

Oxygen Depletion in Pharmaceutical Applications

Protect your personnel with the right solution



Oxygen (O₂) Depletion Risks in Pharmaceutical Processing

Oxygen depletion means that something has reduced the ambient Oxygen content in air below 20.9%. Generally this is caused by inert gases such as Nitrogen, Argon, Neon, Helium, and others.

In pharmaceutical applications the risk comes from one gas alone – Nitrogen (N₂).

N₂ is used in two states – Liquid or Gaseous. Liquid N₂ when contained and used correctly is safe to use as long as the correct procedures are followed. But things can go wrong, and if spilt due to incorrect handling then it will boil back into a gas.

The volume of liquid N₂ is 750 times less than the gaseous state, so when it converts suddenly from liquid to gas it pushes the ambient air away. Suddenly the O₂ level is reduced which can cause asphyxiation.

Another risk is when piped gaseous N₂ is used in a lab or manufacturing location. A slow leak from piped nitrogen can gradually dilute the air and reduce the O₂ level, this can cause people to suffer physiological effects.

Solving the O₂ Depletion Challenge

It's very common for pharma manufacturing plants to grow over time, and different O₂ depletion monitors from various manufacturers are added 'as and when' required. None of them can talk to a central controller and there may be no way to know where an incident has occurred on the site. Our complete solution changes this:

- Rosemount 928 *WirelessHART*[®] gas monitor with a field replaceable electrochemical O₂ sensor
- DeltaV process control system
- Gateway

For more information, visit [Emerson.com/Rosemount](https://www.emerson.com/Rosemount) or contact your local Emerson Sales Representative



Our industry leading solution can be installed quickly and efficiently.



Safety Solution for Oxygen Depletion in Pharmaceutical Applications

The Emerson Solution

Rosemount™ 928 Wireless Gas Monitor



The Rosemount 928 Wireless Gas Monitor detects oxygen depletion (O₂) in remote applications previously too challenging and costly to monitor. The system enhances worker safety in a quick and efficient manner:

- Early gas leak detection
- Simple integration with *WirelessHART* technology
- Eliminates the need for expensive cable and cable infrastructure.

Emerson™ Wireless 1410S Gateway



The Emerson Wireless 1410S Gateway is the newest, most versatile wireless networking solution from the leader in wireless infrastructure. Increased network capacity allows users to strengthen or add to *WirelessHART* networks seamlessly while connecting with host systems and data applications. Customizable networks and flexible installation allow users to create a wireless field network to fit the needs of even the most challenging applications and site requirements.

DeltaV™ Distributed Control System (DCS)



The DeltaV Distributed Control System (DCS) is an easy-to-use automation system that simplifies operational complexity and lowers project risk. The state-of-the-art suite of products and services increases plant performance with intelligent control that is easy to operate and maintain.

The DeltaV DCS adapts to meet your needs, scaling easily without adding complexity. *WirelessHART* is inherently integrated to the DeltaV system and extends to batch, advanced control, change management, engineering tools, diagnostics, and more.

Leverage Global Service Capabilities From a Partner You Can Trust

Lifecycle Services

The expertise, technology, and processes to operate safely, improve reliability, and optimize your plant performance.

Educational Services

A wide range of education services to help you train new hires, improve your current workforce skills, and adapt to new technologies.

The Emerson logo is a trademark and service mark of Emerson Electric Co. Brand logotype are registered trademarks of one of the Emerson family of companies. All other marks are the property of their respective owners. ©2022 Emerson Electric Co. All rights reserved.

00807-0200-4410 Rev AA

Consider It Solved.

Emerson Automation Solutions supports you with innovative technologies and expertise to address your toughest challenges.

For more information, visit [Emerson.com/Rosemount](https://www.emerson.com/Rosemount)

