

Tank Inerting

Your benefits :

- Assessment of inerting gas purity and consumption
- Control of pressure in tank headspace
- Audit with oxygen content analysis
- Up to 40% capex savings vs. single-tank solutions
- Safe, reliable inerting solution



The Industry Challenge

Fire and explosion prevention is a serious challenge when handling flammable products. Minimizing risk requires avoiding energy accumulation and removing air as a combustive oxygen source. Industries largely resort to oxygen removal by using inert gas protection.

In addition to fire-safety concerns, air can also negatively affect products that are sensitive to oxygen, moisture or other contaminants. Therefore, keeping air out of tanks, vessels and packaging is critical at all levels of storage and production.

The Air Liquide solution

A comprehensive gas solution designed for and adapted to your specific needs, Air Liquide's offer for Tank Inerting combines the best of our gases, application technologies and expert support.

The Air Liquide's **Tank Inerting offer** is a packaged offer that includes installation design and process control, optimized inert gas supply, safety training on anoxia prevention, startup and commissioning.

If you are looking to implement a safe, reliable, high-quality inerting solution, the Air Liquide's **Tank Inerting offer** brings you a truly effective option.

Your advantages

• Safety and reliability

All equipment can be used in most types of installations while complying with technical requirements and safety standards (NFPA¹, API², ATEX³). Our on-site nitrogen supply option includes a backup storage tank for total reliability.

• Customization

We factor in vessel size, number and contents, as well as emptying rates, and production schedules to create a customized solution. Our engineers can help you define a solution based on the degradation and flammability data you provide for your specific products.

• Cost efficiency

To boost savings and decrease flow rates, we conduct a thorough audit of your system. We help you improve yields by limiting damages caused by moisture, oxygen content and air impurities. Your equipment is also protected from the negative effects of oxidation. Our service option offers the ability to optimize nitrogen consumption and to track other process variables in order to minimize process upsets and optimize costs.

¹ National Fire Protection Association

² American Petroleum Institute

³ The European ATEX Directive 2014/34/EU covers equipment and protective systems intended for use in potentially explosive atmospheres

⁴ Minimum Oxygen Concentration

Core features

The **Tank Inerting Offer** consists of :

- Inert gas supply

| Three gases | Three grades |
|---|--|
| - Nitrogen (bulk or onsite generation) | - Industrial-quality gases |
| - Argon (bulk) for sensitive applications | - PHARGALIS™ gases for compliance with Good Manufacturing and Distribution Practices for pharmaceutical excipients |
| - Carbon dioxide (bulk) | - ALIGAL™ gases for food applications (edible oils) |

- Application technologies

Each **TANK INERTING SYSTEM** is designed to continuously maintain a targeted overpressure in an enclosure by causing the opening or closing of two pneumatic on/off valves, which regulate inert-gas supply and relief.

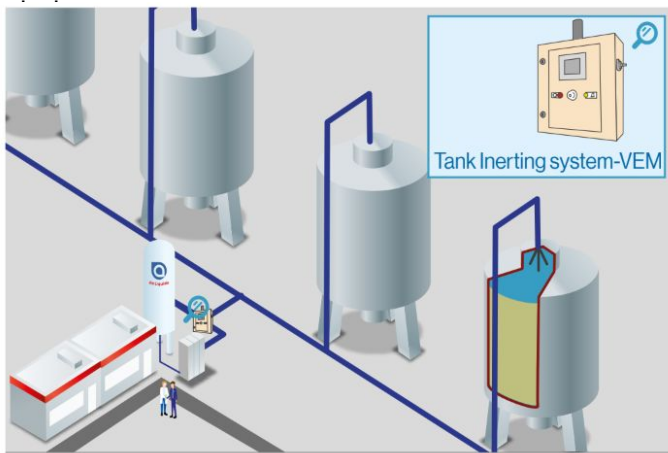
We offer two versions from the Air Liquide designed range of equipments.

- **TANK INERTING SYSTEM-VE** is an electronic unit to control one or two inerting processes.

You can also connect the unit to an oxygen analyzer to set an alarm on the O₂ content in the tank headspace.

- **TANK INERTING SYSTEM-VEM** is suitable for inerting up to 60 tanks using electronic offset units connected to one master control unit.

Whichever configuration you choose, you'll benefit from the full support of our inert-gas atmosphere experts, from the auditing of your current system capability to the complete rollout of your new one, including preliminary and detailed design, full installation and



Contact us

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Case study

#1 Subcontractor in the pharmaceutical industry

Customer need: compliance with HSE standards of pharmaceutical groups

- 24 tanks farm
- Acetone and toluene storage

Our solution:

- **TANK INERTING SYSTEM-VEM**
- Additional O₂ monitoring in tank headspace

Benefits:

- Safety and traceability monitoring (HSE requirements)
- 40% lower investment cost vs. single-tank systems
- Lower maintenance costs

#2 Production of paint ingredients

Customer need: inert gas protection optimization

- Batch process
- Multiple solvents (xylene, glycerin) and powders (diethylene glycol, benzoic acid, phthalic acid)
- Distillation temperature up to 260°C

Our solutions:

- Evaluation of the hazard level with respects to the ATEX³ regulations : monitoring of the residual O₂ content during a whole batch process
- Cycle time and N₂ flow-rate adjustment

Benefits:

- O₂ residual content 5% below MOC4/2 at the most hazardous phase of the process⁴.

#3 Industrial liquid-waste management

Customer need: expansion of industrial activity

- Four storage tanks
- ATEX management using nitrogen blanketing

• Our solution:

- **TANK INERTING SYSTEM-VEM**
- Additional O₂ monitoring in tank headspace

• Benefit:

- ATEX Z1 danger zone lessened to ATEX Z2
- 2000m² freed up space to create maintenance shop