Fact Sheet No.4

CompEx Modules EX01R to EX04R for Gas and Vapour Environments

Module Breakdown

EX01R: The preparation & installation of Ex ‘d’, ‘n’, ‘e’ and ‘p’ equipment in potentially explosive atmospheres.

EX02R: The maintenance and inspection of Ex ‘d’, ‘n’, ‘e’ and ‘p’ equipment in potentially explosive atmospheres.

EX03R: The preparation & installation of Ex ‘i’ equipment in potentially explosive atmospheres.

EX04R: The maintenance and inspection of Ex ‘i’ equipment in potentially explosive atmospheres.

Location

ExVeritas Training Centres (Wrexham UK, Cork Ireland, BOLOGNA Italy)

Course Duration

3 days

Maximum Number

The maximum number of candidates per course is eight.

Examined

Yes (Theoretical only).

Certificate issue

Yes (Certificate of Core competency)

Audience

Personnel who have attended a previous CompEx Ex01-Ex04 Practitioners course.

Course Overview

The course is intended ensure that the candidate working in explosive atmospheres formed by gases, vapours & mists are aware of any changes that may have occurred since they completed the original Ex01-Ex04 CompEx course. It covers updates (if applicable) for equipment selection, installation, inspection and maintenance of electrical installations in explosive atmospheres. The course covers elements of the installation requirements from a practitioner's viewpoint. This includes but 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 and intrinsically safe installation is also covered.

All presentation material is in Microsoft PowerPoint, whilst electronic (hard copies are available at cost) hand-outs 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**.

English Language Proficiency Levels.

It is expected that attendees to CompEx courses have a suitable level of the English language associated with a technical discipline, sometimes identified as "Technical English". As English language learners acquire English as a second language, they progress through five language proficiency levels:

1. beginning,
2. early intermediate,
3. intermediate,
4. early advanced, and
5. advanced.

It is recommended that the minimum acceptable level for the CompEx Ex01R-Ex04R course will be "early advanced" and higher.

Course Agenda

Explosive Atmospheres

Introduction into the subject including definition of the three groups, gas/vapour or dust subdivisions, surface temperatures, temperature classes, density of gases and vapours, flammable range and explosive range ambient temperatures, minimum Ignition Energy (MIE), Maximum Experimental Safe Gaps (MESG), etc.

Area Classification

A review of the basic requirements of area classification, i.e. IEC 60079-10-1 gases and vapours grading sources of release i.e. continuous, primary or secondary, zone types etc.

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

A review of what the equipment marking on different types of equipment means: e.g. ATEX and IEC marking schemes.

Equipment Protection Levels (EPL)

Overview of the IEC Equipment Protection Levels for explosive atmospheres e.g. Ga, Gb, Gc

Protection Concepts

An overview of the concepts as applied to equipment for use in explosive atmospheres e.g.
Electrical concepts - d, e, m, etc;
Principals of how the electrical concepts works;
Intrinsic safety;
Earthing Systems

International (Ingress) Protection

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

Cables and Glands

A review of cables and cable gland such as A1, A2, CW, CX , E1 cable glands, barrier compound glands etc.

Installation practices for equipment installed in gas/vapours environments

Review of the requirements latest edition of IEC 60079-14 with regard to the installation of both electrical and intrinsically safe installations in explosive atmospheres.

Inspection and Maintenance for equipment installed in gases/vapours

Review of the requirements of latest edition of IEC 60079-17 with regard to the inspection and maintenance of electrical and intrinsically safe installations in explosive atmospheres.

Course Agenda

1. Explosive atmospheres
2. Area Classification
3. Ingress Protection
4. ATEX 94/9/EC- Equipment and equipment marking.
5. Equipment Protection Levels.
6. Cables
7. Cable Glands
8. Installation Practices (Electrical and I.S. concepts)
9. Inspection Practices and guidance.

Assessments

Candidates are required to undertake a series of theoretical and practical assessments. These assessments are divided into four to cover modules EX01R to EX04R. A time limit is set against each assessment 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 all theoretical and practical parts of the assessments.

Candidate Pre-Qualifications

The Ex01R-Ex04R refresher course must be taken within five years of taking the original Ex01-Ex04 course. If the frequency between the Ex01-Ex04 and the refresher course is greater than five years, then the full five-day Ex01-Ex04 must be undertaken. Evidence of attendance to a previous Ex01-Ex04 course will be requested at the registration stage, if evidence cannot be provided then attendance to the Ex01R and Ex04R course will be denied.

EXVERITAS LTD

Units 15-18 Abenbury Way

Wrexham Industrial Estate

Wrexham, UK

LL13 9UZ

T: 0845 862 2447

F: 0845 862 2426

https://www.exveritas.com/compex-refresher-courses/