

# Why Nitrogen?

Nitrogen is all around us. When used to replace oxygen and other gases in tire inflation, it enhances handling, improves fuel efficiency, extends tire life, protects the Earth and, most importantly, keeps you safer on the road.

**If you are one of the 85% of Americans who doesn't regularly check tire pressure, you need nitrogen.**

We take in nitrogen with every breath. Air is composed of:

- 1% Water Vapor and Other Gases – Escapes up to 250 times faster than Nitrogen
- 21% Oxygen – Escapes 3-4 times faster than Nitrogen
- 78% Nitrogen – The largest molecule in air, dry, non-flammable.

Because of their large size, nitrogen molecules are the least permeable and stay in your tire longer.

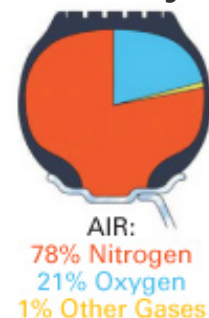
**It's not about the nitrogen. It's about reducing oxygen, water vapor and other gases.**

By reducing the percentage of oxygen, water vapor and other gases in your tires from 22% to 7% or lower, your tires will maintain proper pressure longer than if you use "plain old air." For example, with 95% nitrogen in your tires, they retain optimal pressure three to four times longer.

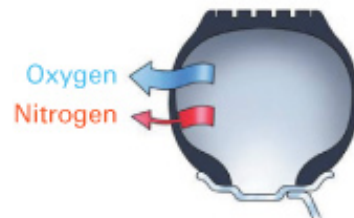
**Proper tire pressure is a big deal. Maintain it with nitrogen, and you'll see these three primary benefits:**

- **Increased Fuel Efficiency** – Correct tire pressure keeps the manufacturer's recommended "contact patch" on the road. This lessens the rolling resistance and maximizes fuel efficiency. [Read On...](#)
- **Longer Tire Life** – When it comes in contact with other materials, oxygen causes oxidation. Oxidation can make rubber brittle and cause it to lose tensile strength. In addition, at high

**The air we breathe  
The air that's in your tires**



**A tire filled with "plain old air" can lose 1.5 psi in less than a month**



**With nitrogen, it can take up to six months to lose 1.5psi.**

temperatures and pressures, oxygen reacts and damages inner tire liners and belt packages; nitrogen does not. [Read On...](#)

- **Increased Safety** – Under-inflated tires cause 90% of blowouts. Nitrogen provides more reliable pressure for reduced blowout potential. [Read On...](#)

#### Other benefits:

- **Improved TPMS Performance** – If you have a new car, you likely are plagued by a flashing light telling you your tire pressure is low. For example, one woman's light was going off every four to five weeks. After inflating with nitrogen, her light didn't reappear for 53 weeks!
- **More Predictable Pressure Fluctuation** – NASCAR teams use nitrogen so they can more accurately predict tire pressure fluctuation. Regular compressed air can fluctuate considerably when water vapor is present. [Read On...](#)
- **Longer Rim Life** – Rim rust caused by condensation from water vapor and other gases can get caught in valves and create slow leaks in tires. Nitrogen is completely dry, so it eliminates the potential for condensation.

#### Why not eliminate all oxygen and water vapor?

#### What's right for me – 95% or 98%?

Numerous studies have proven that nitrogen in tires reduces the volume of gases that escape more quickly and cause damaging oxidation. However, research also has shown that nitrogen purity beyond a certain point does not provide additional benefits. In fact, with a nitrogen purity above 93.4%? in passenger tires, oxygen actually begins to migrate back into the tire. You can get all the benefits of nitrogen with a purity level between 93-98%.

- **Bridgestone/Firestone** researchers say that 93-95% nitrogen is all you need. [Read On...](#)
- According to **Ford Motor Co.**, there is no difference between 96% and 99% nitrogen purity. [Read On...](#)

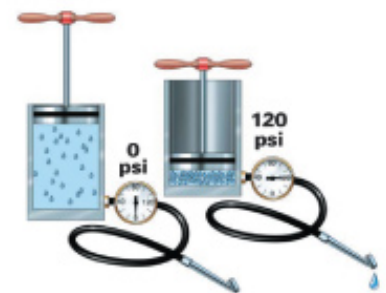
#### Who Else Is Using Nitrogen?



Oxygen reacts and damages inner tire liners and belt packages; nitrogen does not.



Draining water from your air lines every day helps, but unless you have a really efficient air dryer, chances are there's a lot of water in your compressed air.

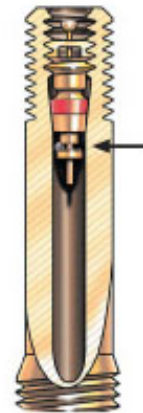


The air around us is full of water vapor. It's called "humidity". Compressing air concentrates the water in it.

- **NASCAR** - NASCAR teams use nitrogen because it allows them to more accurately predict tire pressure fluctuation. Nitrogen fluctuates with temperature change, but it does so less than when water vapor is present. [Read On...](#) In addition, higher nitrogen levels eliminate the explosive properties of oxygen (oxygen loses its explosive properties at around 9% or less) [Read On...](#) NASCAR uses bottled nitrogen for portability. The bottles are delivered to the track by Praxair. [Read On...](#)
- **Commercial Airlines** – The Federal Aviation Administration requires nitrogen in aircraft tires because it reduces the potential for water vapor freezing at high altitudes. In addition, airlines such as Boeing use nitrogen membranes or “OBIGGS” on-board inert gas generation systems (OBIGGS) to layer fuel tanks with inert nitrogen. Again, this reduces the potential for explosions. Just imagine if the Pinto had incorporated this technology 30 years ago, we'd still be driving them. Maybe...?
- **U.S. Government** – NASA and the U.S. military use nitrogen for many of the same reasons it used in commercial aircraft.
- **Food Processors and Packagers** – Oxygen hastens both the chemical breakdown and microbial spoilage of many foods. Think meat, potato chips, cookies, etc. To help preserve foods longer, processors and packagers often use modified atmosphere packaging (MAP) and controlled atmosphere packaging (CAP) that replaces some or all of the oxygen in the air inside the package with nitrogen.

### How is nitrogen separated from other gases in air?

Membranes are the heart of any nitrogen system. Just like a tire, the membranes are permeable. When thousands of these permeable tubes are filled with air at high pressures, smaller molecules leak out while the larger nitrogen molecules travel through the tubes into a holding tank to fill your tires or for other uses.



**Small bits of corrosion from wheels can prevent valves from seating properly, leading to loss of air pressure.**



**NASCAR and IndyCar teams use nitrogen because it allows them to more accurately predict tire pressure fluctuation.**

**Graphics provided by Bridgestone/Firestone.**



**Still have questions? Feel free to browse the rest of this site or let us know your question and we will incorporate it into this page.**  
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