



CompEx Fact Sheet No.5

CompEx Modules EX05 & EX06

Module Breakdown

EX05: The preparation & installation of Ex 't' apparatus in potentially explosive atmospheres formed by combustible dusts.

EX06: The maintenance and inspection of Ex 't', 'in potentially explosive atmospheres formed by combustible dusts.

Location

Exveritas Training Centre (Wrexham) or Exveritas and/or Jones Engineering Services Training Centre in Little Island, Cork.

Course Duration

3 days

Examined

Yes (practical and theoretical)

Certificate issue

Yes (Certificate of Core competency)¹

Target Audience

Practitioners; for those with a practical background the course may also be beneficial to maintenance engineers, project engineers wishing to gain a practical understanding of the subject.

Course Overview

The course is intended to give awareness to the candidate with regard to working in explosive atmospheres formed by combustible dusts. It covers basic elements of application design as well as a more detailed review of the specific requirement for equipment selection, installation, inspection and maintenance of electrical installations in explosive atmospheres. The course

¹ Certificate will list the assessments the candidate has been successful in. Full certification is issued provided the candidate can demonstrate base line competency through existing training and qualifications supplemented by an employer's letter of endorsement.



will give an understanding and awareness of the requirements of working safely in a potentially explosive atmosphere.

As the persons attending the course are predominately practitioners, the course covers elements of the installation requirements from a practical viewpoint. This includes but is not limited to electrical protection concepts, selection of equipment, cabling and cable glands etc. For the inspection module then a review of a typical electrical installation is also covered.

All presentation material is in Microsoft PowerPoint, whilst handouts are available in either PowerPoint (three slides per page) some of the presentations, are available in word documentation format. The format of the course notes are intended that they can be used as an aide-memoir tool in the future for the candidate.

Course delivery and all assessment material (instruction as well as exam papers) are currently in English.

Course Content

Health & Safety

Introduction to safe working in explosive atmospheres

Legal Aspects

EU Directives, how they are applied and their relationship to country specific legislation, e.g. ATEX Directives 94/9/EC and 99/92/EC, DSEAR (Dangerous substances and explosive atmosphere regulations), etc.

Explosive Atmospheres

Definition of the three groups, surface temperatures, cloud and layer temperatures, minimum ignition temperature (MIT) for combustible dusts,, explosive range, dust layers etc, surface temperatures for equipment located in a combustible dust atmosphere.

Area Classification

Understanding of the basic requirements of area classification, i.e. IEC 60079-10-2 combustible dusts, grading sources of release i.e. continuous, primary or secondary, zone types etc.

ATEX Directive 2014/34/EU (was 94/9/EC) (Equipment)

A detail review of what the equipment marking on different types of equipment means, e.g. ATEX and CENELEC marking schemes.

Equipment Protection Levels (EPL)

Overview of the IEC Equipment Protection Levels for gases and vapours e.g. Da, Db, Dc.

Protection Concepts

An overview of the concepts as applied to equipment for use in explosive atmospheres e.g.

Electrical concept - t, m, p, i;

Principals of how the electrical concepts work;

International (Ingress) Protection

Introduction and explanation of the terminology used for equipment with regard to international (ingress protection) reference IEC 60529 e.g. IP54 or IP67, which is the best and why.

Cables and Glands

Identifies what cable types and cable glands types are suitable for use with which protection concept. Detailed review of cables and cable gland such as A1, A2, CW, CX, E1 cable glands. Covers a practical element on the preparation and making off cable glands

Installation practices for equipment installed in gas/vapours environments

Review of the requirements of IEC 60079-14:2007 with regard to the installation of electrical equipment in explosive atmospheres formed by combustible dusts.

Inspection and Maintenance for equipment installed in gases/vapours

Review of the requirements of IEC 60079-17:2013 with regard to the inspection and maintenance electrical installations in explosive atmospheres.

Understanding of the additional importance of permit to work systems and safe isolation in relation to explosion protection.

Re-enforces attitudes and work processes in relation to working in a potentially explosive atmosphere.

Course Agenda

1. DSEAR - ATEX 1999/92/EC
2. Explosive atmospheres
3. Area Classification
4. Ingress Protection
5. ATEX 2014/34/EU Equipment and equipment marking.
6. Equipment Protection Levels.
7. Cables
8. Cable Glands
9. Installation Practices (Electrical concepts)
10. Inspection Practices and guidance.

Assessments

In order to assess a candidates practical skills candidates are required to undertake a series of practical assessments. These assessments are split into two separate sessions to cover modules EX05 to EX06. A time limit is set against each session as this is designed to simulate the pressures that can be encountered in the work place.

In addition to the above practical assessments a candidate's knowledge is assessed by undertaking a multi-choice examination.

On completion of the course certification will be awarded based on candidates passing both the practical and theoretical parts of the assessments. Candidates unsuccessful in any of the assessments undertaken will not be awarded a certificate.

Candidate Pre-Qualifications

For entry criteria please contact their underpinning knowledge and training as an “electro-technical” craftsperson.

Taken from the UK's Electricity at Work Regulations 1989 *“No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or, where appropriate, injury, unless he possesses such knowledge or experience, or is under such degree of supervision as may be appropriate having regard to the nature of the work.”*

There is a recognised route for this within the UK through apprenticeships, national vocational qualifications (NVQ), specific training courses, etc.



Candidates outside of the UK whether attending a course at a fixed centre course are encouraged to start some form of dialogue with Exveritas/Jones Engineering Services as early as possible in order to ensure that their local, national or company scheme meets the criteria set by CompEx. To aid in this process CompEx have introduced a letter of endorsement that must be completed and signed by the employer.



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