



Changes to guidelines for oxygen monitoring in Italy

[New guidelines](#) for the storage of nitrogen have been established in Italy which highlight changes to oxygen monitoring procedures.

These guidelines are approved by the Italian National Transplant Centre, which is a technical body of the Ministry of Health, chaired by the President of the Italian National Institute of Health.

They apply to the storage of nitrogen in both a liquid and gaseous state for medical purposes such as maintaining biological samples at a cryogenic temperature.

Nitrogen is an inert gas which is odourless and colourless, making it undetectable. It does not support human breathing and if its concentration in the atmosphere increases, it will displace oxygen.

The new guidelines state that a room containing nitrogen must have sensors that continuously monitor the concentration of oxygen inside the room. These sensors must not be placed any higher than 1.5 metres from the ground, and it is mandatory that they are not higher than the human breathing system (mouth and nose).

These sensors must be located in less ventilated areas, in the path of moving personnel and away from steam sources and aspiration systems.

A detection unit must be displayed outside the room, in the immediate vicinity of the entrance, which displays the values of oxygen concentration detected by one or more sensors. This allows personnel to check the level of oxygen concentration in a safe area away from the storage of nitrogen.

The number of sensors required is defined by the configuration and volume of the room and also the type and specification of the sensor.

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It is recommended to install a sensor every 50m³. The sensors must comply with current legislation on the matter and undergo periodic maintenance according to the specification of the manufacturer.

The oxygen monitoring system must have at least two alarm thresholds, one at a concentration of oxygen at 19% and the other at 18%.

If the concentration of oxygen falls below these thresholds the system must trigger a visual and an acoustic alarm both inside and outside the room.

The alarm must trigger the ventilation system at 19% and close all the automatic supply of gas and liquid nitrogen at 18%.

The ventilation system must be able to be started manually by the operator, and an alarm must be sent (at least for the second threshold) to a 24/7 operation unit such as a control centre to alert personnel to warn the emergency health unit and those responsible for the room storing nitrogen.

The visual and acoustic alarm systems, the sensors and the ventilation system must also be checked periodically.

To cater for these guidelines we can offer an [O2NE+](#) which is an oxygen depletion monitor ideal for use where there is the threat of a potential leak or build-up of inert gas such as nitrogen, argon and helium.

The sensor provides two audio visual alarms which are pre-set at 19.5% & 18% (but can be adjusted) to warn personnel of a potential leak which may cause the O₂ levels to deplete to a dangerous level.

The O2NE+ only provides one visual display, so it is recommended that the unit is wall mounted inside the room and its 4-20mA signal connected to the one channel version of the [LC Commercial](#) panel outside the room, which has a display, alarms and user interface.

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