

...BETTER FUEL ECONOMY

"All the tests conducted clearly indicate that Nitrogen inflation in passenger car tyres* can improve the fuel economy of the vehicle"¹

...EXTENDED TYRE LIFE

"If the Oxygen concentration inside the tyre is reduced by 6%, the life of the tyre can be increased by 22%"²

...INCREASED SAFETY

"With the lower tyre pressures and dangerous handling of the car, coupled with the rapid wear and tear of the tyre a dangerous blow out can result"³

References

- 1 N. Jalili, Ph.D.P.Venkataraman, "Tyre Nitrogen filling system", A final report to: Industrial Technologies Sector of Ingersoll Rand Corporation" Department of Mechanical Engineering, Clemson University, Clemson, South Carolina, May 2006.
- 2 L. Sabino, "Tyres inflated with de-oxygenated air" Department of Mechanical Engineering, University of Bologna, Bologna, Italy, 2000.
- 3 B. Jane, "T-Marts Roll Resistance and Fuel Economy Study" Australia, 2007.
- 4 "The Effects of Varying the Levels of Nitrogen in the Inflation Gas of Tyres on Laboratory Test Performance" US Department of Transportation, National Highway Traffic Safety Information, Springfield, Virginia. March 2009
- 5 www.hantsfire.gov.uk/kids/learn/firetriangle.html
- 6 J.M. Baldwin, David R. Bauer, and Kevin R. Ellwood, "Accelerated Aging Of Tyres, Part II", presented at a meeting of the Rubber Division, American Chemical Society, Grand rapids, Mi, May 17-19, 2004.
- 7 J.W.Dawes, "Nitrogen Inflation for Passenger Car and Light Truck Tyres" Presented at the September 2010 Meeting of the Tyre Society, Akron, OH. Daws Engineering, LLC 4535 W. Marcus Dr. Phoenix, AZ. September 2010.

* Throughout this leaflet the original spelling of 'tire', as featured in referenced reports, has been amended to appear as the UK spelling 'tyre'.

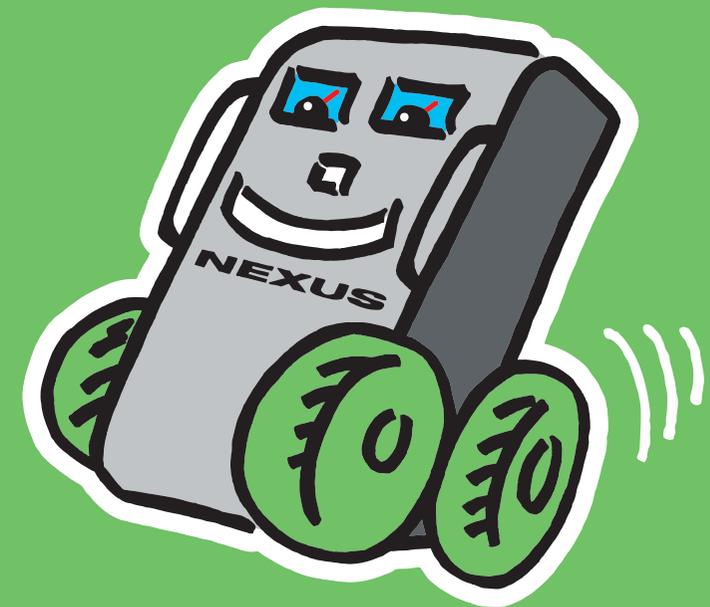
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ALL YOU NEED TO KNOW ABOUT NITROGEN TYRE INFLATION



"It won't let you down"

LOSS OF PRESSURE THROUGH PERMEATION

Two of the main gases found in normal air, Oxygen and Carbon Dioxide contain very small molecules which enables them to penetrate or permeate rubber easily. Pure Nitrogen molecules are larger and take much longer to penetrate rubber.



“In the 90-day static laboratory test, the inflation pressure loss for new tyres inflated with Nitrogen was approximately two-thirds of the loss rate of new tyres inflated with air”⁴

OVER INFLATION THROUGH OXYGEN REACTIVITY IN HIGH TEMPERATURES

Oxygen molecules found in normal air, due to its moisture content, reacts to the temperature build up when a tyre is in motion. This causes the Oxygen molecules to become ‘excited’ causing the tyre to expand and wear unevenly.



“It is perhaps a fair assumption to say that there would be some improvement in tyre durability if Nitrogen was used as the inflation media”⁶

TYRE DEGRADING THROUGH OXIDISATION

Oxygen is a gas that contains a lot of moisture. Over time this can oxidise and thus degrade the inner tyre wall and also cause oxidation or rust build up on the inner tyre rim. Nitrogen is a very dry gas which means it doesn't oxidise or react with materials it comes into contact with.



“Increased Oxygen levels in the tyre’s inflation gas can increase the oxidation of the rubber materials in the tyre and thereby reduce its durability even on some short-term testing”⁷

THE SCIENCE

THE “FIRE TRIANGLE”

“Fire is a chemical reaction which needs three things to be present so it can happen: heat, fuel, and Oxygen”⁵. When a tyre is in motion it causes friction with the road surface which causes HEAT. Tyres are made from rubber which, when burnt, represents a FUEL. Normal air inflated tyres contain 21% OXYGEN.



“If one of these is not present, the fire cannot start. If one of these is taken from a fire it will go out.”⁵. By inflating with Nitrogen you are reducing the OXYGEN content to a level where the potential for combustion is almost nil.

“Large tyres used on off-road vehicles in the mining industry, for example, use Nitrogen to prevent auto-ignition of the tyres due to the high temperatures”⁶

CHOOSE NITROGEN AND GET A FREE GIFT! **

N₂

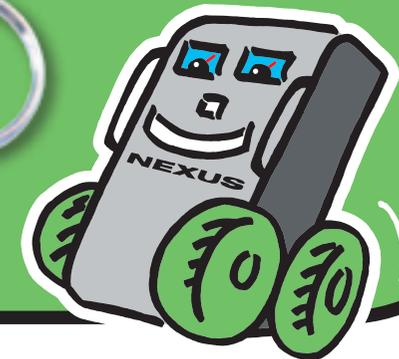
N₂ car air freshener



N₂ chrome plated tyre valve caps



‘Trolley coin’ N₂ keyring



** Subject to availability and while stocks last.