

Self Sealing Tyre Technology Product Information Pack

- * Protect Your Tyre Investment * Maintain Correct Tyre Pressure *
- * Improve Fuel Economy * Reduce Tyre Cost and Downtime *
- * Ensure Safety and Security *

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What is Self Sealing Tyre Technology

SSTT is a *Propylene Glycol* based water soluble tyre sealant which when installed in a tyre will give full protection against air loss for the entire legal life of a tyre and will eradicate the following:

- Tread punctures
- Bead leaks
- Rim leaks
- Porosity
- Tube tyre or wheel-related leaks

SSTT has a revolutionary water and chemical formula that enables the product to remain fluid at all times, thus enabling the product to immediately seal a puncture wound made by a puncturing object. Up to 6mm in diameter in a car tyre and a puncture wound made by a puncturing object of up to 12mm in a commercial vehicle tyre (in the main the tread area of the tyre), without loss of air pressure. As a result, SSTT gives the advantage of longer tyre life together with lower downtime and maintenance costs.

SSTT is designed to keep the product in constant suspension. The product adheres to the internal wall and tread area and as the product remains fluid at all times, SSTT gives constant protection.

This does 3 things:

- (i) It seals punctures as they occur.
- (ii) It eliminates under-inflation by sealing all leaks.
- (iii) Optimizes fuel economy

SSTT is classified as non-toxic, non-hazardous. It does not require (EPA) – Environmental Protection Agency classification and complies with all (TSCA) – Toxic Substance Control Authority requirements.



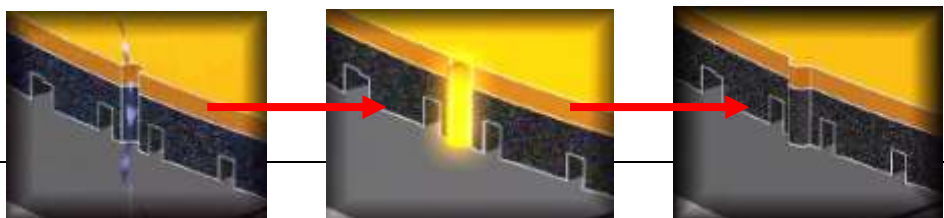
This is how Self Sealing Tyre Technology Works:

(a) SSTT is injected through the tyre's valve and forms a protective coat on the inside of the tyre



(b) A puncturing object, (such as a nail) penetrates the tyre, which now has an even and permanent layer of SSTT on its inner surface.

(c) SSTT is forced into the hole by internal air pressure forming a permanent rubber seal.



About Tyre Sealants

Tyre sealants are manufactured to seal punctures from within. It is installed through the valve after the removal of the valve core. The tyre does not have to be deflated to complete the operation.

Products on the market today are as listed:

→ **Rubber Based**

This is a get-you-home product and comes in a pressurised aerosol can and is injected AFTER the tyre has been punctured. It inflates the tyre at the same time. This material solidifies inside the tyre.

→ **Water Based**

These are normally sold in plastic bottles and the contents squeezed into the tyre when the tyre has been deflated and before a puncture occurs. The sealant remains liquid but may freeze and/or separate at low temperatures.

→ **Glycol Based**

This product will come in a 25-litre container and will require the use of a pump for installation. It is a very consistent sealant and will not freeze, separate or dry out under adverse conditions.

Such a product is SSTT, with more than 20 ingredients accommodated within the formula, making SSTT the most advanced tyre sealant on the market.

Tyre Sealants... Good or Bad?

All tyres are porous and lose air. Porosity is one of the leading causes of under inflation. To eliminate porosity, the use of SSTT is strongly advised. Tread separation and heat build up caused by under inflation can occur and will in turn precipitate tyre failure and blowouts.

Tyre sealants have been around for a long time, but the industry could not produce a sealant which could withstand the pressure and stresses in tyres at speeds over 30 miles per hour.

However, in the 1990's, by applying new space age technology, a breakthrough came about. A tyre sealant, which could tolerate heat, cold and the centrifugal forces imposed upon it, was created.

SSTT is that product.

The unparalleled ability of SSTT to perform well at almost any temperature and at speeds of up to 150mph is an exceptional technological advance. Its compatibility with any type of tyre construction is guaranteed. SSTT will prevent rust and corrosion and will last for the legal life of the tyre.

Self Sealing Tyre Technology Enhances Tyre Life

Fleet owners have major problems with tyres and would do virtually anything to keep air in the tyres and keep vehicles moving. This is where SSTT comes in; it is in a class of its own.

Major Factors in Obtaining a Good Tyre Sealant:

1. Safety

Today, a tyre sealant must be chemically benign. That is non-toxic, non-hazardous, non-flammable and biodegradable. SSTT is all of these and totally environmentally safe.

FACT:

A tyre sealant was featured on BBC TV on Tomorrows World as a potential life saving device for motorists. (May 2001)

2. Compatibility

SSTT is in total harmony with all elements present in tyres. It is a requirement that a sealant be tested before use and then after 25,000 miles use. This affirms that the sealant will not cause problems later. SSTT has been tested and meets all the specifications required. Rust inhibitors and anti-bacteriostats are present in SSTT to ensure its compatibility with all tyre components.

3. Dependability

A tyre sealant manufacturer who is honest will have no hesitation in guaranteeing the integrity of his/her product by producing genuine documentation as proof that their product meets or exceeds the specifications laid down to any fleet operator for their general inspection.

Tyre Inflation

How Does Tyre Inflation Affect Maintenance Costs?

If a tyre is correctly inflated it will have less rolling resistance, which will result in longer tyre life and better fuel mileage.

A good example is the wheelbarrow. If you have a barrow loaded with sand and it has an under inflated tyre, you will find it very difficult to push around.

Inflate the tyre to the correct pressure and you can push it anywhere. The same applies to a vehicle; the only difference being the engine is using more costly fuel than necessary.

Poorly inflated tyres resist rolling and cause poor fuel mileage. They also heat up quicker and run hotter, wearing out 10% to 40% faster than they should. Heat is the number one tyre killer and under-inflation also is its main cause. So you pay the penalty twice, as this chart shows.

Pounds Under-inflated	% Tyre Tread Loss	Lost Fuel Economy
5lb (15%)	22%	3.1%
7lb (20%)	28%	4.4%
10lb (27%)	37%	6.25%

Typical 36psi capacity tyre. Tested and road proven by Shell Research Laboratories.

If an average truck tyre is under-inflated by 5lb, this represents an:

- Increase in tyre wear – 25%
- Increase in fuel use – 3%

With under-inflated tyres, you not only pay more for fuel and maintenance, but you also lose your current tyre investment faster and have to pay for new tyres or retread sooner.

Correct Inflation

A tyre is an envelope consisting of materials forming a long chain of macromolecules. The tyre itself does not carry the load, rather it is the air within the tyre that carries the load and provides the only support between the vehicle and the road. The workings of a tyre are dependent on correct air pressure and manufacturers agree that under or over inflation will restrict tyre life considerably.

According to Goodyear – “Correct inflation is the most important fact in tyre life. Neglect of tyre maintenance, and especially tyre pressure maintenance, has cost fleets thousands of pounds. Under inflation should never be permitted.”

FACT:

A tyre, under-inflated by 15%, will wear 20% faster, and waste 3% more fuel.

*Shell Research
Laboratories*

Under Inflation

The results of under inflation are:

- Increased rolling resistance, resulting in higher fuel consumption;
- Poor pavement grip, decreasing safety;
- Blow out risk, due to overheating;
- Reduction in resistance of punctures and cuts;
- Destruction of casing carcass, making re-treading impossible;
- Ply separation;
- Uneven tread wear.

Self Sealing Tyre Technology Increases Driving Economy

Eliminates Under-inflation

- extends tyre life
- improves fuel mileage and saves RRRR's

Maintains the Right Air Pressure

- eliminates slow leaks
- protects against tread separation
- cuts down need to constantly check tyres

Reduces Tyre Wear

- improves safety and economy
- improves driveability and load factors

Guards Against Punctures, Flats and Blowouts

- improves fleet dependability
- reduces need for backup vehicles
- saves manpower

Improves Safety

- will not mask or hide dangerous wounds
- operates over any terrain
- effective at high speeds

Reliable for Entire Tread Life of Tyre

- SSTT comes with a full factory warranty

Self Sealing Tyre Technology Manufactures Two Grades

- Domestic / Commercial Grade for use on high speed vehicles
- Extreme Heavy Duty Grade for use on off-the-road (OTR) equipment, combat and slow moving vehicles

Quick and Easy to Use

- no need to completely deflate tyres to add SSTT
- manual and automatic pumps, and valve core remover available

Permanently Seals Leaks

- reduces downtimes and need for on-road service calls

Protects Tyre Casing and Keeps it Supple

- extends life of casing and tread
- conditions casing, retarding ageing and dry rot

Fully compatible with Tyre Components

- does not void manufacturer's tyre warranties
- does not damage tyre compounds

Provides All-Weather Protection

- operates from -40°F to 300°F
- won't freeze or evaporate inside tyre

Inhibits Rust and Corrosion

- protects steel belts, wheels and rims

OK in Re-treads

- actually increases retread ability
- helps eliminate tread separation

Most Commonly Asked Questions

What is Self Sealing Tyre Technology?

SSTT is a unique blend of many chemicals in a viscous state. It coats and clings to the inner walls of the tyre and wheel. SSTT is water-soluble and leaves no residue when rinsed out of a tyre or washed off any surface with water. It does not adhere like glue. SSTT is non-flammable, non-volatile, non-toxic and not a hydrocarbon.

How does Self Sealing Tyre Technology work?

SSTT is injected through the valve and remains liquid inside the tyre for the entire life of the tyre. By coating the entire inner surface of the tyre and wheel, SSTT conditions the casing, seals porosity, seals leaks and protects against most blowouts and air loss from punctures. The first time the vehicle is driven approximately 30 to 50 miles or more, SSTT disperses throughout the entire air cavity. Normal flexing of the tyre and centrifugal forces enable SSTT to seal the tyre so the correct air pressure will be maintained.

How much Self Sealing Tyre Technology do I require?

From as little as 200mls per tyre for passenger cars, to many litres for the largest trucks and off-road heavy plant or construction vehicle tyres. Our SSTT 'Installation Manual' lists every tyre size available on the market and the required grade and quantity per tyre.

Is Self Sealing Tyre Technology cost effective?

Yes! SSTT will cut annual tyre repair and maintenance costs, service calls and downtime losses by an average of over 75%. Saving most fleet companies approximately 20% to 25% from their annual tyre and fuel budget. After a physical tyre puncture demonstration has been performed, SSTT will accurately produce a detailed '**cost analysis report**' for a fleet manager utilising state of the art computerised software and highlighting the areas where SSTT can assist in effective savings based on the fleets annual tyre expenditure.

Is it difficult to install Self Sealing Tyre Technology?

No! SSTT'S installation equipment has been designed for ease of use. From litre calibrated manual pumps to multi-litre dispensing air and electronic pumps for larger fleets along with specially designed state of the art dual application equipment make it simple to install. The average passenger car or light truck takes approximately 5 minutes per tyre to install, while a large truck averages approximately 10 to 15 minutes per tyre, including visual tyre damage inspection time.

Does Self Sealing Tyre Technology cause imbalance problems?

No! SSTT cannot create an imbalance situation. If the tyre and rim are properly balanced prior to installing SSTT and neither is out of round, then there will be no change in performance. SSTT does not balance tyres or rims. If a problem does exist then SSTT may aggravate the situation, which alerts the driver that there is definitely a tyre, rim or suspension problem.

How long will Self Sealing Tyre Technology last once installed?

SSTT International Ltd warrants SSTT for the legal tread life of the tyre. SSTT does not cease to function or break down over time.

Will Self Sealing Tyre Technology freeze or evaporate during extreme weather?

No! SSTT ethylene-glycol base (similar to anti-freeze) protects against heat and cold from -40°F to over 365°F. In extreme cold weather below -40°F SSTT can slightly thicken, but as the tyre heats up from normal friction, SSTT quickly returns to its normal viscosity.

What is the shelf life of Self Sealing Tyre Technology?

SSTT International Ltd. Certifies that when stored in factory sealed original containers, SSTT may be stored for at least 60 months, out of direct sunlight and in a temperature range of -7°C ($+20^{\circ}\text{F}$) to $+35^{\circ}\text{C}$ (95°F), a shelf life of 5 years.

Does Self Sealing Tyre Technology collect at the bottom of the tyre or ball up?

No! SSTT thymotropic properties prevent this from happening. The thymotropic-gel formulation seems to defy gravity and is capable of clinging to the entire inner surface of the tyre and rim. There are no adhesives in SSTT and it will not cause any chemical changes to the tyre that would void the warranty. This ability to coat the inner tyre and rim is one of SSTT International's most closely guarded secrets. The thymotropic-gel also protects against separation and formulation breakdown. A tyre's highest and lowest operational temperatures and the centrifugal force generated in the tyre at any speed will not cause SSTT to break down.

Can a tyre that has been treated with Self Sealing Tyre Technology be repaired?

Yes! SSTT is totally water soluble in its liquid state. SSTT does not contain adhesives; therefore, it is easily removed from any tyre. All major repairs can be performed without any additional preparation.

How big a puncture will Self Sealing Tyre Technology repair?

Up to a $\frac{1}{4}$ inch (6mm) hole is instantly sealed in domestic vehicles and $\frac{1}{2}$ inch (12mm) diameter in commercial vehicles.

How does Self Sealing Tyre Technology repair a tyre when a puncture occurs?

When a puncture occurs, the SSTT coating encapsulates the puncturing object, sealing around it. When the puncturing object is ejected or removed, SSTT is drawn into the wound by the capillary action of the escaping air. The tyre construction around the wound recovers or closes-up from the removal of the puncturing object thereby trapping the SSTT repair clot. The repair clot cures and becomes non-water soluble to protect the inner structure from outside contaminants.

Will Self Sealing Tyre Technology hide or mask a dangerous puncture?

No! In fact SSTT'S unique formulation is designed to purposely release air from unsafe punctures or weakened tyre casings at a controlled rate. This is a safety factor that has been designed into the formulation where a puncturing object has extensively damaged the tyre's inner-structure. The SSTT repair is only as strong as the tyre and will not hide or mask a dangerous tyre wound.

Can Self Sealing Tyre Technology be used in tyres with tubes?

No, a good many of breakdowns are as a result of tubes being used when the tyre should have remained tubeless. We at SSTT International advise against the use of tubes at all costs. They are unnecessary and are prone to punctures all the time. A puncturing object causes the tube to burst like a balloon rendering SSTT ineffective.

Is Self Sealing Tyre Technology as good as a patch?

Yes! In most cases SSTT is better than a patch because SSTT is a preventative system as well as a tyre life extender. A patch is a repair that is performed after the tyre has gone flat and in most cases driven a short distance in a flat condition. Driving a radial tyre for even a short distance will create internal extensive damage that is irreversible and normally goes unnoticed by the tyre repairperson. The '**safety involvement**' is a major factor in utilising SSTT Tyre Life Extender/Sealer as a preventative maintenance system.

Does Self Sealing Tyre Technology create a mess when a tyre is dismantled?

No! SSTT is viscous liquid and when installing the product with SSTT'S installation equipment there is no mess or waste. SSTT does not flow like water, therefore a SSTT treated tyre that is dismantled normally, will not splash sealant around because there is only a small amount of reserve that has settled (approximately 20% of the installed amount). If the mechanic breaks the bead prior to releasing all of the air from the tyre, the SSTT around the bead and rim tries to seal the escaping air, resulting in a mess usually around the mechanic's mid-section. If, after the tyre has been dismantled, it is thrown across the room, there is a good chance that the reserve will splash out. Once a mechanic understands the simple basics on handling SSTT, there is never a problem.

Will Self Sealing Tyre Technology attack or corrode steel belts?

No! SSTT advanced proprietary repair clot and curing attributes have proven that the specialised rust inhibiting system protects against rust and corrosion. This unique ability to cure within a wound also protects the steel belts from outside contaminants. These particular attributes do not exist in any other known tyre sealant.

Will Self Sealing Tyre Technology rust or corrode rims?

NO! SSTT rust and corrosion inhibit system continuously works to prevent rust or corrosion. SSTT cannot eliminate existing rust or corrosion, but will neutralise it and prevent additional damage.

How effective is Self Sealing Tyre Technology?



Successfully tested by R.A.P.R.A (Europe's leading Rubber and Plastics Research Association)

Tested to ECE regulation 30 Standard

- Tested to speeds of up to 250Kph
- Can withstand 4 times maximum pressure loading after puncture has been made.

Manufactured in South Africa.

100% Guarantee

SSTT is guaranteed to seal porosity and air migration leaks and punctures up to ¼ inch (6mm) diameter for passenger vehicles and up to ½ inch (12mm) for commercial vehicles within the tread area for the legal life of the tyre.

In the unlikely event of any deflation occurring within these criteria, we promise to bear any costs on the repair of the puncture and reinstall the sealant free of charge.