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RPS

tire seal





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What are the benefits of the RPS Tire Service Sheme?

RPS features a new tire service sheme

● **The main objectives of said sheme are:**

1. Reduction of actually incurred total tire cost.
2. Increase of safety.

● **What is the RPS Tire Service Sheme comprised of?**

RPS is a preventive service product to be injected once into the tire. RPS will extend the lifetime of vehicle tires and seal probably occured punctures immediately and finally.

Depending from need, you may choose from various product ranges

1. Light operation
2. Normal operation
3. Heavy-duty operation

Once putting RPS in the tire, this product will fight the four major reasons of flat tire:

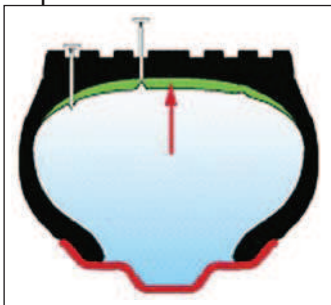
1. Punctures
2. Inadequate tire pressure
3. Overheating
4. Tire unbalance

Punctures

RPS will seal punctures at the tread area of tire up to a diameter of approx. **6 millimeters** (normal operation) and **14 millimeters** (heavy-duty operation) in dependence on the product mix and the tire.

At the moment when the puncture occurs, the **RPS** fibers enclose the object (for instance, a nail) that has caused the puncture, thus preventing any loss of pressure.

This will happen in case of each new penetration.



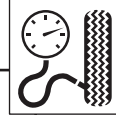
When the object is removed, the fibers are pressed upon driving into the hole due to the combination of centrifugal force and vehicle weight, continuously deforming the tire.

Thanks to this kind of sealing, hardly any air escapes from the tire and an optimum and final sealing of the tire is achieved that is also tight against any ingress of water, dirt and snow.

The fibers retain their flexibility and are only sealing due to the twisting effect of fibers.

Since RPS does not act on adhesive basis, the tire remains fully capable of repair and retreading.

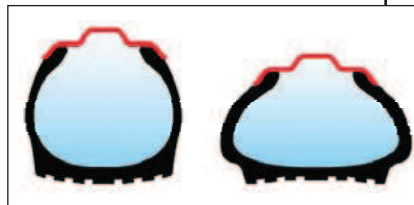
Inadequate tire pressure



Too low tire pressure adversely affects the lifetime of your tires to a considerable extent and is the major reason of problems:

- > Wear of increases considerably. This shortens the lifetime of tires.
- > Under some circumstances, dents and cracks may occur at rims.
- > Flexibility of tire sidewalls undergoes much more stress which may cause rupture of bead heel cord and separation of junction between rubber, core material and steel components of tire.
- > Too low tire pressure will increase fuel consumption.

Inadequate tire pressure occurs very frequently. Tests performed by order of the manufacturer Firestone gave evidence that, upon a random inspection of radial tires, approx. 84 % showed too low, 13 % too high and only 3 % of the tested tires adequate tire pressure.



Unequal pressure on the same axle will cause unequal braking, steering errors, and tracking deviations during acceleration.

Too low tire pressure is not only caused by punctures. Other causes may be: longer downtimes of vehicle, a small puncture at the edge of a tire or punctures in the bead heel of tire.

Rubber tires are always relatively so that a tire that is not in use for a longer period will gradually lose pressure.

RPS considerably reduces said porosity and prevents any loss of air so that the tire pressure remains practically unchanged.

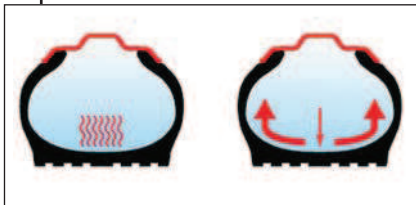
Any decrease of tire pressure due to punctures at the edge of tire and in the bead heel of tire is remedied by correct application of **RPS** as well.

Overheating

Heat is fatal to your tires.

It considerably shortens the lifetime of tires. Because rubber is a poor heat conductor, the heat produced by friction between tire and road is concentrating in the tread area of tires.

In case of too low or too high tire pressure, the contact surface between tire and road is only small and all the heat accumulates in said small surface.



In case of adequate tire pressure, the heat is distributed over the entire tread area of tire.

RPS does not only ensure that your tires are always maintaining the adequate tire pressure, the product is distributed over the complete inner side of the tire due to the influence of centrifugal force. It absorbs the heat from the tread area, and distributes said heat over the whole tire.

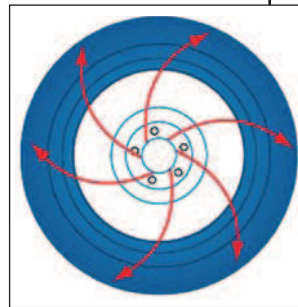
As a consequence, the tire temperature decreases.

The heat conductivity of **RPS** is achieved by the presence of glycol and organic matters.

Preventing tire unbalance

RPS balances the tires hydrodynamically during rotation. This is achieved due to the fact that the product is uniformly distributed to the spots that are farthest away from the center of rotation due to the influence of centrifugal force.

Uniform distribution of **RPS** ensures that center of rotation and actual center of shaft are equal. Therefore, any unbalance is remedied.



This unbalance cycle, however, can take place only if the weight relationships between the injected **RPS** and the tire are sound. This is the case for truck tires.

The aforesaid characteristics, such as heat distribution, hydrodynamic balancing and prevention of air pressure loss contribute to an important extension of the lifetime of tires.

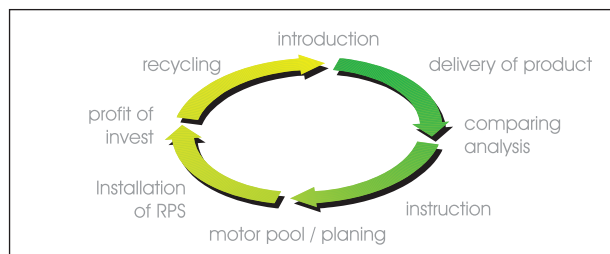
Survey of the benefits of RPS Tire Service Scheme:

- > Enhanced lifetime of tires - 36 % on an average ✓
- > Essential service cost reduction of tires ✓
- > Punctures of 6 to 14 mm in diameter are sealed immediately ✓
- > Essential material and labour cost reduction ✓
- > Hydrodynamic balancing of wheels ✓
- > Environment-friendly - less tire refuse ✓

What is the RPS Service scheme comprised of:

Our service scheme can be described as a circle. It includes a "Full Service" concept, fitting to any customer. So, optimal use of RPS is guaranteed and the customer gets optimal information about the condition of his tires.

Service Circle



This Service Circle has got six segments:

1 Product supply

The circle starts with the supply of RPS.

2 Comparative analysis

This test is to determine how the investment will pay back for this customer.

(How much cost can the customer save with this application)

3 Drawing up of a logistic scheme

Together with the customer



Assembly and training 4

The RPS product can be installed both by our fitters and by the fitters of the customer.

If the customer wants to have the installation done by his own fitters, we will organise a training course for servicing staff. In this way, correct use of the tools specifically developed by us for this application will be communicated.

The product is injected into the tire without any need for dismounting. As a matter of fact, RPS can also be injected prior to mounting the tires rims.

Measurement and evaluation of results 5

In these phase, the actually measured results are evaluated together with the customer and an assessment is made which real savings can be realised.

This phase takes place approx. 1 year after installation.

Recycling / Disposal 6

We have developed a comprehensive recycling pattern. We will assume responsibility for ecologically beneficial recycling and disposal.

Guarantee of quality 7

Self contained laboratory examinations will assure you:

- > that there is no corrosion of the rims
- > that the rubber quality remains unchanged even during longer use
- > that the property of sealing tire punctures is maintained.

All our product supplies are accompanied by product specification sheets.

Some questions and answers about RPS

How to seal punctures?

Thanks to the combination of escaping air and flexing work of tire, the fibers are penetrating into the puncture, clogging it over the total length.

How big may the puncture be?

Different, according to product mix and tire.
As to a truck tire up to approx. 8 mm, as to a construction machine tire up to approx. 14 mm.

What are the product mixes offered by RPS?

Mix 1: for all light vehicles with easy work of up to max. 40 km/h.
Mix 2: for all vehicles with standard work of up to max. 80 km/h.
Mix 3: for all vehicles with heavy work of up to max. 60 km/h.

How long will the sealing produced by RPS withstand?

The sealing is absolutely permanent. Even such external influences as water, dirt, snow, flexing work of tire or heat do not have any adverse effects.

How many punctures can be sealed by RPS?

All damages (that RPS is able to seal) will be sealed as from the moment of filling-in up to the end of lifetime of tire.

Can a tire with RPS filled-in still be repaired?

Yes, notwithstanding the RPS filled-in, the tire can be repaired as usual since RPS does not act on adhesive or latex basis. Retreading is possible as well.

Does RPS seal leaks between rim and tire:

Fine leaks (e.g. By rust seeds, leaks on O-ring) are also sealed here.

How long is RPS stable?

RPS is stable for 7 years, also opened canisters with unscrewed pump.

● **Have the objects causing the damages to be removed although there is no air loss?**

Yes, because the foreign objects will further destroy the tire and the puncture becomes ever wider.

● **What is the behavior of RPS in winter?**

RPS is frost-resistant up to - 40° C due to the glycol portion.

● **What shall be done after removal of foreign object?**

The vehicle shall be moved for some time so that RPS can ensure perfect sealing due to the flexing movement.

● **Does RPS attack the rubber of the tire and/or the rim?**

Not at all because there are no aggressive matters contained in RPS.

● **Can RPS be used also with tube type tires?**

Yes, if the tube was not completely destroyed by the foreign object and the flexing work.

● **Can sidewall damages be sealed as well??**

Sidewall damages feature almost cutting injuries that cannot be sealed by RPS. However, sidewall damages can be minimised thanks to the use of RPS because RPS reduces the risk of ground contact of sidewall so a puncture may not happen.

● **How to inject RPS into the tire?**

Filling takes place from a storage canister with filler pump through the valve.

● **Is it possible to use RPS for maintenance and repair?**

Yes, you can use RPS in case of damage as a start to seal the damage, and simultaneously you protect this tire against all future damages.

In which business can RPS be used?

● List of some industries and application areas for example:

Recycling of wood:	Breakup and hackle of wooden pallets, matured timber, demolition wood, old cases etc.
Dumping grounds:	Receiving and deposition of wastes of all types.
Refuse collection:	Commercial collection of wastes and carrying to dumping Ground.
Recycling of building rubble:	Breakup and moving of concrete, blocks, demolition rubble, windows etc.
Building companies:	Heavy equipment machinery, for example road construction.
Containerservice	Collecting and deposition of wastes of all types.
Horticultural and landscaping	Green machines, wheel loader and barrows
Golf courses	Green machines
Agriculture	Traktors

● For which vehicles RPS can be used?

Up to 40 km/h **RPS light** - up to 60 km/h **RPS heavy** - up to 80 km/h **RPS normal**

● We recommend the following product compositions for:

Wheel loader	RPS heavy	Barrow	RPS normal/light
Excavator	RPS heavy	Green machine	RPS normal/light
Dumper	RPS heavy	Golf car	RPS normal/light
Truck in Dumping ground	RPS heavy	Truck on the road	RPS normal
Agriculture	RPS heavy/normal	Trailer	RPS normal
Hay turner	RPS heavy/normal	Tandem trailer	RPS normal
Silo car	RPS heavy/normal	Bike	RPS normal/light

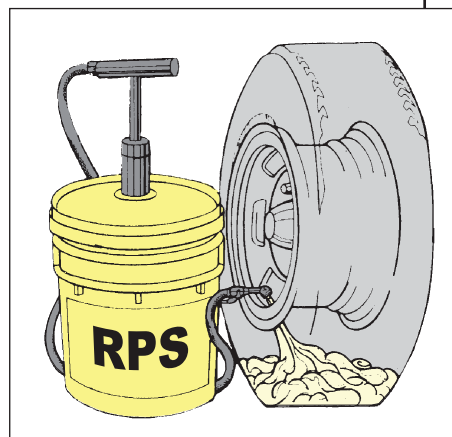
According to possible fields of application we deliver RPS tire seal in different sizes of trading unit.

● Sizes of trading unit and product compositions

Bottle	1 liter	Pressure sprayer	10 liter
Storage canister	5 liter	Storage canister	20 liter
Storage canister	10 liter	Storage canister	1.000 liter IBC

Instructions for use RPS Metering Pump

1. Screw RPS metering pump on the container.
2. Unscrew and/or remove valve core from the tire to be treated
3. Deflate tire completely. Doing so, relieve the tire!
Total escape of air will considerably ease the filling cycle and prevents clogging of metering pump.
4. Attach valve coupler of metering pump to the tire valve stem.
5. Determine recommended filling quantity according to the chart of filling capacities
6. Pump RPS Tire Service Product into the tire with slow strokes / each stroke corresponds to 100 ml by 5/10 L drum 200 ml by 20 L drum
7. Clean valve stem.
8. Screw in valve core.
9. Inflate tire to correct air pressure and drive tire for some time to allow RPS Tire Service Product to distribute and to seal the puncture due to the flexing movement.



In case of clogged pump, clean pump easily with water.



Tire Service Tips

● Weekly inspection and removal of penetrating objects:

Tires should be inspected in regular intervals for damages, penetrating objects should be removed.

After removing said objects, the vehicle must be driven for some kilometers, enabling the RPS fibers to seal the puncture and to solidify upon driving due to the flexing movement.

Leaving puncturing objects in the tire for long periods can result in sealing difficulties because the rubber will lose its elasticity.

● Size of punctures to be sealed:

For most trucking operations, punctures from objects that are smaller than 2,5 mm in size.

RPS Tire Service Product was designed and developed to seal punctures:

- of up to 3 mm object diameter in the bicycles area
- of up to 6 mm object diameter in the On-Road area
- of up to 14 mm object diameter in the Off-Road area

According to experience, 90 % of all punctures are successfully and permanently sealed by RPS Tire Service Product.

● When a puncture does not seal properly:

Check for the following:

- > Was the correct quantity filled in the tire?
- > Oily or lubricated puncturing object.
- > The puncture is in the sidewall.
- > Puncturing object is larger than 6 or 14 mm.
- > Valve leaks.
- > Puncturing object has been in the tire for over a month.



When tire repair is necessary

● These steps should be followed:

- Clean the punctured tire area of RPS using a cloth / sponge dampened with water (RPS is water soluble and will clean very easy)
- Repair tire following the specifications of the tire manufacturer.
- If necessary, reapply the recommended amount of RPS.

● How to repair tubeless tires:

- Check the valve for leaks.
- Find the penetrating object.
- Roll the injury to the upper half of the tire.
- If it's a nail, pull it out, if it's a screw, unscrew it.
- Go through the following procedure:
Roll the tire and check if the puncture appears to seal with RPS.
If so, then inflate the tire to the desired air pressure.
If the puncture fails to seal quickly, it might be possible that the object has been in the tire for too long and the rubber has lost its resiliency.
- If a puncture fails to seal quickly when the tire is rolling, bring the puncture back to the top half of the tire and reduce air pressure to approx. 2 bar, roll the tire again and allow the RPS to build a mechanical seal.
- If sealing of puncture by RPS has not yet been successful, please dismount the tire and repair it as usual.

RPS Tire Service Product is water-soluble and does not attack the tire any way. It can be removed very easily. After removing the product, clean the tire with water and dry it. Now, the dried tire can be repaired, cured, and retreaded without any problems.



Extract of filling capacities Other sizes available on request

Wheelloader

	Liter	
12,50 R 18	3,2 -	4,0
14,50 R 20	3,7 -	4,6
13,00 R 24	4,0 -	5,0
15,50 R 25	5,3 -	6,6
17,50 R 25	6,3 -	7,9
18,00 R 25	6,6 -	8,3
20,50 R 25	8,1 -	10,1
23,50 R 25	10,0 -	12,5
26,50 R 25	12,2 -	15,2
29,50 R 25	15,2 -	19,0



Excavator

	Liter	
9.00-20	2,2 -	2,7
10.00-20	2,5 -	3,1
12.00-20	3,2 -	4,0
500/40 R 17,5	4,7 -	5,9
445/65 R 19,5	5,2 -	6,5
315/80 R 22,5	3,7 -	4,6
550/45 R 22,5	5,8 -	7,3
600/50 R 22,5	7,6 -	9,5



Agriculture

12,5/80 R 18	2,9 -	4,2
7,5 R 16	1,3 -	1,8
13,6 R 24	3,7 -	5,3
14,9 R 24	4,2 -	6,1
18,4 R 38	7,5 -	10,7
20,8 R 42	9,4 -	13,4



Truck

12 R 22,5	2,5 -	3,1
295/75 R 22,5	2,3 -	2,8
315/80 R 22,5	2,6 -	3,2
385/65 R 22,5	3,2 -	3,9
445/65 R 22,5	3,9 -	4,8



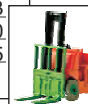
Green machine

570- 8	0,4 -	0,6
18-7,00- 8	0,6 -	0,7
18- 850- 8	0,7 -	0,9
650-10	0,6 -	0,8
20-10,00-10	1,0 -	1,2
23-10,50-12	1,1 -	1,4
26-12,00-12	1,4 -	1,8
25- 8,50-14	1,0 -	1,3



Industry

	Liter	
5,00- 8	0,5 -	0,6
7,00-12	0,7 -	0,9
14,50-12	2,3 -	2,8
7,50-16	1,0 -	1,2
7,00-20	1,0 -	1,3
18,00-20	4,0 -	5,0
48,00x26,50-20	6,0 -	7,5



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