

# ***SAFETY PROCEDURE***

## **SAFETY MANAGEMENT PROCEDURE FOR HAZARDOUS AREAS**

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## 1. APPROVAL

[illegible]

## 2. PURPOSE

The purpose of this procedure is to define the strategy to safely manage and work in hazardous areas. This procedure details the objectives and processes to enable compliance with state and national standards to safely manage and work in hazardous areas, whilst ensuring the operational needs are met.

## 3. SCOPE

This procedure applies to the use of electrical and mechanical equipment in potentially flammable and explosive atmospheres and the specific requirements for managing potentially flammable and explosive atmospheres, including installation and equipment, performing operational activities and maintenance.

## 4. TERMS AND DEFINITIONS

Term	Definition
<b>Classification of Hazardous Areas</b>	Is a method of analysing and classifying the environment where explosive atmospheres are present or is expected to be present. It allows the correct selection of equipment, particularly electrical equipment, to be installed or used in that environment. Classification is actioned in the following way: The type of atmosphere is defined (i.e. gas or dust or a combination of gases and dusts). The frequency of an explosive atmosphere actually occurring is assessed by determining release frequency and duration (i.e. continuous, primary or secondary groups of release).
<b>Combustible Liquid</b>	Any liquid, other than a flammable liquid (which is a dangerous good), that has a flash point, and has a fire point less than its boiling point.
<b>Combustible Dust</b>	Are finely divided solid particles, 500µm or less in nominal size, which may be suspended in air, may settle out of the atmosphere under their own weight, can burn or glow in air and may form explosive mixtures with air at atmospheric pressure and temperature.
<b>Exposure</b>	Is to be subjected to a hazardous area.
<b>Explosive Dust Atmosphere</b>	Is a mixture with air under atmospheric conditions of flammable substances in the form of dust, fibres or flyings in which, after ignition, combustion spreads throughout the unconsumed mixture.

Term	Definition
<b>Explosive Gas Atmosphere</b>	Is the mixture with air under atmospheric conditions with flammable substances in the form of gas or vapour, which after ignition permits self-sustaining flame propagation.
<b>Flammable Range</b>	Is the range of flammable gas or vapour (percentage by volume) in the air of which an explosion can occur upon ignition. Expressed by lower explosive level (LEL) and upper explosive level (UEL).
<b>Hazardous Atmosphere</b>	<p>Is an atmosphere in which:</p> <ul style="list-style-type: none"> <li>• The atmosphere does not have a safe oxygen level.</li> <li>• The concentration of oxygen in the atmosphere increases the fire risk.</li> <li>• The concentration of flammable gas, vapour, mist or fumes exceeds 5% of the LEL for the gas, vapour, mist or fumes.</li> </ul> <p>A hazardous chemical in the form of a gas, vapour or dust is present in a quantity and concentration that could result in a hazardous area.</p>
<b>Ignition Sources</b>	Are a source of energy, which comprise of naked flames, sparks or surfaces, which are sufficient to ignite an explosive atmosphere.
<b>Lower Explosive Limit (LEL)</b>	Is the concentration of flammable gas, vapour or mist in air, below which an explosive gas atmosphere will not be formed.
<b>Safe Oxygen Levels</b>	Is the minimum oxygen content in the air of 19.5% by volume under normal atmospheric pressure, to a maximum oxygen content of 23.5% by volume under normal atmospheric pressure.
<b>Upper Explosive Limit (UEL)</b>	Is the concentration of flammable gas, vapour or mist in air above which an explosive gas atmosphere will not be formed.
<b>Hazardous Areas</b>	<p>Hazardous areas are classified into 'zones' based on the frequency of the occurrence and duration of an explosive gas atmosphere as follows:</p> <ul style="list-style-type: none"> <li>• <b>Zone 0</b> – is an area in which an explosive gas atmosphere is present continuously or is present for long periods (more than 1000 hours per year). Examples may include the vapour space of vented vessels, vapour space of vented storage tanks and immediately adjacent to a continuous source of release.</li> <li>• <b>Zone 1</b> – is an area in which an explosive gas atmosphere is likely to occur in normal operation (between 10 and 1000 hours per year). Examples may include where</li> </ul>