In the UK the 99/92/EC ATEX workplace Directive will be implemented as The Dangerous Substances and Explosive Atmospheres (DSEAR) Regulations 2002. For electronic and electrical apparatus potentially able to generate interfering emissions or exhibit an undue sensitivity to interference, it must comply with the 94/9/EC ATEX (Equipment) Directive. The Directives have been put in place in order to remove artificial trade barriers within the European Union previously caused by individual countries' national standards and regulations. The ATEX Equipment Directive in full, and EC Commission guidance on the Directive, may be found on the web site of the European Commission at http://europa.eu.int/comm/enterprise/atex/index.htm. It lists a set of obligations and safety measures for employers, requiring the adoption of a coherent risk management approach.

Explosive Atmospheres 94/9/EC ATEX (Equipment) Directive

The Directive covers both Group I and Group II activities, on-shore and offshore within the EU, and aims to prevent risk to life and health from the presence of explosive atmospheres. Compliance of products to the ATEX Equipment Directive, through conformity assessment, takes a modular approach. The objective of the conformity assessment is to ensure that the essential safety requirements of the Directive are met. Compliant equipment may bear the CE mark.

Type Examination Certificate. To comply, the equipment or system must meet the Essential Health and Safety Requirements (EHSRs) listed in the Directive. Harmonised EU standards have been adopted by CENELEC and this information may be found in the EN standards series. The EN standards are adopted by reference in the ATEX Equipment Directive.

Requirements for equipment in service before 30 June 2003 may continue to be used after this date if it has been risk assessed and proved to be safe. Equipment in service after 30 June 2003 must be verified as compliant with the ATEX Directives. The key to understanding the Directives is to consider the workplace and equipment groupings. The chart below shows the grouping requirements (Group & Category) and the equipment protection categories. To understand the requirements it is essential to know the group and category of equipment and the required protection if there is an explosive atmosphere in the workplace. The classification of zones is based on the possibility of an explosive atmosphere arising and is divided into 3 categories.

CLASSIFICATION OF HAZARDOUS AREAS

The diagram shows hazardous areas, zones and their respective Group and Category. The requirements for Group & Category and equipment protection are determined by the area classification. The example below shows an explosive atmosphere in Zone 1. The appropriate Group and Category and equipment protection must be determined by the area classification in order to ensure the correct equipment is selected.

The ATEX Equipment Directive specifies that equipment should be marked with the CE mark. The CE mark denotes that all relevant EU Directives, standards, and EC monitoring have been complied with. The CE mark is applied at the factory by the manufacturer, the 'CE' mark may be applied and the product placed on the market.

This diagram shows how hazardous area zones may occur in typical circumstances. Examples of areas and equipment are being supplemented by further standards for specific applications. The safe use of electrical apparatus in explosive atmospheres is conditional upon the technical suitability of the apparatus. This diagram is a guide to assist in the selection of the correct apparatus for the required application.

The production quality stage of the conformity assessment procedures ensure continued product compliance. Typically a manufacturer should have a certified ISO 9000 quality management system and appropriate technical expertise. Committee work on standards and the requirements of the Directives is on-going and is expected to provide further harmonised standards for specific applications.

CLASSIFICATION OF EXPLOSIVE ATOMSPHERES

The ATEX Equipment Directive contains a series of classification tables which determine the group and category of equipment necessary for use in potentially explosive environments. Hazardous area zones are divided into 3 categories: Zones 0, 1, and 2, and further into sub-zones 20, 21, and 22. Ex equipment is then classified according to the zone and sub-zone classification. For example, Zone 2 is thecategory for explosive gases, Zone 1 is the category for explosive dusts.

Example of Hazardous Area Zones

This diagram shows hazardous areas, zones and their respective Group and Category. The requirements for Group & Category and equipment protection are determined by the area classification. The example below shows an explosive atmosphere in Zone 1. The appropriate Group and Category and equipment protection must be determined by the area classification in order to ensure the correct equipment is selected.

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