

OTHER PRODUCTS AVAILABLE FROM NTRON:

• PROCESS OXYGEN ANALYZERS FOR HIGH PURITY APPLICATIONS:

Measurement capabilities in your process from 1 part-per-trillion to 100 percent.

• AMBIENT GAS DETECTORS:

We monitor and report over 150 Toxic and Flammable gases, Carbon Dioxide and Oxygen for environmental and personnel safety.



# INERTING CONTROL SYSTEMS

ENGINEERED SOLUTIONS FOR PROCESS SAFETY & EFFICIENCY

INDUSTRIES

CHEMICALS & CHEMICAL PREPARATIONS  
PHARMACEUTICAL PREPARATIONS  
PESTICIDES & AGRICULTURAL PRODUCTS  
PRINTING INK, ORGANIC DYES & PIGMENTS

ADHESIVES & SEALANTS  
PLASTIC MATERIAL & SYNTHETIC RESINS  
PAINTS, VARNISHES, LACQUERS,  
ENAMELS & ALLIED PRODUCTS

APPLICATIONS

Centrifuge  
Mill

Grinder  
Reactor

Filter/Dryer  
Mixer

Blender  
Hopper/Loader

Pneumatic Conveyor  
Vent Header



### THE CHALLENGE

Flash fires and explosions are a realistic everyday threat to many chemical manufacturers. In fact, no plant that manufactures or processes flammable liquids, solids or gases is immune to the risk. Also important are the issues of reducing both inert gas usage, and hazardous emissions.

### THE SOLUTION

Our unique systems protect you against flash-fires and explosions while saving inert gas and reducing VOC emissions by continuously measuring Oxygen levels in your process, and adding inert gas only as needed.

### THE NTRON ADVANTAGE

***Ntron understands that measuring and controlling oxygen levels in a process requires experience and expertise – and that is exactly what you get from us.***

Ntron' hands-on approach to each new application ensures that you receive the most effective and reliable system for your unique needs, every time. When you work with a Ntron Application Engineer, you have at your disposal our 25+ years of experience in the design of custom industrial process instrumentation and control systems.



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# PROCESS OXYGEN ANALYSIS

ABSOLUTE CONTROL AND UNSURPASSED PROTECTION

RISK POTENTIAL:

The Ntron Inert Gas Control System (ICS) is the only complete engineered solution available using continuous gas measurement to control oxygen in your manufacturing vessel for safety and economy.

## FOR SAFETY...

Countless incidents involving flammable processes claim lives, damage equipment, halt production and cost companies millions of dollars every year. One problem is that many companies are still operating with the false assurance that grounding / bonding, and continuous flow, timed-volume, and pressurization inerting techniques provide adequate safety margins.

The Ntron Process Inert Gas Control system controls on the basis of a real-time Oxygen measurement, making it the ONLY direct-measurement method available for preventing process flash fires and explosions.

## FOR ECONOMY...

Waste and emissions control issues, like the preservation of inert gases, and reduction of Hazardous Air Pollutant emissions, are high-priority challenges to the Chemical Process Engineer.

The Ntron Inert Gas Control system utilizes inert gas only as-needed to keep Oxygen in the process at safe levels, using up to 60% less inert gas than continuous flow, timed-volume, and pressurization inerting techniques.

When a chemical process is purged with inert gas, often-large amounts of volatile organic compounds, or VOC's are vented, driving up the cost of scrubbing, or incinerating the waste gas, as required by the EPA. By purging as needed only, the Ntron Inert Gas Control System reduces VOC emissions...less inert gas in, less VOC's out.

## THE NTRON COMPLETE ENGINEERED SOLUTION...

Ntron stands above the crowd of generic equipment providers by taking the burden of system design from the plant engineer, placing it confidently on our own shoulders, and then standing by our designs with a guarantee.

Every time you call in a new application, Ntron gathers its quarter-century of experience in solving process gas monitoring and control problems, and aims it at the design of a complete system for sampling, sensing, analyzing and controlling process gas to suit your individual need, whether it be for Safety, Quality, or Process Improvement.

## COMPONENTS OF THE SYSTEM



SENSOR:

The sensors are the eyes and ears of an Industrial process control system. The effectiveness of the system depends on the most suitable sensors for reliable operation. For over 25 years, our Oxygen sensor technology has proven itself the best for the job in harsh and aggressive chemical processing applications. Tens-of-thousands of Ntron zero-maintenance, disposable electrochemical sensors are on the job today and every day.



SAMPLER:

Another key to reliable process gas monitoring is providing a sample free of contaminants that can destroy your sensor. Here, the Ntron Inert Gas Control systems separate themselves from the rest. Our unique Process Sample Conditioning Packages and other gas conditioning equipment attest to our commitment to providing our customers with the most reliable and long-lasting systems available.



ANALYZER/CONTROLLER:

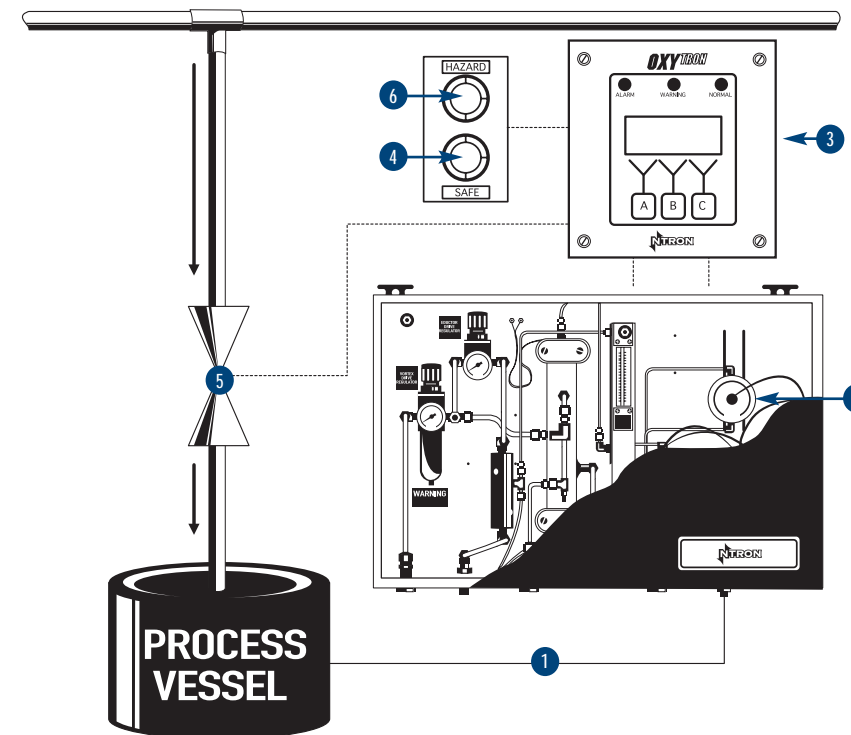
Ntron Inert Gas Control analyzers are custom instruments that automatically control Oxygen in your process to safe levels that you determine. Our Analyzers go beyond that basic functionality to give to our users added value, like system diagnostics, custom displays, and other specialized features designed to make the Inert Gas Control System the most useful and effective measure available for process flash-fire and explosion prevention.

## HOW IT WORKS...

The Ntron Inert Gas Control system is designed to directly, and continuously monitor and control Oxygen levels in your process for safety, quality, or process improvement purposes. The system measures Oxygen levels in real time and automatically adds inert gas to your process, as-needed, to keep levels below those necessary to support combustion or spoil Oxygen-sensitive product.

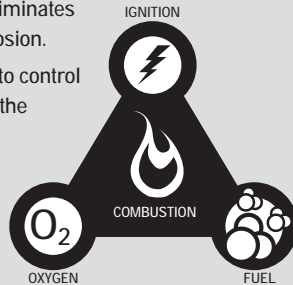
- 1 The Sampler draws a continuous gas sample from the process and conditions it for measurement by the sensor
- 2 The Oxygen Sensor measures Oxygen in the conditioned gas stream
- 3 The Oxygen Analyzer interprets the sensor signal, and compares it against the hazard level that you set, according to the flammability of your process.
- 4 If Oxygen levels remain far enough below the hazard level the system does nothing, and continues to monitor the process.
- 5 If the Oxygen level is NOT far enough below the hazard level then the Analyzer purges the process with inert gas until it IS far enough below the hazard level.
- 6 If the Oxygen level ever goes higher than the hazard level, then the system sets an alarm for process safety interlocks. Meanwhile, the ICS continues to purge the process with inert gas.

## INERT GAS SUPPLY



## The Recipe for Disaster...

Unfortunately, the ingredients for a combustible situation are inherent to many chemical-manufacturing processes involving flammable materials. The simultaneous introduction of a fuel source, oxygen, and a single spark can produce disastrous results. However the removal of any one corner of this dangerous triangle eliminates the possibility of fire or explosion. Some elements are difficult to control reliably, but Ntron Inc offers the solution to absolute reliable control of oxygen, helping to keep your plant, people and product safe.



## IGNITION:

When flammable liquids and dry powders are pumped, mixed, filtered, agitated or otherwise kept in motion during a manufacturing process the potential for static electricity is created. While there are many unpredictable ignition sources in modern industrial plants, static sparks are the most common source of ignition in chemical and pharmaceutical plant fires.

## FUEL:

Flammable liquids, gasses and particulates used in manufacturing processes become fuel sources in a plant's combustible recipe for disaster. At typical process temperatures, many flammable liquids release vapors into the headspace of their processing containments. Dust-clouds can also become dense enough in confines of a processing vessel to burn explosively.

## THE CONTROLLABLE CORNER:

# OXYGEN

The one part of the combustion triangle that can be controlled precisely and reliably is the level of oxygen in your process.

Combustion cannot exist without oxygen, even if fuel and ignition sources are present in a process. As long as the oxygen concentration is below the easily calculated minimum oxygen for combustion (MOC), combustion cannot take place.

The award winning Ntron ICS automatically maintains oxygen levels below concentrations that can support combustion or cause product degradation. The Ntron ICS assures absolute knowledge of safe levels, and optimal use of inert gas.