

**EUROPEAN COMMUNITY REGULATION No 2037/2000
ON OZONE DEPLETING SUBSTANCES**

Summary

This new regulation became effective from 01 Oct 2000 –and is directly applicable in law in all EC countries. It states:

All precautionary measures practicable shall be taken to prevent and minimise leakages of refrigerants from refrigeration and air-conditioning systems.

How do you comply with this new law?

Practicable measures are detailed in the **new European Standard EN378 - Refrigerating Systems & Heat Pumps-Safety & Environmental Requirements**. This new European **replaces all national standards** by latest December 2000. Compliance with the Standard should satisfy the requirements of the Regulation 2037/2000.

EN378

The operating scope of the standard specifies the installation of fixed refrigerant leak detectors in both existing and new system of all sizes with certain exceptions for small unit and self-contained systems. It specifies: Refrigerant detectors are intended to give early warning of a dangerous concentration of refrigerant vapour in the surrounding air of a refrigerating system and of pollution of the environment

The location of the detectors shall be chosen in relation to the refrigerant, and the key points include:-

- In special machinery rooms the refrigerant concentration shall be monitored at one or more points
- In special machinery rooms with an entirely or partly underground construction or other special machinery rooms where natural ventilation is not possible e.g. mines and ships, when no personnel are present, a refrigerant detector shall automatically control emergency ventilation.
- Some of the group L2 refrigerants and all group L3 refrigerants are flammable, in most cases all electrical equipment in any room in which any part of the refrigerating system is installed shall comply with the requirements for hazardous areas(>2.5Kg L2, > 25Kg flammable L3 except ammonia)
- In the case of an ammonia system (> 10Kg) ventilation and switches shall be provided, both activated by ammonia detectors, to disconnect all electrical circuits entering the room (except low voltage alarm circuits. At the low alarm detection level(380 mg/m³, 500 PPM), an alarm and mechanical ventilation shall be activated. At the high alarm detection level (22 880 mg/m³,30 000 PPM) the refrigerating system shall automatically be stopped.
- A refrigerant detector for a group L3 refrigerant shall function at a level not exceeding 25% of the lower limit or concentration of the flammability range in air for the refrigerant (see EN378-1) and activate an alarm.
- When a refrigerant concentration exceeds its preset limit, detectors shall operate a supervised and/or audible alarm so that appropriate emergency action may be initiated by the occupants or trained personnel.
- In Category A occupancy area, with refrigeration or air conditioning, special preventative measures must be taken to ensure safety where the system has the potential to exceed the short-term exposure levels by a sudden major release of refrigerant. The provision of leak detectors would satisfy this requirement in that by giving an alarm to occupants in the space excessive exposure may be avoided or by activating suitable isolation valves they can ensure the concentration will not rise above the 'practical limit'.
- Detectors used to ensure safety shall have their sensors located in such positions that they monitor the concentration at heights of the occupants of a human occupied space taking into account the characteristics of the refrigerant used e.g. at less than bed height with heavier than air gases in an hotel room. EN378 states that a ceiling void is regarded as part of the human occupied space unless it is airtight, therefore monitoring in ceiling voids would not be acceptable. Detectors shall operate a supervised and/or audible alarm so that appropriate action may be taken by the occupants or initiated by trained personnel and/or shall close the fractured refrigerant line by suitable valves to limit the rise in concentration within the human occupied space.
- If a refrigerating system with either a group L1 refrigerant or an odourless group L2 refrigerant is equipped with refrigerant detectors then they shall function at a concentration not exceeding the practical limits of refrigerant in air as indicated in EN378-1.
- If refrigeration equipment is located on a roof care shall be taken that no refrigerant leaking can enter the building or otherwise endanger people. Comment -Refrigerant leak detectors should meet this requirement