

## Australian/New Zealand Standard™

### Explosive atmospheres

#### **Part 10.1: Classification of areas— Explosive gas atmospheres (IEC 60079-10-1, Ed.1.0 (2008) MOD)**



## ZA.6.5 Heavier-than-air flammable gases—Other installations

### ZA.6.5.1 Scope

This Clause includes areas in which flammable gases, having a density greater than that of air at MSC, are produced, processed, handled, stored or used.

Cryogenic (refrigerated) storage tanks operating at predominantly atmospheric pressure are treated as flammable liquid tanks.

The classifications detailed in Clause ZA.6.5.2 are not representative examples of the storage and use of flammable gases for—

- (a) cylinders having an aggregate capacity not exceeding 25 L when in use; or
- (b) disposable containers stored in an adequately ventilated area.

NOTE 1 – Under some circumstances, particularly in confined spaces, caution should also be taken with small quantities of flammable gases as these may give rise to hazardous areas.

NOTE 2 – The interior of liquefied flammable gas tanks or vessels in service, is normally a non-hazardous zone (NH), due the saturated hydrocarbon atmosphere at moderate pressures being normally above the UEL.

### ZA.6.5.2 Classification of hazardous areas

#### ZA.6.5.2.1 Pressure storage tank, other than buried or mounded tanks

Within space from ground level to 1 m vertically above the tank shell and laterally to a distance as shown in Table ZA.6.5.2.1 ..... **Zone 2**

A1

**Table ZA.6.5.2.1**

Capacity of tank kL	Lateral distance m
0.5	1.5
1.0	2
2.0	4
5.0	5
8.0	6
10.0	7
15.0	8
20.0	9
≥50.0	10

NOTE 1 – The distances specified may be interpolated for intermediate tank capacities.

NOTE 2 – Capacities over 50 kL are subject to the approval of the relevant authority.

#### ZA.6.5.2.2 Tank filling or discharge connections

Classification is as follows:

- (a) *Dry hose, contents discharged to atmosphere*—Within an area 6 m radius around the connection and 3 m above the ground ..... **Zone 1**
- (b) *Dry hose, contents bled away to a safe place before uncoupling*—
  - (i) within an area 1.5 m in all directions around the connection ..... **Zone 1**
  - (ii) within an area 6 m radius around the connection and 3 m above the ground ..... **Zone 2**

- (c) *Wet hose, limited loss coupling—*
- (i) within an area 1.5 m radius around the connection ..... **Zone 1**
  - (ii) within an area 6 m radius around the connection and 3 m above the ground ..... **Zone 2**

#### **ZA.6.5.2.3 Gauging (ullage) vent valve on tank**

The area within 3 m in all directions from vent valve ..... **Zone 1**

NOTE – Where storage tank is less than 1 kL capacity, all distances for this item may be reduced to those required under Clause ZA.6.5.2.1.

#### **ZA.6.5.2.4 Tank safety relief valves**

The area contained by a cylinder having a diameter of 1.5 m, with its axis on the line of discharge and extending from 1.5 m behind the point of discharge to the distance in front of the point of discharge of 3 m ..... **Zone 1**

#### **ZA.6.5.2.5 Hydrostatic relief valves**

The area contained by a sphere having a diameter of 1 m centred on the point of discharge ..... **Zone 2**

#### **ZA.6.5.2.6 First stage regulator in connection with tank**

Within area to 0.5 m above and 1 m laterally from regulator ..... **Zone 2**

#### **ZA.6.5.2.7 Valve, flange or threaded connection**

Classification is as follows:

- (a) *In liquefied gas piping, in inadequately ventilated locations—*  
Entire room or enclosure ..... **Zone 2**
- (b) *For valves and fittings in liquefied gas piping, in adequately ventilated locations—*  
Within 1.5 m in all directions from valve, flange or threaded connection ..... **Zone 2**
- (c) *Gas piping with flanged or threaded joints, meters or regulators and valves other than relief valves—*Within a sphere extending from the potential source of release, distances as shown in Table ZA.6.5.2.7 ..... **Zone 2**

**Table ZA.6.5.2.7**

Operating pressure	Radius from point of potential leakage
kPa	m
≤ 100	0.25
> 100 ≤ 700	0.50
> 700 ≤ 2000	1.00
> 2000 ≤ 5000	1.50
> 5000	2.00

- (d) *In vapour piping between first stage regulator and tank—*Within space to 0.5 m above and 1.5 m laterally from valve, flange or threaded connection ..... **Zone 2**
- (e) *Piping between first stage regulator and appliance—*
  - (i) installations in Australia complying with AS 5601 and AS/NZS 1596 and in New Zealand complying with NZS 5261 or other acceptable Standard ..... **NH**
  - (ii) installations not complying with the code or Standards given in Item (i), classification is the same as Item (c) ..... **Zone 2**