



# FILLING THE VOID

**P**unctures are a problem Idris Stephens contends with every day, in his role as tyre fleet engineer at Smith's (Gloucester). A mixed fleet of 150 vehicles works on duties such as waste management, where off-road work cannot be avoided.

In 2005, he discovered the heavy-duty liquid sealant from Air-Seal Products at the Hillhead Show in Buxton, Derbyshire (returning this month: 26-28 June). A trial proved that the tyre sealant could extend its tyres' working lives, and save money. The fluid, either ethylene or propylene glycol-based, is poured inside the tyre, and is free to flow as it rotates. The tyre's own air pressure forces fibres and fillers suspended in the fluid into the hole, and stops the leak.

"Once we started trialling it, we noticed the number of roadside incidents involving tyres reduce," explains Stephens. "The fleet runs on 295, 315 and 385 tyres, and around 85% of the fleet now uses sealant. We spend around £200,000 a year on tyres."

Smiths' drivers regularly check tyres for foreign objects. Stephens adds: "We don't want them pulling out nails just in case the sealant doesn't take, and

**Tyre sealants are claimed to provide remedial and preventative solutions to road damage. Fleet engineers need to understand where a vehicle is working and how far it travels before considering them. Kevin Swallow reports**

the tyre deflates. We do visual checks at the workshop and can tell if the tyre pressure is down. We'll check it, take out the object and let the sealant do its work, then reflate the tyre back up to the correct pressure," he says.

Determining exactly how successful the sealant has been for the fleet is difficult, he admits, but he does say that its vehicles tend to have less downtime since it started using the sealants. He also uses sealant on larger off-road plant vehicles, and in one case discovered a tyre with more than 20 nails, all successfully sealed.

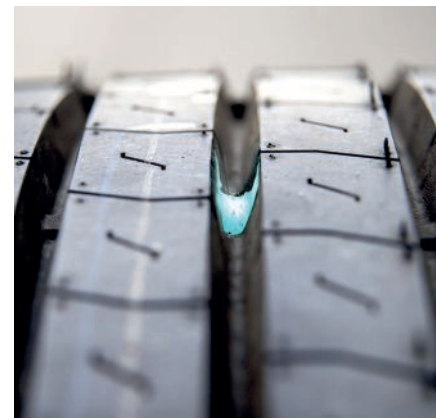
Mike Smith, a technical representative for Air-Seal Products, describes tyre sealant as a "permanent temporary repair" to the tyre. At this year's CV Show, he demonstrated how it works by driving nails into a tyre with a water-based sealant mix of rubber, Kevlar and porcelain (pictured above; do not try this). Once the tyre was penetrated, he removed the nail and rotated the tyre, allowing the sealant to fill the puncture.

He adds: "If the damage is too great, it manages the deflation rather than simply allowing the tyre to rapidly deflate. That will help you get to your destination and not be stranded beside the road."

The sealant has found favour in UK fleets, reports Smith. "We supply Royal Mail, which uses it for their van fleet, with trials underway for heavy commercials as a preventative measure. It's applied mechanically using a pump. A 295/80R22.5 tyre would typically take around 1.5 litres, and a litre weighs approximately 1kg."

Although used in North America for more than 40 years, Belgian product Ultra-Seal was only introduced to Europe in 2016; Tamworth-based Trans UK Equipment Management is the UK distributor. The Ultra-Seal fluid, inserted before the tyre is mounted on the hub, includes rubber and fibres, and has an anti-rust and anti-corrosion formulation to protect the rim (pictured, above right).

As well as trials with major transport and logistics companies, Ultra-Seal also



supplies Danish transport company DSV, which runs more than 7,000 trailers. "They have seen a reduction in punctures, blow-outs and breakdowns in tyres filled with Ultra-Seal. Tyres last about 35% longer due to better tyre pressure and therefore less tyre wear," claims business development manager Carla van Santvoort.

A mix of short haul with off-road travel is the right scenario for using preventative tyre sealants, according to Stuart John. He is sales director of aftermarket firm Rema Tip Top Automotive UK. States John: "We are approached by a lot of plant hire companies, construction and off-road operators who use sealants in those situations where you might pick up a foreign object. That is where you have the benefit of tyre sealant.

"In my personal opinion, and with 30 years' experience in the industry, I would not recommend a tyre sealant for long-haul," he says. "You can pick up a nail in the tread area that penetrates the tyre. You don't know what or how bad the injury of the tyre is; the tyre sealant could seal it temporarily for a few miles but the vehicle might travel another 200 miles. That injury is going to get worse

to the point that it could blow the tyre, and the driver might not even have known he or she had a problem."

Instead, he recommends long-haul operators fit a tyre pressure monitoring system (TPMS) that would identify a puncture or loss of pressure immediately (see also pp15-16). This technology may compete with the upper end of tyre sealant products. For example, Goodyear has stopped producing Duraseal, a sealant system that is part of the inner lining. It promotes its Proactive Solutions fleet monitoring system instead.

#### OTHER SUPPLIERS

Other tyre manufacturers still offer sealants for cars and light commercial vehicles: Continental produces ContiSeal, which is a viscous layer on the inner side of the tyre for punctures up to 5mm diameter. Michelin makes Selfseal; Pirelli produces Seal Inside tyres.

In general, tyre manufacturers steer clear of retro-applied remedial and preventative sealants, both as products and in commenting about their use. Multiple tyre manufacturers contacted declined to comment for this article.

But car recovery agency the AA did comment. About a quarter of

respondents to a recent questionnaire run with a sealant-compressor solution rather than a full-size or space-saver spare tyre. It adds: "Sealant and a compressor saves space and weight, but won't work for all punctures."

If it does work, it is not considered a permanent repair, at least according to British Standard AU 159. This standard is referenced by the AA, charity Tyresafe, the British Tyre Manufacturers' Association (BTMA) and the IRTE's own Bus and Coach Tyre Maintenance best practice guide (see link). The standard recommends that if drivers discover a foreign object, they should get the tyre checked at a garage and replaced if necessary. (According to Dixel Tyre & Auto Centre, BS AU 159 only applies to cars and vans, and not commercial vehicles or heavy plant.)

Belgian company Ultra-Seal took its battle to get sealants recognised as a genuine solution into court, and has prevailed over tyre associations in Germany and Denmark.

By extending tyres' working life, even if only on a temporary basis, sealant suppliers are providing competition to Europe's tyre manufacturers. [IE](#)

#### FURTHER INFORMATION

More about BS AU 159 – <https://is.gd/biquze> and <https://is.gd/ulecok>

Best Practice Guide for Bus & Coach Tyre Maintenance (IRTE) – <https://is.gd/ukisap>