rules and regulations and on the general principles of area classification.

It is a requirement of this standard that appropriate continuing training shall be undertaken on a regular basis; as the standards and regulations are constantly being modified and improved.

You will receive a IDC Technologies Certificate after successful completion of the training materials and training assignments. The instructor will assist you in successfully completing this one-day course.

In conclusion, it should be noted that no training course provider can confer any level of competence on an engineer, technician or tradesperson. The IECEx competence scheme is aimed at personal competence; but does not absolve the employer from responsibility in assessing competence in the workplace.

Practical Sessions

This is a practical, hands on workshop enabling you to work through practical exercises which reinforce the concepts discussed. The practical sessions will comprise exercises in which you will solve typical practical problems in groups. Videos of the key concepts will also be provided. There will be two assignments where you will test your knowledge gained during the one day workshop.

To gain full value from this workshop, please bring your laptop/notebook computer.

The Program

BACKGROUND TO HAZARDOUS AREAS
- Definition of hazardous area
- Flammability concepts
- Ignition sources
- Properties of gases, vapours, mists and dusts

CLASSIFICATION SYSTEMS
- Area classification into zones
- Equipment (apparatus) grouping

TYPES OF PROTECTION
- Definitions
- Principles
- Application of:
  - Flameproof: Ex d
  - Increased safety: Ex e
  - Pressurisation: Ex p
  - Intrinsic safety: Ex i
  - Non-incendive: Ex n
  - Oil filling: Ex o
  - Powder filling: Ex q
  - Encapsulation: Ex m
  - Special: Ex s

EARTHING AND BONDING
- Basic principles
- Earthing requirements
- Static protection
- Lightning protection
- Noise and interference control
- Requirements for IS systems
- System earthing approach

CODE OF PRACTICE FOR SELECTION AND INSTALLATION OF Ex EQUIPMENT
- Application of code of practice
- General requirements for all types of protection
- Documentation requirements and the verification dossier
- Cabling
- Overview of requirements for individual Ex protection types
- Dust installations overview

INSPECTION AND MAINTENANCE REQUIREMENTS
- Inspection and maintenance definitions
- Types of inspection
- Initial detailed pre-commissioning
- Inspection regimes and documentation
- Record keeping

BREAKDOWNS - FAULT FINDING AND REPAIRS OF Ex EQUIPMENT
- Planned maintenance
- Use of tools
- Procedures
- Safe methods
- Test equipment suitability

STANDARDS, CERTIFICATION, CERTIFICATES, MARKING AND APPROVALS
- Authorities
- Marking and identification
- Component, equipment and systems certification
- Systems descriptive documentation (for Ex i)

ATEX DIRECTIVES (EUROPE)
- Introduction and Explanation
- Non-electrical ignition – capable equipment protection
- ATEX marking
- DSEAR (UK) requirement summary

SUMMARY, OPEN FORUM AND CLOSING

NOTE: Hazardous Area Classification will only focus on zones and divisions. Details will be provided on where the IECEx standards can be found. In addition, the IEC 60079.10 is there for a detailed review; but is outside the scope of this intensive one day session. ATEX is not required in Australia and many other countries (but is naturally critical in Europe). Hence, ATEX compliance marking needs to be understood because it appears on many products. The ATEX Equipment Category equates to the equipment protection level concept and the significance of gas/dust use etc. In the UK many installations have equipment installed to BS5345 and that includes BS889 and 229 equipment. We also have other BS and EN's that require explanation in context so we believe that, whilst explaining the principles, the differences in application and standards will need to be included for the country in which the course is delivered (naturally related to the particular interests of the course participants).