

# TODAY'S Aggregate & Mining Solutions

VOLUME 1 NUMBER 1

## CONEXPO 2008 PREVIEW

### CRUNCH TIME!

Trenching the  
Cactus Feeder line

### THE RISE OF TOWER 3

Aiding excavation  
at Ground Zero

### BRIDGING THE GAP

Reaching tomorrow's  
work force today



# PUMP IT UP



## NITROGEN MAXIMIZES TIRE LIFE AND INCREASES FUEL EFFICIENCY

Inflating fleet tires with nitrogen versus standard compressed air has multiple benefits that can reduce operating costs, improve handling and safety, and help control downtime on the job. Nitrogen inflation has long been accepted and used in race cars, commercial airplanes, military vehicles, and the mining industry to improve tire performance. Now, nitrogen is readily available as an important part of a fleet tire-maintenance program.

When users inflate with nitrogen versus compressed air, they are virtually eliminating the oxygen inside the tire. It is the oxygen that permeates through the tire to reduce pressure, deteriorate the tire wall over time, and corrode the rims and valves. Nitrogen is a dry, inert gas that stays in a tire three to four times longer than compressed air. Take the oxygen out, put nitrogen in, and get the best tire life and performance.

### UNDERINFLATION: ENEMY NUMBER ONE

Maintaining proper inflation is recognized as the key to maximizing tire life for all types of vehicles. But tires inflated with compressed air are constantly losing their pressure by the permeation of oxygen molecules through

the wall of the tire. It is the same process that causes a balloon filled with air to shrink, but much slower. With compressed air inflation, an average tire will lose up to 2 pounds of pressure per month. That underinflation causes the following negative performance factors:

- Tire life is reduced by excessive tread wear.
- Tires may fail prematurely, causing blowouts and costly road repairs.
- Excessive flexing causes heat buildup inside the tire.
- Proper tire grip on the road is compromised.
- Vehicle safety is reduced.

Because of its molecular structure, nitrogen stays in tires much longer, maintaining the correct pressure to give them maximum tread life, proper contact patch on the road, and improved vehicle handling and safety.

Tires that are underinflated flex, causing heat to build up and increasing the potential for blowouts. When extreme heat is applied to the wheel rim or to the tire wall, flammable gases can also build up inside the tire. A

| <b>NITROGEN</b>  | <b>COMPRESSED AIR</b>   |
|--|---|
| <b>Dry and clean</b>   | <b>Oily and wet</b>   |
| <b>Remains stable at any temperature, eliminates daily and seasonal pressure changes</b> | <b>Highly reactive element to all (low to high) temperatures and pressure changes</b> |
| <b>Eliminates condensation which prevents rim and valve corrosion (rust)</b>             | <b>Supports moisture storage inside the wheel which leads to corrosion (rust)</b>     |
| <b>Slows gas migration through rubber to less than 2 psi loss over 6 months</b>          | <b>Faster “through the rubber” migration, 1 to 3 psi is lost each month</b>           |

condition known as auto-ignition may occur, putting tires at risk for an explosion. Tire industry officials agree that keeping tires properly inflated reduces the flexing and stress to sidewalls that can cause tire failures. Nitrogen-filled tires operating at their proper pressure will run cooler to limit these serious and costly hazards.

### STOP THE OXIDATION

The oxygen in air corrodes the inner surface of both steel and aluminum wheels, as well as metal valve stems. Over time, it also attacks the inner liner of the rubber tire to allow more air molecules to pass through. Compressed shop air often contains excessive water vapor that only complicates the oxidation process, causing iron oxide rust or aluminum hydroxide to form. With dry, inert nitrogen inflation, the oxygen content of air inside the tire is removed, and the risk of oxidation is virtually eliminated.

### NITROGEN INFLATION SAVES MONEY

In a controlled test involving 54 new truck tires, one tire group was inflated with nitrogen and the other with compressed air. The two tire groups were run side by side on the same tractors until they wore to the tread wear indicators. The nitrogen tires ran 26 percent more miles than those filled with air before they had to be removed. Take a conservative 20-percent improvement and do the math on a fleet’s annual tire expense to see the potential savings from converting to nitrogen inflation.

“When it comes to using nitrogen for tire inflation, the bigger the tire, the bigger the benefit,” says Jerol Ayasun of ANS America, Inc., the U.S. distributor for nitrogen generator systems.

The constant flexing of tires as they revolve is called deflection. With underinflation, this deflection is increased, consuming more energy—and fuel. Maintaining proper tire pressure in a fleet can improve fuel efficiency by up to 3 percent. With the current price increases in both gasoline and diesel fuel, that is a significant potential savings for commercial users.

### NITROGEN GENERATOR SYSTEMS

State-of-the-art technology in membrane filtration equipment has brought nitrogen inflation into the realm of any tire maintenance operation. These systems can easily be connected to the existing compressed air supply and be ready to generate nitrogen.

Inside the generator filter, thousands of permeable membranes are filled with air at high pressure. As the air passes through the membrane filter, smaller molecules of oxygen, carbon dioxide, and other rare gases are separated out while the larger nitrogen molecules travel into a holding tank to be used in the tire inflation.

Nitrogen generator systems are available in a full range of configurations, from small portable units for car and light-truck tire service to high-volume models that can handle even the largest equipment tires.

### THE MINING INDUSTRY

After reading “Million Mile Truck Tires—Available Today,” a compelling article by Lawrence Sperberg written in 1985, which clearly demonstrated the advantages of using nitrogen for truck tire inflation, Taray International Corporation and South African partners discussed the feasibility of utilizing nitrogen for tire inflation in the mining industries.

Early nitrogen systems in the late 1980s were built in Europe. Taray International Corporation secured representation of these machines in the United States and Africa from the European manufacturers.

The mining industry took off with these low-cost, highly efficient, nitrogen generators and have been utilizing them ever since. One of the largest installations in Africa is the Sishen iron ore mine in the Northern Cape province of South Africa.

Taray International Corporation currently works with a strong American and European manufacturer to offer nitrogen inflation systems to the mining, trucking, and automotive industries, and is the parent company of ANS America, Inc. ■

**WANT MORE?**

For more information about using nitrogen for tire inflation and nitrogen generator systems, contact Jerol Ayasun of ANS America, Inc., at 800.526.0049 or visit [www.gotoans.com](http://www.gotoans.com).