## Can I use Tyre-Fix in a TPMS-equipped vehicle?

Tyre sealant runs around the inside of the tyre tread. Thus in most instances it should not come into contact with an internal TPMS (Tyre Pressure Monitoring System) valve sensor when in use. However, when fitting TYRE-FIX you may cause the sensor to be coated and thus affect its performance: in this case you may need to remove and clean the sensor. Some 'Direct' TPMS have small-bore valves that will not allow regular sealant to enter. TYRE-FIX recommends that you consult your vehicle manufacturer to check whether their internal TPMS system is sealant-friendly before fitting anti-puncture sealant – and external 'Indirect' TPMS, that measure the speed of each wheel/tyre and use regular valves, are of course always TYRE-FIX-compatible.

#### Does the use of TYRE-FIX Tyre Sealant make a Tyre warranty void?

There is no legal reason under UK, EU or USA law that should allow a Tyre manufacturer to say that their warranties are void due to the use of TYRE-FIX Tyre Sealant, whether Off Road or On Road TYRE-FIX. We hold copies of statements from major commercial tyre manufacturers stating that the fitting of tyre sealant does not void their warranties. Since the inception of TYRE-FIX, there has been no report that TYRE-FIX has caused a new tyre warranty rejection or a retread casing rejection. All TYRE-FIX formulations are harmless to tyres, rubber and other tyre components. It is possible that on rare occasions a retail tyre distributor may take a negative stance against TYRE-FIX. This is likely due to a historic and cultural tradition of being "anti-sealant", or ignorance of the modern technological information provided by the TYRE-FIX Group.

# Does TYRE-FIX extend effective tyre life by helping to maintain correct air pressures?

By using TYRE-FIX, it is possible to combat porosity, which is a natural process of air migration through the tyre casing. By eliminating the possibility of driving on under-inflated tyres, they will remain in effective service for longer periods. TYRE-FIX will also tend to cool and condition the tyre rubber, retarding dry rot and casing degradation. These effects help to lengthen the life of the tubeless tyre casing. In a 5-month test in matched MAN trucks, an TYRE-FIX fitted tractor unit had 20% less tyre wear than a non-TYRE-FIX tractor across all tyres. Steer tyres had 40% less wear, using TYRE-FIX. In another test with temperature-monitored tyres on a heavy-duty forestry truck, the TYRE-FIX-equipped tyres were on average 11.5% cooler than the matching non-TYRE-FIX tyres. Heat is a leading cause of early tyre exhaustion.

### Will using TYRE-FIX prevent the retreading of the tyres?

No. TYRE-FIX Puncture Free is compatible with retreading methods, both cold and hot cures. TYRE-FIX does not have adverse effects on tyre casings or metal tyre cords. Tyre casings must be cleaned and dried prior to collection by the Retreading company or before delivery to them. TYRE-FIX is retread-friendly, easy to clean with water and does not mask the punctures and holes sealed. It should be simple for "NDT" machines to find all the punctures sealed by TYRE-FIX. TYRE-FIX sealants have been formulated to be compatible with compounds used within a tyre. The R & D of TYRE-FIX has been carried out in collaboration with leading scientific research bodies including "TARRC", a leading Tyre & Rubber Research Institution (formerly M.R.P.R.A., a research institution owned jointly by The Malaysian & British Governments). TYRE-FIX does not pose any hazards or flammability issues for the Retreading companies either.

#### Are TYRE-FIX-fitted tyres likely to replace 'run flat' tyres?

Unlikely. "Run Flat" tyres are supplied by Tyre Manufacturers for specific new car models and may be considered useful for specific users who are willing to pay more for that particular tyre and special wheel, knowing the combination will only function correctly once. The ride may be adversely affected, compared to regular tyres/rims.

For cars, TYRE-FIX offers the Get-u-Home™ emergency repair kit that functions on standard tyres and wheels.

# Does TYRE-FIX cause problems if it is necessary to make a vulcanised repair?

Due to the strength of the TYRE-FIX seal, in normal conditions, it is unlikely that a conventional vulcanised repair is required. If necessary, TYRE-FIX can be removed from the inside of the tyre by washing it out. The best method is by using a hose. The tyre can be dried. Then, a vulcanised repair can be applied, if necessary.

#### Up to what size puncture will TYRE-FIX seal?

The TYRE-FIX seal size varies with the tyre size and type, and the grade of TYRE-FIX used. Generally, the larger and thicker the tyre, the larger the hole that can be sealed. See the specific product pages for details.

#### Does TYRE-FIX degrade, dry out or separate?

No. Any TYRE-FIX product is formulated to remain in suspension. It remains ready to stop punctures, always. Generally, sealants that require shaking before use are bad sealants: they will deliver uneven product, and are likely to fall out of suspension again inside the tyre.

## How often does TYRE-FIX need to be replaced inside a tyre?

Normally, not at all. TYRE-FIX's water-based sealants are designed in normal use to last the legal life of a tyre. In high-mileage on-road truck tyres it normally lasts for 62,000 miles + / 100,000 km + and the dosage may then need to be topped up: it depends on the conditions, whether new or remould tyres are used and how the vehicle is driven. TYRE-FIX Magic Milk<sup>TM</sup>, like all latex tubeless bike sealants, will dry out: but slower than others, and it dries evenly so it can be topped up without removing the tyre, until the tyre is worn out.

### To what pressure does TYRE-FIX seal?

TYRE-FIX has sealed a Quad tyre at 2.5 psi (0.15 bar). It has sealed a Truck tyre at 145 psi (10.0 bar). There is little practical limit on the high side.

## How many holes will TYRE-FIX seal using one application?

TYRE-FIX is designed to seal many holes. It is the true "Multi-sealing" tyre puncture sealant. A small amount of TYRE-FIX is used to seal a single hole in the tyre casing. Most of the tyre sealant remains and carries on working.

# What should a driver do if a tyre is inspected and a nail is seen in the tread area?

According to UK Forensic studies, a nail can penetrate a tyre and on average will remain there for between 60 and 180 miles (96 to 290 km). The nail is likely to eject itself after this period. If TYRE-FIX is inside the tyre, the vehicle is motionless, and the nail is noticed to be in the tread area:

i. The driver should pull the nail; then, ii. Drive immediately; this will cause TYRE-FIX to make a new seal. If the nail is unnoticed and ejects itself, as the vehicle is in motion, TYRE-FIX will make a new seal.

#### Can a number of punctures weaken the Tyre structures?

Tyre structures are likely to be weakened by sidewall and "Run Flat" damage. Using TYRE-FIX will eliminate many if not all of the risks associated with "Run Flat damage" but TYRE-FIX will not seal sidewall holes.

#### How strong is the TYRE-FIX seal that blocks the holes and punctures?

TYRE-FIX Group regards the seal to be a permanent seal due to its strength. When subjected to a "strength test" at the Gerotek Military Test Facility, TYRE-FIX was compared to a "Repair plug" and a "vulcanised repair". In this case, it was shown that the TYRE-FIX permanent seal was 1.6 times stronger than a vulcanised repair and 7 times stronger than a "repair plug". (The tyre industry states that a "Traditional repair" – defined as a vulcanised repair – is permanent. Therefore, the seal made by TYRE-FIX On Road & Off Road, that is so much stronger, should be regarded by users and consumers as "more permanent still").

#### What type of damage can TYRE-FIX seal and repair?

TYRE-FIX will seal holes in the tread area caused by nails, screws, glass, stones and sharp objects.

### Does it contain any harmful ingredients?

The TYRE-FIX Group uses its best endeavours to formulate products which are as environmentally friendly and as safe to use, store and dispose of as possible. All TYRE-FIX formulations are audited by "Chemtox" (www.chemtox-trotters.com). No TYRE-FIX product is classified as harmful, flammable or combustible, even under the latest worldwide chemical regulations. All are regarded as 'non-hazardous'. They are all permitted for airline hold transport. MSDS sheets are available on request.

# When the TYRE-FIX liquid is inside the tyre, does it react with the air inside the tyre and go hard?

No. TYRE-FIX remains liquid inside the tyre. It will seal a hole under pressure and then dry instantly, but it will not react with the air inside the tyre and turn hard.

## To what speed are TYRE-FIX On-Road sealants speed-rated?

TYRE-FIX On Road products have been tested at various speeds in a variety of vehicles. Controlled tests have averaged between 100 & 120 mph (160 to 192 km/h). TYRE-FIX has been tested satisfactorily in Motorcycles at speeds in excess of 185 mph (300 km/h) on Race Tracks. TYRE-FIX On Road products are designed for use on the highway to a maximum of 130 km/h or any lower legal speed set by the authorities. DO NOT EXCEED YOUR LEGAL VEHICLE SPEED LIMIT.

#### Will TYRE-FIX corrode the wheels, rust wheel rims or steel belts?

No. There are special corrosion inhibitors in the TYRE-FIX sealant formulations that inhibit corrosion in steel & alloy rims. They will prevent the product from causing oxidation in brass valve stems. If any residue of TYRE-FIX is touching the inner rim, it can be washed off when a tyre is changed. It is advisable NOT to use any tyre sealant with traditional chrome-plated wheels as they are susceptible to chemical effects.

**TYRE-FIX LifeLong** is a free-flowing liquid (not a sealant) that coats wheel rims and the interior of large vehicle tyres – it uses advanced nanotechnology to actually clean and resist rust on rims; as well as cooling and lubricating the tyre rubber, making it easier to mount/dismount and lengthening tyre life by 30% on average. Operators who do not suffer many punctures but who have expensive wheel/tyre replacement costs can save a massive amount.

#### Does TYRE-FIX puncture sealant affect tyre life or performance?

Performance: TYRE-FIX does not affect tyre structures or rubber adversely. In most cases the tyre life will be extended by 20%+ (LifeLong: 30%) as TYRE-FIX cools the tyre and lessens air loss. TYRE-FIX sealants will also reduce the possibility of tyre life being shortened due to "Run-flat" damage.

#### Is TYRE-FIX safe and legal to install in my tyres?

Yes, it is both a safe and a legal form of puncture prevention.

#### Can TYRE-FIX be installed in any tyre?

TYRE-FIX can be applied to almost any Pneumatic tyre (see limited exceptions on the relevant Products page).

# Are there any special maintenance requirements for tyres fitted with TYRE-FIX?

No. As with any other tyres, drivers should check them regularly for cuts, penetration damage, and a loss of air pressure. Checks should be made at least twice a month, whether it is an Off Road tyre or On Road tyre.

# Are there any additional environmental impacts when disposing of tyres fitted with TYRE-FIX, compared to tyres without TYRE-FIX?

No. TYRE-FIX washes out easily and tyres that have contained TYRE-FIX can be disposed of via conventional recycling. TYRE-FIX Group can recommend the methods required if there is a significant amount of TYRE-FIX to disperse.

# Why are there so many different types of TYRE-FIX? Should I take care when choosing a grade?

TYRE-FIX makes several formulations. Unlike many competitors, these are all genuinely different, having been designed and engineered especially for certain vehicle types. Any

user of TYRE-FIX can choose by using this site; or by examining the description on the labels of the bottles and drums.

#### Can TYRE-FIX be used in tyres with inner tubes as well as tubeless tyres?

Yes – with exceptions. TYRE-FIX will seal holes in the outer casing and in the inner tubes as well, but inner tubes are problematic. They can be unreliable and the wall thickness inconsistent. The inner tube can move inside the tyre. Inner tubes tend to rip when a puncturing object remains. You cannot inspect the tube.

TYRE-FIX Off Road grades will function and seal holes without or with inner tubes (subject to lower limits in the case of tubes): but if the wheels and tyres permit it, the best combination for most Off & On Road users is to use a Tubeless wheel/tyre combination with TYRE-FIX applied. This is the less expensive and better performing option for puncture free driving.

TYRE-FIX On Road grades should ideally be applied to tubeless tyres only, except for speed-limited mopeds/scooters with inner tubes, which can use TYRE-FIX X-Treme Dirt Bike.

#### Is the amount of TYRE-FIX applied to any particular tyre size critical?

Yes. The amounts to be applied for any given tyre size are shown on the Dosage Calculator on this site; on product labels; and on the TYRE-FIX application charts, as well as via your dealer/distributor.

#### Are there any special requirements in terms of health & safety?

Not especially, but common sense needs to be used. Avoid contact with the eyes; avoid prolonged skin contact with the sticky viscous layer inside the tyre; and do not drink the product. TYRE-FIX can be removed from the skin with soaps and industrial hand cleaners. If TYRE-FIX gets in the eyes, wash with copious amounts of clean water. Keep TYRE-FIX out of the reach of children.

# Why does the TYRE-FIX product not block and seal a valve stem as if it were a hole when the tyre is deflated?

When a tyre is deflated on purpose for any reason, it is virtually guaranteed that the vehicle is standing still. When the tyre is motionless the TYRE-FIX remains in place, coating the inside tread area of the tyre. It does not travel towards the valve stem. Insufficient air pressure and the lack of movement is enough to ensure the TYRE-FIX remains in its correct place. In the rare event of a blockage, blow the valve stem clean with an air line or poke it through with a thin wire.

# Will TYRE-FIX swill inside the tyre and affect the valve stem causing a misreading of the tyre air pressure?

No. When applying the TYRE-FIX product, some residue may remain inside the valve stem. This residue should be cleared by using an air-line as per the instructions. TYRE-FIX tyre sealant coats the inside of the tyre. It will not travel back up the valve stem. Normally, conditions inside the tyre mean that no air is forced back through the valve stem out to the outside environment.

## What are 'ballasted' pneumatic tyres?

Tyres filled with water or other liquid. Some rear Tractor tyres are ballasted by farmers to weigh down the vehicle. Or some pack rear tyres with weights or sand. Part-ballasting the tyre with TYRE-FIX and using axle weights as needed is preferable (for the vehicle and the land) to using water or sand inside tyres; and the puncture problem would be eliminated too. (TYRE-FIX cannot function inside a tyre that has been filled with water). For full information, see our Blog

### Will TYRE-FIX stain my clothes?

If TYRE-FIX splashes on clothes, it should be wiped off immediately, preferably with a wet cloth. If some TYRE-FIX residue remains, wash the clothing that evening or during the same day. Avoid leaving the clothes for a long time with the TYRE-FIX in a dry state. Contact with clothing should be avoided where possible.

#### Within what range of temperatures does TYRE-FIX operate?

Depending on the formulation (determined by the climate of the country concerned and the formulation for that region) – 50 degrees C. to above + 50 degrees C. Both TYRE-FIX Off Road and On Road grades have been used in vehicles in hot Desert conditions and in the northern Russian winter.

TYRE-FIX Truck & Bus was tested in fast moving truck tyres over a 500 mile course starting at 6,000 feet above sea level and driving down to sea level, through extreme heat. The trucks repeated the journey until 110,000 Km (68,750 miles) had been driven. Punctures suffered early during this test remained sealed throughout. The holes remained blocked by the permanent TYRE-FIX seal. After 110,000 km, the product remained effective, sealing further punctures. TYRE-FIX Truck & Bus remained inside the tyre in liquid form, positioned as designed, effectively coating and protecting the inner tread area of the tyres. The inclusion of a special ingredient within the formulation kept the tyres cooler than normal.

#### Does TYRE-FIX cause wheel imbalance?

TYRE-FIX will not cause wheel imbalance in heavy vehicles if the product is dosed correctly. Any temptation to apply more than the recommended dose must be resisted.

When applying On Road Motorcycle to both wheels of a motorcycle as a preventative measure, the instructions should be strictly adhered to. In any vehicles, only the recommended quantity should be inserted, and to all tyres. Having applied the TYRE-FIX to all 4 wheels of a light vehicle, drive carefully and slowly for a distance of 4 km (approx. 3 miles).

During this initial "run in" distance, TYRE-FIX will line the inner tread area of the tyre. Once this inner coat has been formed, there should normally be no wheel imbalance.

When applying the TYRE-FIX Get-u-Home $^{\text{\tiny M}}$  compressor/sealant or Light On Road sealant to temporarily repair a car's flat tyre, there will be imbalance with the other wheels, hence the need to drive at less than 50 mph/80 km/h.

TYRE-FIX Off Road should NOT be fitted to fast moving On Road vehicles, or driven at a speed regularly exceeding 80 km/h (50 mph).

What happens to the TYRE-FIX sealant in a tyre when a vehicle is garaged and idle for a week or two? Does it need to be driven again at reduced speeds?

Generally, once the TYRE-FIX has coated the inner tyre, the majority of the TYRE-FIX will remain as a coating. If an On Road light vehicle has been idle for a long period some minor wheel vibration may be detected when first starting off. This will disappear rapidly if the vehicle is driven steadily. This issue is NOT relevant to the use of Off Road TYRE-FIX grades; TYRE-FIX for Bicycles; or On Road TYRE-FIX for Truck & Bus use.