

# Welcome from the Managing Director

Thank you for your interest in our innovative product. During the early years when we were developing Puncturesafe, our research revealed that there was a need for a good quality puncture prevention treatment for very high speed vehicles that would provide a permanent seal and would last for the lifetime of the tyre, but at that time there was no such product available. We believed that the sealants on the market were only suitable for slow moving construction industry vehicles and large trucks because large wheeled, low speed vehicles do not generate heat, stress or centrifugal forces that will eventually cause most tyre sealants to break down or pull apart. We looked worldwide at the tyre sealant industry that had developed over the years and after exhaustive testing we found that the large majority of tyre sealants available did not work satisfactorily, indeed many caused other problems inside the tyre. We did not find a tyre sealant with the unique abilities and attributes that we currently find in Puncturesafe, but more alarmingly we discovered that many tyre sealants contained Ethylene Glycol as an anti-freeze which even in miniscule amounts is lethal to humans and animals. Many tyre sealant manufacturers worldwide are still using old technology and out-dated polymers developed many years ago, still mixing their ingredients in a food industry mixer like a giant yogurt recipe without the application of heat. It is our opinion that a quality permanent puncture prevention treatment cannot be made without the application of heat and the principles of chemistry, for in order to incorporate all the attributes necessary for a good product, we believe the ingredients cannot be mixed cold.

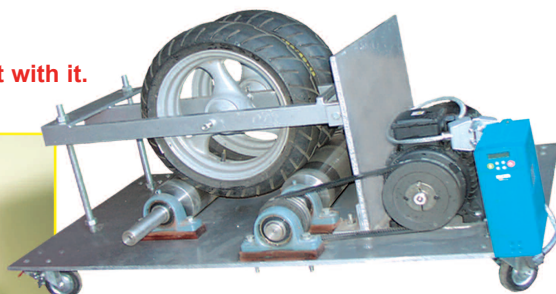
I had worked extensively in the laboratory for several years with the many specialty polymers that were being developed for industry. As such my experience with heat resistant polymers led me to believe that we could overcome the difficult task ahead and develop a high performance permanent puncture prevention treatment that would be both fit for purpose and able to survive the hostile environment inside a high speed tyre. We are a responsible company, conscious of health, safety and the welfare of all things living so therefore our puncture prevention would also have to be formulated with a non toxic anti-freeze that would be just as effective as a Glycol. After a decade of development and exhaustive testing we successfully managed to achieve all our goals. With 21st century polymers, manufactured by ourselves from selectively chosen raw materials and cutting edge chemistry, in a proprietary process developed exclusively in the UK, we now manufacture a premier high performance permanent puncture prevention treatment. The most challenging part of formulating for high speed vehicles was to incorporate the ability of the sealant to thinly cover more of the inner tyre "with increasing speed" instead of being driven by centrifugal forces in a very narrow band down the centre of the inner tread area. Using "chemical nanotechnology", we invented a polymer gel that we trademarked "FlexxaGel™" that had an extraordinary ability to cling to rubber, even at speeds of 250 kph. Incorporation of FlexxaGel™ into the process also gave the finished sealant incredible elastic properties enabling it to stretch and flex at the higher speeds. FlexxaGel™ is exclusively manufactured at our Devon facility and is one of our most closely guarded trade secrets.

Our proprietary formulation has evolved far beyond that which is commonly known as a tyre sealant - Puncturesafe is a tyre safety system that is outstanding at permanently sealing punctures and a true tyre life extender. The complexity of the formula, the proprietary polymers processed in-house and the high tech chemically engineered processing equipment required for manufacturing such a product means that no other company has yet managed to duplicate, or get close to what we have accomplished.



We manufacture 4 different grades which are packaged comprehensively for all markets. It has been the combination of an excellent product, consumer friendly packaging, informative point of sale material, and full back-up support and equipment that has given us so much success. As head of Research & Development and with very extensive knowledge of advanced polymer chemistry, I will ensure Puncturesafe remains the world's "number one" high performance permanent puncture prevention treatment for high and low speed vehicles well into the future.

**It is a unique chemistry, be in your element with it.**



The dynamometer above was used during the development stage to test Puncturesafe to the limit.

The wheels are capable of reaching speeds of 250kph on the rollers, with high loadings to simulate any type of vehicle in use.



The Puncturesafe Research & Development team (above) in our laboratory.

# The Company



We have a first class administration team who give individual attention to all our customers.



**High Performance High Speed Grade - Coloured Blue** - Rated up to speeds of **170 mph**. Suitable for cars, light commercial vehicles, motorhomes, motorcycles, touring caravans and trailers. Seals punctures caused by puncturing objects up to **6mm** in diameter, but in the event that the puncturing object has caused excessive tyre damage, PunctureSafe will obstruct escaping air, causing the tyre to deflate in a slow controlled way allowing the driver to remove the vehicle from a potentially dangerous location.

**Heavy Duty Medium Speed Grade - Coloured Magenta** - Rated up to speeds of **90 mph**. Suitable for heavy goods vehicles, mining trucks, coaches and buses. Reduces costly downtime for fleet operators. Seals punctures caused by puncturing objects up to **15mm** in diameter, but in the event that the puncturing object has caused severe tyre damage, PunctureSafe will obstruct escaping air causing the tyre to deflate in a slow controlled way, allowing the driver to remove the vehicle from a potentially dangerous location.

**Extra Heavy Duty Low Speed Grade - Coloured Emerald Green** - Rated up to speeds of **50 mph**. Suitable for agricultural and construction vehicles, heavy plant and machinery, quad bikes, ride on mowers and golf buggies etc. Reduces costly downtime for fleet operators. Seals punctures caused by puncturing objects up to **9mm** in golf buggies, quad bikes etc, **20mm** in tractors, farm trailers, fork lifts etc and **30mm** in very large tyres with good tread on large tractors, mining vehicles etc. (The heavy duty nature of this grade will not allow you to install into high speed vehicles with steering)

**Cycle Grade - Coloured Orange** - Suitable for all types of cycles with Schrader valves. Seals punctures caused by puncturing objects up to **3mm** in diameter. (It is not possible to apply PunctureSafe through the narrow Presta valves)

A PunctureSafe seal is permanent for the life of the tyre. Most tyre sealants will seal punctures in the liquid state, but the problems usually occur when the liquid dries hard and inflexible in the puncture, due to heat generated through contact with the road surface, and at this stage air can escape, eventually causing a flat tyre. PunctureSafe dries to a flexible rubbery plug without shrinkage in the puncture, giving a permanent seal. This is unique to PunctureSafe.

PunctureSafe's coating and sealing abilities is exceptional. If a sealant only covers the middle of the tread area in a road going vehicle at speed, it is only doing half a job.



PunctureSafe covers more of the inner tyre at speed. When a puncture occurs, the centrifugal forces of the rotating tyre, plus internal pressure and escaping air, forces the PunctureSafe gel into the puncture and a permanent seal is created.

The installation procedure is quick & simple taking just a few minutes without removing the wheel from the vehicle, or deflating the tyre and with very little air loss, using our calibrated hand pump with installation quantity charts.

Your local Retailer/Installer

PunctureSafe UK, Queensgate House  
48 Queen Street, Exeter, Devon, EX4 3SR

[www.puncturesafe.com](http://www.puncturesafe.com)

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**TO HELP AVOID THIS**



**SEALS PUNCTURES "AS THEY HAPPEN"**



A PUNCTURE PREVENTION TREATMENT THAT IS APPLIED "BEFORE THE PUNCTURE OCCURS" THAT EVENLY COVERS THE INNER TYRE AND SEALS PUNCTURES "AS THEY HAPPEN"  
**A REVOLUTIONARY UNIQUE PRODUCT**

# Benefits & Cost Savings of using PunctureSafe in Commercial Vehicles and Machines

## Extra Heavy Duty Grade for Off Road Vehicles



- Depending on the strength of the tyre construction, the sealant is capable of sealing punctures caused by puncturing objects up to **30mm** across heavier ply tyres – more than “double” any other sealant on the market. Between **9mm** and **20mm** for smaller tyres.
- Originally developed for the military, this is the strongest & most reliable tyre sealant ever produced to cope with the harshest of environments and manufactured with the most advanced technology ever developed.

## We use technology not found in other tyre sealants

- There is a growing worldwide problem for users of heavy industrial tyres, caused by higher material costs, which has forced tyre manufacturers to reduce production of these more specialised large tyres (ie earthmover tyres) which now adds considerably more waiting time for supply. PunctureSafe is the ideal solution to this problem.



## Heavy Duty Grade for On/Off Road HGVs

- Seals punctures caused by puncturing objects up to **15mm**, but only punctures that are safe to seal. Alternatively the gel will reduce rapid air loss in a slow and controlled manner, allowing the HGV to move from a potentially dangerous location, or slowly return to base depending on circumstances.
- Provides protection from hazardous environments on sites such as land-fill, construction, quarrying, mining, recycling and agricultural.
- Prevents costly penalties for late deliveries and services.

The installed product offers big cost savings in reduced punctures and blowouts, but for the operator of HGVs other benefits of using PunctureSafe, such as Maintained Tyre Pressure can produce additional cost savings:

- **Maintained Tyre Pressure** helps reduce excessive heat caused by heavy loads on under-inflated tyres – Cool tyres are harder to puncture and also do not wear out as fast. Excellent inner tyre coverage aids in removing heat via conduction to the wheel rim.
- **Maintained Tyre Pressure** helps reduce vehicle tyre drag and rolling resistance which reduces fuel costs.
- **Maintained Tyre Pressure** helps extend tyre life by as much as 20%.
- **Maintained Tyre Pressure** helps improve safety.
- Fully compatible with all re-treading methods and major repairs.
- Water soluble, so easily cleans out of the tyre with normal tap pressure.
- **Big cost savings on punctures, blow-outs, fuel, downtime and no early tyre replacement.**
- Eliminates porosity, air migration and bead leaks.
- Will not hide or mask a dangerous puncture.
- The treatment will last for the life of the tyre.
- Will not void tyre manufacturers warranty.

The cost of treating 6 tyres, which lasts for the life of the tyre, is considerably less than the cost of a conventional repair, yet one treatment is capable of preventing as many as 100 punctures per tyre!

The maths is staggering, as many of our long term users have discovered!



## How it Works

Prevents loss of air between rim and tyre bead due to excellent inner tyre coverage.

Will not harm the tyre or wheel rim.

Tyre pressure is maintained increasing tyre life & reducing fuel costs.

Helps reduce heat build-up due to heat transfer through sidewall coverage. Tyres run cooler so last longer.

Promotes uniform tread wear.

In a moving tyre, the gel gives excellent inner coverage eliminating porosity, so less re-airing is required.

The puncturing object is coated with the gel, sealing until it is expelled due to lubricity, or by physically removing, whereby the gel instantly enters the puncture, creating a seal, until curing in the puncture to a flexible, rubbery, water resistant, airtight plug.

Punctures are sealed instantly and are a permanent seal for the life of the tyre.

Contains FlexxaGel™ our most closely guarded trade secret

## Combined Benefits of Both Grades

- Punctures that are securely sealed will be permanent for the life of the tyre.
- Both of these extra strength commercial grades have been designed to reduce 95%+ of punctures. (99% in the high performance, high speed grade)
- Seals punctures “As they Happen” on site, in a working vehicle, without disruption or expensive downtime, and idle labour costs, or the need to wait for a tyre repair or replacement. **Significant reduction in operational costs.**
- Prevents the instance of damage normally caused by running on a flat tyre. A puncture sealed by PunctureSafe before the tyre goes flat is incredibly less expensive in the long term than repairing a flat tyre with run-flat damage that will eventually fail prematurely.
- We are confident that our unrivalled technology is superior to any other and as such our tyre sealants are now fully integrated into all good tyre management programmes by many large companies – **because it works!**
- The result of many years of Research and Development with substantial investment, to bring this “Unique Puncture Prevention Treatment” to market.
- Does not contain lethal Ethylene Glycol normally found in tyre sealants as antifreeze. Contains Eco-friendly antifreeze.



# 20 Litre Containers

**High Performance High Speed Grade - Coloured Blue** - Rated up to speeds of 170 mph. Suitable for cars, light commercial vehicles, motorhomes, motorcycles, touring caravans and trailers. Seals punctures caused by puncturing objects up to 6mm in diameter, but in the event that the puncturing object has caused excessive tyre damage, PunctureSafe will obstruct escaping air, causing the tyre to deflate in a slow controlled way allowing the driver to remove the vehicle from a potentially dangerous location.

**Heavy Duty Medium Speed Grade - Coloured Magenta** - Rated up to speeds of 90 mph. Suitable for heavy goods vehicles, mining trucks, coaches and buses. Reduces costly downtime for fleet operators. Seals punctures caused by puncturing objects up to 15mm in diameter, but in the event that the puncturing object has caused severe tyre damage, PunctureSafe will obstruct escaping air causing the tyre to deflate in a slow controlled way, allowing the driver to remove the vehicle from a potentially dangerous location.

**Xtra Heavy Duty Low Speed Grade - Coloured Emerald Green** - Rated up to speeds of 50 mph. Suitable for agricultural and construction vehicles, heavy plant and machinery, quad bikes, ride on mowers and golf buggies etc. Reduces costly downtime for fleet operators. Seals punctures caused by puncturing objects up to 9mm in golf buggies, quad bikes etc, 20mm in tractors, farm trailers, fork lifts etc and 30mm in very large tyres with good tread on large tractors, mining vehicles etc. (The heavy duty nature of this grade will not allow you to install into high speed vehicles with steering)

**Xtra Xtra Heavy Duty Low Speed Military Grade - Coloured Dark Green** - We have recently developed this grade to meet the demands of extremely hazardous environments. Similar to the XHD grade but much stronger.

**Cycle Grade - Coloured Orange** - Suitable for all types of cycles with Schrader valves. Seals punctures caused by puncturing objects up to 3mm in diameter. (It is not possible to apply PunctureSafe through the narrow Presta valves)



## 5 Litre Containers

All grades can be supplied in this container, with an inexpensive pump that delivers 1 unit with each depression. The pump can be used whilst air pressure up to 25 psi is in the tyre.



## High Pressure Pump

An inexpensive very high pressure pump for the 20 litre containers that easily delivers 4 units with each depression. The pump can be used whilst air pressure up to 100 psi is in the tyre with very little air loss.

## DIY Kits

DIY bottle range - Available in single and twin packs for Motorcycle, Cars, Touring Caravans, Cycles and Off Road Vehicles.



Off Road  
2 x 1 litre bottles



Motorcycle  
1 x 780 ml bottle



Car  
2 x 780 ml bottles



Cycle  
280 ml

## Emergency Puncture Repair Kit

This KIT is the most powerful available anywhere. Developed due to demand from professionals and fleet operators.



## 1000 Litre IBCs

All grades can be supplied in 1000 Litre Intermediate Bulk Containers





# The difference at a glance

**Will** seal punctures permanently and for the life of the tyre.

**Will** give you a controlled deflation if the integrity of the tyre has been compromised.

**Will** evenly cover the whole of the inside of the tyre “at all speeds” to prevent porosity in the tyre and stop bead leaks -  
Requires advanced chemistry.

**Will not** pile up in a narrow band down the centre of the crown area owing to centrifugal forces - This is a common problem with many sealants and the advanced chemistry required to prevent this is our most closely guarded secret.

**Will** seal punctures over “the whole of the crown area” owing to Puncturesafe’s “total inner tyre coverage.”

**Will not** seal punctures in the thin & flexing sidewall, but **will** give a tell-tale sign with a controlled and slow deflation.

**Will** help extend tyre life because of a much cooler inner tyre because heat build-up is removed, by conduction away from the inner crown area, via the polymer gels sidewall coverage, to the wheel rim.  
Plus, cold tyres are less susceptible to punctures. (Rubber is a poor conductor of heat)

**Will** help extend tyre life as the coverage over the “whole inner tyre” eliminates porosity giving optimised tyre pressures, with the added benefit of improved fuel economy and safer vehicle handling.

“**Will be manufactured using heat**” in an intricate process with over 15 polymers to give a solids content of 80% but only 20% liquid - rather than 80% liquid and only 20% solids which is common with sealants mixed cold with as little as one or two polymers - You cannot achieve the attributes you find in Puncturesafe with only one or two polymers or without applying heat and the principles of chemistry during the manufacturing process.

**Will** cure in the puncture to a **firm and flexible rubbery plug**, as opposed to something resembling modeling clay or something sticky and common with tyre sealants formulated with just one or two polymers. These basic sealants initially seal punctures, but then fail as the plug dries and shrinks because of heat. This is because basic tyre sealants with a high water content that can bind fibre and rubber particles will, whilst still in their liquid state, initially seal a puncture in a tyre, but fail as the plug dries and shrinks.

**Will** be water based for quick and easy clean out from the tyre.

**Will not** vapourise or steam in a warm tyre causing the tyre pressure to increase to a dangerous level  
- Requires advanced chemistry to achieve a complex azeotropic liquid base that increases the boiling point of liquids to prevent steaming. Similarly, when water binds the polymer chains via hydrogen bonding it increases the surface area, which causes the water to evaporate out of a polymer at the slightest increase in temperature.  
Our unique chemistry prevents this from happening.

**Will not** over any length of time, break down or dry up inside a high speed tyre.

**Will not** over time lose any viscosity in the tyre.

When heat and stress is applied to water based polymers inside a high speed tyre, the polymers rapidly thin within a few thousand miles in a process called hydrolysis (decomposition of the polymer chains owing to a chemical reaction with water, during which molecules of water are split into hydrogen cations)

Our unique chemistry prevents this from happening.

**Will not** ball up inside the tyre. Owing to the large difference in specific density between the heavy liquid polymer and the significantly lighter fibre and rubber particle solids, centrifugal forces normally cause these lighter particles to be forced in a reverse direction and collect on the inner surface of the polymer in clumps.

Our unique chemistry prevents this from happening.

**Will not** run to the bottom of the tyre in a stationary vehicle.

**Will** be thermally stable at speeds of up to 250 kph - Very rare.

**Will not** rust or corrode rims.

**Will** condition the inner tyre.

**Will not** void tyre manufacturers’ warranties.

**Will not** contain Ethylene Glycol, an extremely toxic anti-freeze.

**Will** be non toxic - A result of years of Research & Development.

**Will not** contain Propylene Glycol, a non toxic alternative anti-freeze used by the food industry, but in our opinion a useless alternative in a tyre sealant.

**Will** always comply with Health and Safety regulations in all countries.



*Puncturesafe UK, was formerly a supplier to Royal Mail, having been awarded two one year contracts and finally a three year contract that had run consecutively, to supply puncture prevention for their fleet of 32,000 vehicles.*



*The former Royal Mail supply chain buyer (far right), congratulating the Puncturesafe representative for winning the contract to supply our permanent puncture prevention to them.*



*During 2005 many companies supplied Royal Mail with their tyre sealant in small trial quantities for them to test, however at the conclusion of these trials Puncturesafe UK was awarded a contract to supply Royal Mail with permanent puncture prevention treatment throughout the UK and Northern Ireland - testament to both the consistent high performance and cost-effectiveness of Puncturesafe.*

*Some companies had offered their tyre sealant at very low prices and Royal Mail experienced some major problems with one of these sealants supplied by another manufacturer who initially joined us in a dual supply contract. As problems occurred over time with the cheaper sealant, the dual supply contract was quickly changed to an “exclusive contract” for Puncturesafe UK. At the end of the initial first year contract it was proven to all concerned that cost cutting is not a wise option - in this day and age you only get what you pay for - and indeed sometimes you don't even get that.*

*Our closely guarded manufacturing process produces a premier unique product, so Puncturesafe worked continuously and over time did not cause any issues in the very hot and hostile environment inside the tyres of Royal Mail's high speed vehicles.*

***Puncturesafe's ability and performance is not diminished with speed, distance or time***

### ***Testimonial from the former Royal Mail supply chain buyer (contracts manager)***

From: <\*.\*\*\*@royalmail.com>  
To: <mail@puncturesafe.com>  
Attach: Royal Mail Testimonial  
Re: Supplier PR Request

Royal Mail Group has been investigating tyre sealants for some time now, because tyre costs annually are considerable and downtime caused by tyre related incidents is a major problem.

We were not sure of the difference between the many sealants in the market, so we approached a significant number of tyre sealant manufacturers in Europe and the UK, including Puncturesafe. We tested 4 of these products extensively at various Royal Mail depots around the UK, over many months, and in different types of vehicles. We were delighted with these trials and in particular the performance and service levels of Puncturesafe. Our puncture rate has reduced dramatically since we began using it, and downtime caused by punctures has been reduced significantly.

Initially we awarded two contracts to supply with a view to selecting one company for a solus contract if they could meet all our service criteria and operate at a level consistent with a supplier to a large blue chip company. Unfortunately, the product and some service levels of one of the companies we issued a contract to, did not live up to our expectations. However I am glad to report that the Puncturesafe product lived up to all our expectations, so therefore they have been awarded the sole contract to supply puncture prevention for our 32,000 vehicle fleet. The service that we have had from Puncturesafe UK has always been excellent and very professional, and we look forward to a long and rewarding relationship with them.

\*\*\*\*\* (Details held on file)

MCIPS BSc Hons. Royal Mail Supply Chain Buyer - Category Vehicles

# FlexxaGel and The 80/20 syndrome

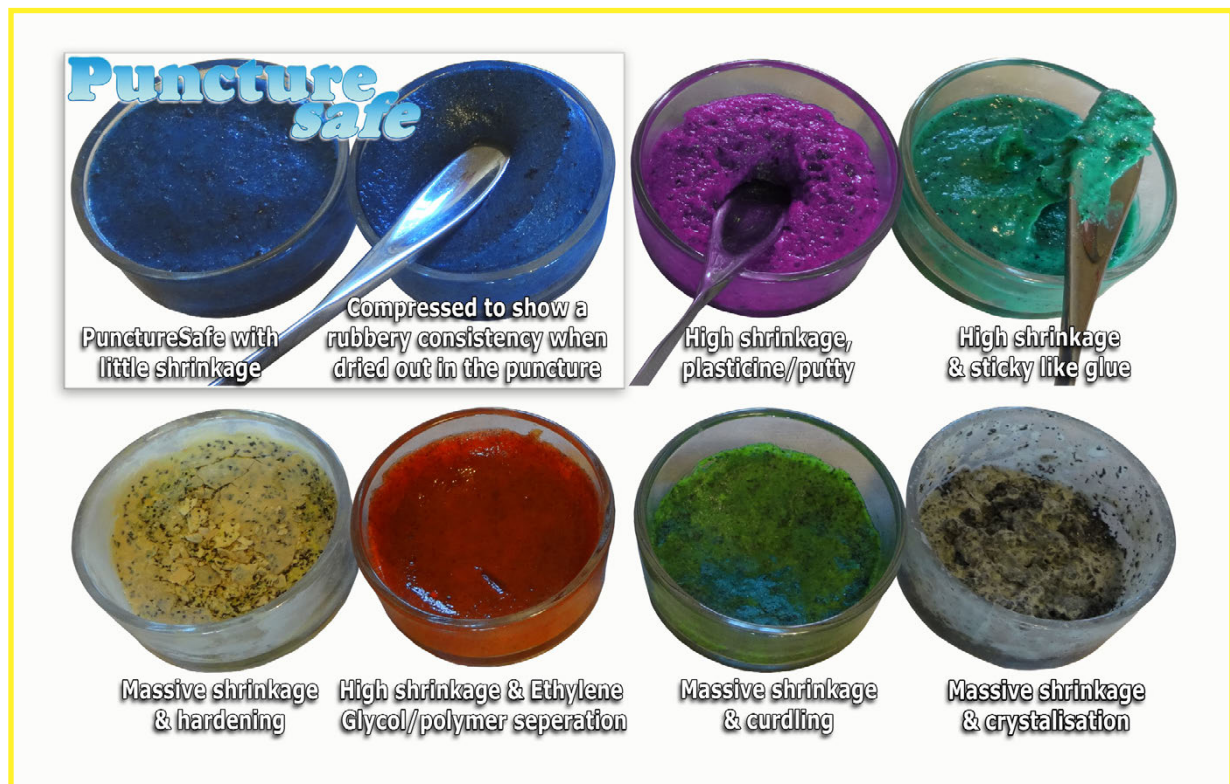
The seal is permanent because of two very important attributes of PunctureSafe:-

A/...there is no shrinkage of the drying polymer in the puncture because the gel is 80% polymer and only 20% liquid because we do not use cheap ingredients that bind huge amounts of water. It is common for similar products to be the other way round with 20% polymer and 80% liquid.

B/...The gel dries and cures to a firm, flexible and rubber consistency which means the seal will flex with the puncture causing no air loss over time.

It is a fact that any viscous wet compound containing fillers such as fibres and rubber particles will initially seal a puncture whilst in the wet state because wet compounds will flex with the tyre in the puncture, but the problems arise in many of these "so called" similar products when the liquid escapes out of the puncture into the atmosphere causing the compound in the puncture to dry back to the original ingredients. When dried out these "so called" similar products will vary in looks and texture because of the vast difference with ingredients used in these tyre sealants to such as:- Biscuit, Plasticine, Putty, Paper, Crystalline, Flour, Sticky pritstick, Bluetack, cement, clay etc. The descriptions and looks of many of these dried out products are neverending, but it is a fact that in the wet state these gloopy tyre sealants all look very similar, except in colour, but that is where the similarity ends. Many of these compounds that have usually been formulated by people without any knowledge of chemistry whatsoever, once dried out in the puncture will eventually fail, resulting in a flat tyre, sometimes within days or just weeks after the initial puncture.

The eight images directly below are of PunctureSafe and six "so called" similar products that have been allowed to dry out in a laboratory oven at 50 degrees C for 24 hours. When fully dry PunctureSafe has very little shrinkage and is flexible and firm which is the attributes required of a dried out tyre sealant in the puncture to permanently seal the puncture, and especially in the low speed market where punctures can be caused by puncturing objects up to 30 mm in diameter. It is our trademarked secret ingredient "FlexxaGel™" that gives PunctureSafe so many of its quality attributes.





# The key features of Puncturesafe

**Positive sealing capabilities:-** A Puncturesafe seal is positive and secure thereby transforming any tyre into a self-sealing tyre. Puncturesafe High Speed Grade is capable of sealing tread area punctures caused by puncturing objects up to 6mm in diameter, HD Grade - 15mm and XHD Grade - 20mm as long as the puncturing object has not severely damaged or weakened the tyre's structural integrity. Puncturesafe cannot create a secure seal in any tyre that has major internal damage, regardless of the puncturing object's diameter. The sealing capabilities of Puncturesafe are unequalled by any other tyre sealant in the world.

**Eliminates most flats and blow-outs:-** The majority of flats and blow-outs are a result of driver negligence. The number one cause being excessive heat generated from under-inflation as the overheated, under-inflated tyre becomes soft and can be easily punctured. However under inflation also creates additional problems such as tread and ply separations - all primarily caused by porosity (natural air migration) which exists in all tyres to some degree. Puncturesafe eliminates air migration and prevents the majority of damage caused by under inflation.

**Extends tyre life:-** Puncturesafe helps maintain air pressure, reduces heat build-up and thereby increases the life of the tyre. The added conditioners also help to retard pre-ageing within the casing.

**Protects against under-inflation:-** Puncturesafe has the ability to eliminate porosity, air migration and seepage and allows the tyre to maintain proper air pressure. This in turn prevents rolling resistance and heat build-up which is the biggest cause of high fuel consumption and tyre failure.

**Heat reduction (Heat is the number one cause of damage to tyres):-** Puncturesafe contains specific ingredients which, helps conduction of additional heat away from the tyre to the rim, the tyre's natural heat sink. This results in a cooler running tyre for any type of vehicle or equipment - regardless of use.

**Safety factor:-** Puncturesafe is specifically formulated to allow any serious and potentially dangerous puncture in a tyre to deflate slowly and in a controlled manner. This attribute provides additional safety and aids to alleviate the hazards usually associated with blow-outs. Irrespective of the diameter of the puncturing object, Puncturesafe will not create a secure seal in a tyre that has suffered major internal damage because Puncturesafe needs rubber recovery in order to work effectively. Cords play a vital part in rubber recovery, however Puncturesafe and air will bleed slowly out of a punctured tyre that has suffered damaged cords, giving the driver a controlled deflation.

**Lasts the life of the tyre:-** Puncturesafe's unique thermal properties, manufactured in a proprietary process, protects the polymers against heat and provides the ability to overcome the centrifugal force of a rotating tyre. Puncturesafe's ability & performance does not diminish with speed, distance or time.

**Protects the entire inner surface of the tyre:-** Puncturesafe provides a coating of approximately 3 to 4mm thick that clings to the entire inner surface of the tyre, thereby providing protection at all times. The sidewall of a tyre is very thin and flexes considerably, therefore any puncture in this area will not be positively sealed by Puncturesafe and the tyre will deflate in a slow and controlled manner thus maintaining stability.

**Water soluble:-** In its liquid state Puncturesafe is completely water-soluble (for easy clean out) and when rinsed with water does not leave any residue, however once Puncturesafe has dried to a rubbery plug within a puncture it will not return to its liquid state. Standard repairing procedures can be utilised as normal.

**Protection against rust and corrosion:-** Puncturesafe contains a complete rust and corrosion inhibiting system that not only protects steel and alloy wheels, but will also protect steel belts in the tyre once a puncture has occurred. Puncturesafe prevents outside contaminants from leaching back into the puncture which would cause the steel belts to rust or ply to separate.

**Retards pre-ageing of tyre casing:-** Because Puncturesafe contains specific conditioners it has the ability to inhibit ageing from within the tyre, thereby increasing the life of any tubeless tyre casing.

**Will not void any tyre manufacturer's warranty:-** Puncturesafe's unique polymer composition is completely compatible with every component in any tyre and therefore will not void any tyre manufacturer's warranty. It is also a fact that tyre manufacturers cannot void a manufacturer's warrant simply because a puncture prevention treatment is in a tyre. They must establish first if the addition of a sealant to a tyre caused such damage.





# The main safety features of Puncturesafe, High Performance, High Speed Grade

## Only seals punctures that are safe to seal

Puncturesafe does not have any of the failings that are inherent in many previous and most of the current products available on the market today. Traditional tyre sealants contain large chunks of rubber particles that are incapable of sealing small holes in a tyre, yet they will readily seal a large and dangerous hole or gash. Conversely, Puncturesafe contains only small rubber granules and synthetic fibres that when interlocked in a puncture are extremely strong. Puncturesafe will only seal punctures in the tread area that is safe to seal and which have been caused by puncturing objects no larger than 6mm in diameter and only if the hole is shrinking in size because neither excessive tyre rubber has been lost or cord damage has occurred. These small punctures account for 90% of today's punctures in high speed vehicles. Any larger, either with or without cord damage and Puncturesafe will just slowly bleed through the hole giving a controlled deflation. In these circumstances air pressure loss in the tyre will either stop or slow down at the lower pressures of 10 to 15 PSI, dependent on the severity of the puncture. This slower loss of air pressure prevents damaged rims and enables the driver/rider to maintain control and possible continuation of the journey, thereby removing the vehicle from a potentially dangerous location. Puncturesafe will not seal a puncture in the sidewall because the sidewall is much thinner and more flexible, therefore in the event of sidewall punctures a controlled deflation will usually occur.



## Full and even coverage throughout the whole inner tyre



Common with tyre sealants is their inability to give complete crown coverage in a high speed tyre, at best they usually only cover 60%, which becomes less as the vehicle increases in speed because more of the tyre sealant is driven to the centre of the crown area creating a mound that can cause vibration at the higher speeds. One of the components of Puncturesafe is a polymer gel (**FlexxaGel™**) which has an ability to adhere to rubber even in a vehicle moving at very high speed. Although **FlexxaGel™** behaves like a glue and has properties similar to glue, it is not a glue. When the lateral movement of a vehicle throws the excess Puncturesafe over the whole of the crown area and sideways up the inner sidewalls of the tyre, the properties of **FlexxaGel™** allows Puncturesafe to cling evenly over the whole inner tyre surface at all speeds. This maintained crown and shoulder area coverage gives added heat dispersion to the rim via sidewall coverage due to conduction. Heat dispersion to the rim allows a cooler inner tyre and cool tyres are less susceptible to punctures. The gel's ability to seal porosity leaks over the whole inner tyre helps maintain tyre pressure, the tyre becomes much safer and with extended tyre life. Incorporation of **FlexxaGel™** into the process also gave the finished sealant incredible elastic properties enabling it to stretch and flex, uniformly covering the whole inner tyre with increasing speed. **FlexxaGel™** is exclusively manufactured at our Devon facility and is one of our most closely guarded trade secrets.

## Withstands the heat and stress in a high speed tyre

Unlike most tyre sealants, Puncturesafe's concentrated polymer gel formulation containing over a 15 polymers, rubber and fibre fillers, will not separate, ball or dry up, thereby withstanding the extreme heat and centrifugal forces that can be created in the hostile environment of a very high speed tyre. In a closely guarded proprietary process, Puncturesafe is manufactured to stay liquid in a high speed tyre for the entire lifetime of the tyre, irrespective of its use. Compared with most tyre sealants, the Thixotropic properties of the Puncturesafe polymers allow change from a very viscous gel to a thin liquid when the vehicle is at speed, yet returning immediately to a viscous gel when the vehicle comes to rest, and it is this feature that helps stabilise the polymers from eventual breakdown. The less viscous thixotropic polymers allows Puncturesafe to find a puncture immediately a puncture occurs in a tyre. Most tyre sealants pool on the bottom of a tyre in a stationary vehicle causing vibration with each forward movement, but Puncturesafe stays firmly coated over the whole inner tyre at all times. Puncturesafe's ability and performance is not diminished with speed, distance or time.

## Outstanding at sealing punctures

Puncturesafe's makeup is 80% polymer and 20% liquid which means its very high solids content dries to a flexible rubbery plug in the puncture without any shrinkage. The polymer gel suspends a special mix of highly fibrillated fibres and granulated rubber fillers which contribute to Puncturesafe's sealing abilities, so once the seal is in place it is permanent and will not fail at a later date which can happen with a conventional patch. **It is a fact that a tyre treated with a quality puncture prevention treatment is a far safer tyre than one without.**



Puncturesafe - in a league of its own

Our new product just ready for Market April 2018

# THE ULTIMATE DIY & PROFESSIONAL EMERGENCY PUNCTURE REPAIR KIT

“SEALS PUNCTURES ANYTIME, ANYWHERE, TO GET YOU MOBILE AGAIN ‘FAST’

## STRONG



Extra heavy-duty components designed to cope with punctures in an extensive range of tyres and sizes.

## SAFE



Extremely safe installation, as the Air Compressor supplied with this Puncture Repair Kit is NOT used to install the sealant gel into the tyre.

## UNIQUE



Unique and powerful pump enables a quick and easy injection of “PunctureSafe sealant gel” into the punctured tyre from a 1 litre container.

## GREEN



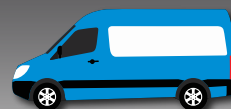
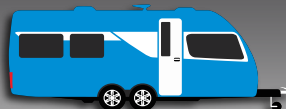
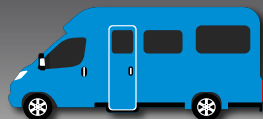
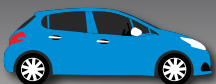
The sealant gel does NOT contain solvents so will NOT damage the tyre. It is water-soluble and can be easily cleaned out or left in for the life of the tyre, after checking it is safe to do so.

- 1 Install the gel into the punctured tyre
- 2 Re-inflate the tyre and drive away



SUITABLE FOR A LARGE VARIETY OF ON/OFF ROAD VEHICLES

CARS | LEISURE VEHICLES | TOWED VEHICLES | LARGE VEHICLES | MOTORCYCLES | OFF ROAD VEHICLES



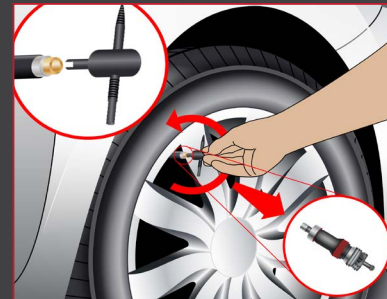
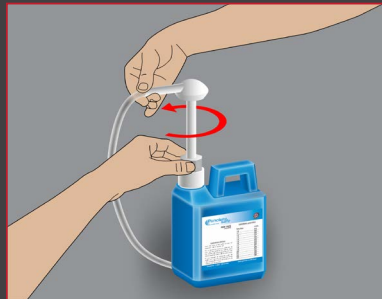


## INSTALLATION GUIDE



The Sealant Gel - UK Manufactured

**1** Turn the pump head anti clockwise until the pump shaft releases and springs up. It is important to hold the lower hexagonal socket firm whilst doing this to prevent the complete pump from unscrewing from the container. It is normal to see a little sealant on the extended pump shaft.



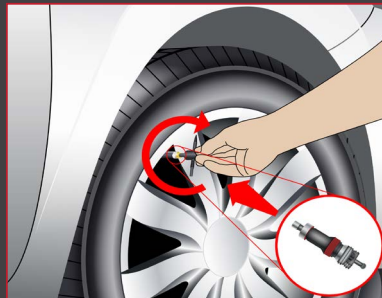
**2** Remove the valve core from the valve with the 4 way tool, by inserting into the valve and turning anti-clockwise whilst applying light pressure.



**3** Place the brass clip over the valve to prevent any further air loss. The pump will dispense the gel even if there is up to 20psi pressure still in the tyre.



**4** Depress the pump several times until sufficient sealant gel enters the tyre via the flexible tube. Full pump instructions and correct quantities for individual tyres are on the container label.



**5** After installation remove the clip and refit the valve core into the tyre valve turning clockwise. Do not remove the puncturing object because it will help to seal the puncture.



**6** Turn on the engine and connect the compressor to inflate the tyre to a safe pressure and drive the vehicle for 400+ metres for the gel to locate the puncture. Re-inflate to the correct tyre pressure.



**7** Drive 1 mile at 50mph max to form a tight seal, then stop and re-inflate the tyre if required. Continue at 50mph max to a safe location where the tyre can be inspected.



## KIT CONTENTS




## 12v COMPRESSOR



## INFORMATION

- 2kg, high-powered 12v compressor that will quickly inflate a tyre with a puncture and will not lose power at high tyre pressures. Powered from the cigarette lighter socket or direct from the battery.
- 1 litre of PunctureSafe eco-friendly, water soluble sealant gel - enough for more than 1 puncture.
- Very powerful built-in sealant gel pump for extremely quick and effortless installation.
- Strong, robust metal 4 way valve core remover tool.
- Adaptor, with heat resistant copper clips and heavy duty 16AWG wire cable for alternatively connecting the compressor to the battery.
- Four spare valve cores.

- Heavy-duty and gear-less direct drive motor.
- All copper wired very powerful motor.
- Aluminium piston with PTFE piston rings.
- Anodised aluminium alloy cylinder.
- High strength stainless steel valves.
- Self lubricating bearings (NOT bushes)
- Oil-less design, maintenance free.
- Easy to read pressure gauge with night light.
- Equipped with fused cigarette lighter plug.
- Includes nozzles for inflating leisure items.

- A jack is NOT required as the whole process is carried out with the tyre and wheel in situation.
- The sealant gel is manufactured with technology not found in any other sealant. 1 litre refills available.
- The sealant gel contains an ECO friendly anti-freeze, NOT the toxic Ethylene Glycol. 
- Suitable for all tyre sizes on high speed domestic vehicles and small to medium sized slow off-road vehicles.
- Parts guaranteed for 1 year (sealant gel 5 years)
- Fully comprehensive information with application amounts for tyre sizes enclosed.
- Safety Data Sheet at [www.puncturesafe.com](http://www.puncturesafe.com)