



Australian Government

UEEHA0017 Classify areas where a combustible dust hazard may arise

Release: 1

UEEHA0017 Classify areas where a combustible dust hazard may arise

Modification History

Release 1. This is the first release of this unit of competency in the Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to classify areas where explosive dust atmospheres and combustible dust layers may arise. It includes: applying area classification recommendations from relevant codes and standards to meet objectives, gathering and analysing data relative to potential explosion hazards, including characteristics of the hazardous materials; identifying and characterising sources of release; assessing dispersion and ventilation factors; considering housekeeping level; and determining the extent of the hazard and documenting findings.

Area classification should be carried out by those who understand the relevance and significance of properties of flammable materials (dust), and those who are familiar with the process and the equipment (refer AS/NZS60079.10.2).

This unit applies to personnel involved in the front-end engineering and design (FEED) scopes for facilities that may contain explosive dust atmospheres and combustible dust layers, as well as those persons involved in the ongoing operations, maintenance and/or modification of these same facilities, during the facility life cycle. It is appropriate for people who need to meet their responsibilities as required by AS/NZS3000:2018.

Site-specific work permits may be required to work in a classified hazardous area. In addition, other permits may be required, such as confined space and to operate specific pieces of equipment such as elevated work platforms in various jurisdictions. The classification process assists in the implementation of these safe systems of work.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

This unit is adopted from clause 2.16 of AS/NZS 4761.1:2018 Competencies for working with electrical equipment for hazardous areas (EEHA). There may be differences between the content of this unit and AS/NZS 4761.1:2018, so the Standard must be checked to ensure compliance with it. Clause 2.16 of AS/NZS 4761.1:2018 includes the following precondition for assessment:

- “A candidate seeking assessment in this unit shall have been deemed competent to gather and analyse technical data in a relevant engineering or scientific discipline at AQF level 7 or NZQF level 7 (BD) or equivalent.”

Pre-requisite Unit

There are no prerequisite units

Competency Field

Hazards

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Determine the combustible characteristics of the material and extent of explosion hazard

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Knowledge of the factors considered in classification of combustible dust atmospheres is applied
- 1.2** Consideration is given to reducing the extent of explosion hazards by the application of hierarchy of risk controls
- 1.3** Dust combustibility is determined in consultation with process specialists and relevant sources of information and, where applicable, obtaining confirmation by commissioning laboratory tests
- 1.4** Material characteristics such as particle size, moisture content, cloud and layer minimum ignition temperature and electrical resistivity, are obtained from process specialists and relevant sources of information and, where applicable, laboratory tests
- 1.5** Dust containment and sources of release, including likely formation of dust layers are identified from process personnel with operational and maintenance experience
- 1.6** The probability that dust will be released and form an

		explosive dust atmosphere in an installation is determined from possible causes and characteristics of release taking into account ventilation and dust extraction
2	Assign the type and extent of zones	2.1 Sources and grades of release and dust deposits in layering that may occur in the area are established from collected data and consultation with process specialists 2.2 Area classification zones are attributed according to the frequency and duration of the occurrence of explosive dust atmospheres 2.3 The extent of each zone is determined in accordance with the relevant standard and in consideration of examples of locations that may give rise to a zone 2.4 The nature of housekeeping is taken into account
3	Document classification and delineation of zones	3.1 Area classification processes and procedures are documented as required by the relevant standards including the level of housekeeping on which the classification is based 3.2 Classification documentation records are provided for future reference and for incorporation in the verification dossier

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Electrotechnology Training Package Companion Volume Implementation Guide.

Essential operating conditions include:

- existing, new or proposed site and engineering office associated with the activities where a combustible dust hazard may arise
- inspection access to site processes and operation personnel
- relevant plant design specifications and drawings, process line diagrams, relevant material data and

technical standards

Unit Mapping Information

This is a new unit.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEEHA0017 Classify areas where a combustible dust hazard may arise

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- determining the combustible characteristics of the material and extent of explosion hazard including:
 - determining dust combustibility in consultation with process specialists and obtaining confirmation from laboratory tests and other sources
 - obtaining relevant material characteristics from process specialists and, where applicable, laboratory tests and other sources
 - identifying dust containment and sources of release, including likely formation of dust layers from process diagrams and plant drawings
 - determining the probability that dust will be released and form an explosive dust atmosphere in an installation from possible causes and the characteristics of release
 - considering the application hierarchy of risk controls to reducing the extent of explosion hazards
- assigning the type and extent of zones including:
 - establishing the sources and grades of release and dust deposits in layering that may occur in the area from collected data and in consultation with process specialists and site personnel
 - attributing area classification zones according to the frequency and duration of the occurrence of explosive dust atmospheres and the extent of each zone
 - determining the extent of each zone in accordance with the relevant standard
 - consulting with plant management to develop strict housekeeping arrangements to negate the hazards posed by the formation of dust layers
- documenting classification and delineation of zones including:
 - documenting the area classification processes and procedures as required by the relevant standards
 - providing classification documentation records for future reference and for incorporation in the verification dossier.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- properties of combustible dusts including:
 - material characteristic (of a given process)
 - dust groups
- dust containment process study including:
 - determining the frequency of dust clouds for:
 - normal operation
 - abnormal operation
 - start-up
 - shut-down
 - documenting results
- sources and characteristics of release including:
 - plant and process design
 - examples of locations that may give rise to a given zone cited in the relevant standard
 - factors affecting:
 - formation of dust atmosphere outside equipment
 - extent of dispersion of dust to a point where dust is not hazardous
 - assigning grades of release
- attributing zones including:
 - frequency and duration of the occurrence of explosive dust atmospheres forming
 - factors affecting the extent of zones
- dust layer hazards including:
 - how dust layers form
 - behaviour of dust layers
 - dust layers as an ignition source
 - negating risk of dust layering
- documentation requirements including:
 - all relevant information and references
 - results material combustibility and process studies
 - marked up drawings data sheets and table
 - justifications for decisions made.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory

requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate tools and testing devices and PPE currently used in industry
- the following equipment and artefacts in relation to several different processes:
 - plant specification and design including:
 - plan and elevation drawings
 - details of plant design and operation
 - climatic and topographic information of the site
 - verification dossier for the site
 - process specification including:
 - process line diagram
 - process specification
 - known material data
 - relevant standards and codes.

Links

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