



Tonerseal is a world-first toner and rubber modified spray seal binder that utilises crumbed rubber from used tyres and toner from recycled printer cartridges. The innovative spray seal binder exceeds 20% recycled content and has demonstrated improved performance compared to current standard unmodified binders.

## Product snapshot

- Complies with Austroads S45R grade spray seal binder
- Blend of bitumen, recycled tyre rubber and toner from recycled printer cartridges
- Utilises the same design, handling and spraying methodology to S45R
- Lower Carbon Footprint when compared to conventional S45R

# World-first high performance toner and rubber modified spray seal binder

## Overview

Downer has set a new benchmark in sustainability and innovation in Australian roads by launching a world-first toner and rubber modified spray seal binder. Tonerseal, our high performance spray seal binder boasts its green credentials by pioneering the use of waste items such as toner from printer cartridges and crumb rubber from used tyres that would typically be stockpiled or sent to landfill.

Current best practice in Australia is for recycled spray seals to use between 15% to 18% crumb rubber. Tonerseal proves that with the right technology and capability we can produce a high quality spray seal binder with improved performance that uses new recycled materials in levels greater than current best practice.

More importantly, Tonerseal demonstrates that with continued industry focus on recycled material availability, process improvements for large scale production, partnerships with progressive and environmentally conscious governments, suppliers and customers, we can continue setting new benchmarks in best practice.



### Recycled content breakdown

- World-first spray seal binder made from post-consumer materials such as toner and tyres – typically stockpiled or land-filled.
- Product contains greater than 20% total recycled material content.



### Sustainability credentials

Every 1km of road lane paved with Tonerseal will incorporate:

- approximately 6400 Toner Cartridges; and
- about 145 Car Tyres (equivalent passenger unit).



### Improved performance

Compared to unmodified binders, Tonerseal is expected to perform better in the following areas:

- improved stone/aggregate adhesion to binder seal, extending life of seal and reduces damage to road vehicles,
- improved flexibility and elastic properties to delay onset of reflective cracking and maintain water impermeability,
- improved shear resistance in high traffic situations, and
- a higher softening point resulting in improved resistance to temperature induced bleeding of seal.



### Lower carbon emissions

- Up to 45kg of CO2-e savings per ton of Tonerseal sprayed when compared to a standard S45R grade binder.
- Increased recycled material utilisation by 64% when compared to a typical S45R grade binder, diverted from landfill into our road network.



### Innovative partnerships

- Consulted extensively with recycling companies such as Close the Loop to tailor product offering to suit a road construction application.
- Dialogue with key industry bodies such as Tyre Stewardship Australia to understand scale of major environmental issues relating to tyres.
- Extensive trialling carried out with Yarra Ranges Council in Victoria to test and improve the Tonerseal product.

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