

# The Case for Nitrogen

Nitrogen has been used in racing tires and aircraft tires for years.

Nitrogen pressure is more consistent than normal air pressure, because air typically contains varying amounts of moisture due to changes in the relative humidity on race day. Water causes air to be inconsistent in its rate of expansion and contraction.

Water vapor absorbs and holds heat. And when it changes from liquid to vapor, water expands tremendously in volume. As a result, tires inflated with wet air tend to run hotter and fluctuate in pressure more. That's one of the reasons why racing tires, where fractions of a psi can radically change the handling characteristics, are inflated with dry nitrogen.

Nitrogen has significantly less moisture than compressed air. By eliminating as much of the moisture as possible you have a much more stable and predictable air pressure increase as the tire heats up.

Changes in air pressure also affect spring rate. More stable and predictable air pressures help in suspension setup.

When you compress air, it takes up much less volume, but the percentage of water by volume is greatly increased.

While both nitrogen and oxygen can permeate rubber, nitrogen does it much more slowly. And nitrogen is far less reactive. It doesn't cause rust or corrosion on steel or aluminum, and it doesn't degrade rubber. Wheel surfaces stay smooth and clean, rubber remains supple and resilient. Nitrogen also will not degrade the rubber seal in the valve core which extends valve core life and helps prevent core leaks.