



Safer  
Sustainable  
Solutions

COLMAT being placed on rural roads in SE Queensland

# RESEAL YOUR SURFACED ROADS WITH COLMAT



COLMAT is the proprietary name for COLAS's cold microsurfacing paving system. Since its development in the 1970's COLMAT has evolved to become a cost-effective remedial treatment for resurfacing existing aged bituminous surfaces.

COLMAT is a mixture of cationic polymer modified bitumen emulsion, selected crushed mineral aggregates, cement and water which is applied in a purpose build machine. COLMAT is designed to be mixed and placed so that it can be trafficked within one hour in normal weather conditions. The use of larger aggregate means it can be placed in thicker layers of up to 20mm. The incorporation of polymer improves the binder characteristics so it can be used on higher trafficked roads.

Reduce the life cycle costs of maintaining your low to medium trafficked roads by resurfacing them with cold applied COLMAT. By doing so it will provide the following benefits to society and the road asset owners:



**Will make the resurfacing of your road network more sustainable by:**

- Reducing energy consumption** by more than 50% compared to traditional resurfacing methods.
- Reducing the generation of greenhouse gasses emissions** by more than 40% compared to traditional resurfacing methods.
- Improving worker health and safety** by reducing exposure to harmful fumes and the risk of hot bitumen burns.
- Minimises the number of construction vehicles** used per unit area.



**Will extend the life of your pavements** and thereby reducing the demand for non-renewable raw materials like aggregates by 35% compared to traditional resurfacing methods by:

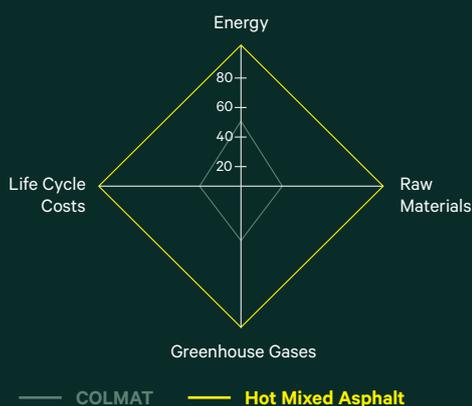
- Improving durability** by preventing further oxidation of aged binder in existing surface.
- Preventing the ingress of water into the underlying layers** by filling in micro cracks and voids of the existing surface.



**Will improve the safety of your road surfaces by:**

- Improving the skid resistance** by increasing the micro texture of the surfacing.
- Improving the rideability** by filling the undulations in the existing surface.
- Reducing the risk of aqua planning** in wheel ruts.

## Environmental and economic footprint



# DEFY THE AGEING PROCESS BY USING COLMAT

The deterioration of low trafficked roads is caused mainly from the oxidisation of the bitumen in the surfacing and not from traffic. This can result in premature cracking and stone loss during the life of the surfacing. The timeous application of COLMAT can provide a cost-effective preservation technique to retard the oxidation of the binder and extend the surface life of your road network. Graph 1 shows the typical reduction in life cycle costs of 35% over 50 years between resurfacing your existing residential asphalt roads with preservation techniques like Seal Coat and COLMAT compared with conventional asphalt overlays.

Cummulative reseal spend over 50 years



Graph 1: Typical life cycle cost comparison between asphalt overlays and preservation treatments

## WHEN SHOULD COLMAT BE USED?

We recommend the use of COLMAT on aged spray seals or asphalt surfaces for rural and urban roads carrying less than 15,000 vehicles per day when they:

- Display signs of aggregate loss and/or binder brittleness
- Have surface cracks cause by oxidation and are not active.
- Require an improvement in profile correction. Depending on the grading, ruts greater than twice the maximum nominal aggregate size need to be applied in two applications.

COLMAT will not prevent reflective cracking so avoid using it on pavements with high deflections. Only apply on pavements that are structurally sound. Localised fatigue cracking must be repaired prior to placing of Colmat. The use of a Stress Alleviating Membrane like a seal or geofabric will help mitigate crack reflection. Cracks in the aged existing surface caused from binder ageing will not reflect through COLMAT.

The overlay treatment thicknesses for COLMAT can vary between 5 - 20mm depending on the nominal maximum aggregate size used in the mix. The mix grading and paved thickness should be appropriate to the traffic volumes as shown in Table 1.

## PROVIDING SAFER AND SUSTAINABLE SOLUTIONS

The successful application of COLMAT depends mainly on the following factors:

- being the appropriate treatment to suit the existing pavement and traffic conditions,
- having the correct mix design and emulsion formulation to use with a suitable local aggregate source,
- ensuring the supply of a uniform quality crusher dust and polymer modified bitumen emulsion,
- having good equipment, workmanship and quality control,
- having dry weather conditions with pavement temperatures between 10 and 55°C.

To ensure that we deliver a successful COLMAT project every time across Australia, COLAS have a dedicated team of people who operate under COLAS Solutions. We have established a fully resourced laboratory in Sydney that conducts the mix designs, formulates the COLMAT emulsions and does quality control testing on daily production mixes. We have identified a network of suitable aggregate sources across Australia, so that we are able to provide a COLMAT solution for your location and project.

COLMAT provides a safer and more sustainable way to resurface your road network than using traditional asphalt and spray sealing techniques. At COLAS we believe in making our products more sustainable and have developed a crumb rubber modified emulsion for COLMAT to improve the durability and flexibility of the final surfacing. If you are interest in doing a trial, please contact COLAS Solutions central office.

Nominal maximum aggregate size (mm)	Wearing course traffic (v/l/d)	Rut filling thickness (mm)	Typical texture depths (mm)	Uses
5	< 3000	10 - 15	0.6 - 0.8	Residential roads and airfields
7	>3000	15 - 25 >15 multilayers	0.9 - 1.3	Rural roads shape correction and overlays
10	>3000	25 - 40 >25 multilayers	1.3 -1.8	Deep ruts or texture required

Table 1: COLMAT grading selection guide

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