



PRODUCTS & SERVICES

CAPABILITIES STATEMENT



WE OPEN THE WAY

HIGH PERFORMANCE SUSTAINABLE ASPHALT.

ECO Asphalt has been specifically developed by using quality controlled selected repurposed waste materials with a proven track record of performance to provide an asphalt which will last longer and outperform conventional dense graded asphalt.

ECO Asphalt

ECO Asphalt is a cost-effective and lower carbon alternative to most conventional dense graded asphalt products only safer, longer lasting and more sustainable. ECO Asphalt can be used as wearing course or structural asphalt to replace the equivalent dense graded asphalt mix. It is suitable for use on residential streets, arterial roads, parking areas and in industrial areas.

BENEFITS OF USING ECO ASPHALT?

It is more sustainable than conventional asphalt because of its:

- Improved performance resulting in a longer service life with less maintenance and less disruption to traffic
- Reduced demand for non-renewable raw materials like aggregates, sand, hydrated lime, bitumen and polymers by replacing them with purposed waste materials
- Produced at lower temperatures which reduces the quantity of burner fuel required to heat the aggregates and also reduces the generation of greenhouse gasses and fumes

ECO ASPHALT CAN BE PRODUCED TO INCORPORATE:

- Recycled glass bottles
- Recycled rubber from end of life truck tyres
- Recycled old asphalt
- Uses liquid adhesion agent to reduce the carbon footprint compared with using hydrated lime
- Uses bio genetic binder to reduce the carbon footprint'

The quantity of the recycled content will depend on the mix type, availability of repurposed waste and application as shown in Table 2.

To put this into perspective a one kilometer lane surfaced with 50mm layer of AC14 ECO Asphalt mix will:

- recycle approximately 559 old equivalent passenger tyres and 56,966 empty stubbies
- preserve 8 tonnes of virgin bitumen and 94 tonnes of mineral aggregates

REPURPOSED RAW MATERIALS THAT CAN BE REUSED IN ECO ASPHALT:

1. Recycled Asphalt Pavement (RAP)

Asphalt is 100% reusable which means that at the end of its service life it can be reused to produce new asphalt. Therefore, RAP should not be disposed of but reused in the production of new asphalt to reduce the demand for virgin bitumen and crushed aggregates.

2. Recycled Crushed Glass (RCG)

The concept of using crushed glass as an aggregate isn't new and can be traced back to the early 1960's. RCG can be used as a replacement for fine crushed aggregates as long as it has been crushed to a consistent grading specification. Other benefits include lower absorption and lower specific gravity, meaning higher binder film thicknesses.

3. Warm Mix Asphalts (WMA)

Warm mix asphalt is essentially the same as hot mixed asphalt except that it has been produced at a lower temperature without compromising its ability to be paved and compacted. WMA helps satisfy the community's need to reduce greenhouse gas emissions and energy consumption during the manufacture and paving of asphalt. Producing asphalt at lower temperatures also results in less oxidization of the binder which in turn will ensure a longer service life for the asphalt.

4. Crumbed Rubber (CR)

Rubber derived from end-of-life tyres can be used to improve the performance of asphalt. Rather than dispose of old tyres in landfill, the rubber can be recovered to modify bitumen for producing new asphalt. The rubber contains polymers and carbon black which improves the performance properties of the bitumen. The rubber is ground into particles which can either be preblended with bitumen or added directly into the pugmill when mixing the binder with the heated aggregates. The practice of recycling crumb rubber from old tyres into asphalt is a well proven technology and offers extensive benefits to society and road asset owners.

5. Liquid Adhesion Agent (LAA)

The use of a special liquid adhesion agent will help improve the moisture sensitivity of the mix and improve the low temperature compaction of the mix. The replacement of hydrated lime with LAA reduces the carbon footprint of the asphalt up to 18%.

6. Bio genetic binder

The part substitution of the bitumen with a bio genetic feedstock will help reduce the binder carbon footprint by 40% without compromising its performance properties.

PERFORMANCE PROPERTIES OF ECO ASPHALT

Property	Test Method	COLAS Heavy Duty Typical Value	COLAS ECO Asphalt Typical Value	Requirement for TfNSW Roads
Wheel Tracking 10,000 passes @ 60°C (rut depth mm)	AGPT/T231	3.1	2.6	Report
Resilient Modulus @ 25°C (MPa)	AS2981.13.1	6800	5900	Report
Beam Fatigue 400 microstrain @ 20°C (cycles to failure)	AGPT/T233	108,649	360,807	Report
Moisture Sensitivity (TSR %)	T640	95	87	≥ 80
Average Tensile Strength (kPa)	T640	800	1070	> 600

Table 2: Comparison of ECO5 performance against heavy duty dense graded asphalt



Mix type	Application	Minimum thickness (mm)	Rubber, Glass & RAP (%)
AC10	Wearing course	35	25
AC14	Wearing course	50	25
AC14	Intermediate	50	40
AC20	Base course	60	40

Table 1: Typical recycled content by mix type and application





COLAS Australia Group Pty Ltd
3-5 Gibbon Road
Winston Hills NSW 2153
+61 2 9624 0100
+61 1300 0 COLAS (26527)
info@colas.com.au

www.colas.com.au

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