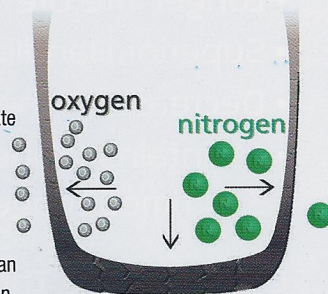


# How nitrogen works and what it does

Nitrogen ( $N_2$ ) makes up the majority of the air that we breathe and is contained in the protein of all life on earth. It is colorless, tasteless, and non-toxic. The next most common component of air is oxygen ( $O_2$ ). Together  $N_2$  and  $O_2$  make up approximately 99% of the air we breathe and traditionally fill tires with.

## $N_2$ is a larger molecule than $O_2$ .

Therefore, it cannot escape as easily as oxygen through porous material such as a rubber tire wall (carcass). Leaking at a much slower rate than oxygen, a tire filled with a higher percentage of  $N_2$  maintains its proper pressure roughly three to four times longer than air-filled tires. Proper inflation provides better fuel economy, superior handling, longer tire life, and increased safety by reducing the likelihood of low pressure related loss of control, blowouts and other tire failures.



## $N_2$ is a dry, inert gas.

$O_2$  in a tire provides unwanted oxidation. Over time, this reaction destroys the tire carcass and corrodes wheels. A tire is prematurely aged by  $O_2$  from the inside-out as the pressurized air in the tire makes the  $O_2$  try to escape through the tire carcass, speeding up the damaging oxidation process.  $N_2$  on the other hand, is a harmless inert gas that does not react negatively with tires and wheels.  $N_2$  filled tires also reduce tire heat, thereby decreasing rolling resistance and increasing fuel economy.

## $N_2$ is non-flammable.

$O_2$  is a flammable gas while  $N_2$  is an extinguishing gas. Thus, a large number of mass transportation companies around the world fill their tires with  $N_2$  for added fire and explosion safety. In a vehicle fire, ruptured air-filled tires fuel the fire.  $N_2$  filled tires slow the fire.



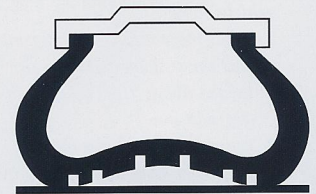
$N_2$  has been used in tires for many years on aircraft, military vehicles, off road trucks, racecars, and even Tour de France bicycles.

## Nitrogen inflated tires are safer and longer lasting than tires inflated with air

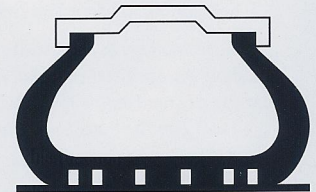
- Nitrogen inflated tires do not age as quickly as air inflated tires
- Nitrogen inflated tires minimize blowouts
- Nitrogen inflated tires improve vehicle handling through proper inflation and consistently maintained pressure
- Nitrogen is an inert, non-combustible and non-flammable gas
- Nitrogen is a stable gas providing more constant pressure
- Nitrogen is a dry gas with no corrosive properties as found in compressed air

## Correct inflation versus under-inflation

Correct inflation is highly significant when considering tire life and performance. It is not always possible to look at a tire and detect under-inflation. However, under-inflation can cause many tire-related problems. As inflation pressure largely determines a tire's load capacity, under-inflation results in an overloaded tire. An under-inflated tire operates at high deflection resulting in decreased fuel economy, sluggish handling and may result in excessive mechanical flexing and heat build up, leading to catastrophic tire failure.



*Under-inflated*



*Correctly inflated*

We are serious about offering the highest quality nitrogen tire filling service. Our professional nitrogen tire filling equipment is built in the USA by RTI Technologies, Inc., part of a global company that builds automated equipment that fills new vehicles with fluids in vehicle assembly plants around the world.



High quality NitroPro chrome valve stem caps with  $N_2$  marking provide a great reminder to you and others that your tires are filled with nitrogen!