

Warm Mix Asphalt

Sustainably paving Australia

With climate change and greenhouse gas emissions an evolving national policy area, asset owners are seeking to reduce both emissions and associated costs through sustainable infrastructure construction and maintenance.

Warm mix asphalt is manufactured at a lower temperature, requiring less fuel, lowering costs, and reducing carbon emissions, while also delivering a range of, safety, and technical performance benefits:



Warm mix asphalt offers carbon savings, with every 1,000 tonnes of warm mix asphalt saving 2.7 tonnes of CO₂e



Lower temperatures result in a binder that is less aged and therefore less prone to fatigue cracking and ravelling in its service life.



Lower temperature asphalt creates safer working conditions for project personnel



Reduced fuel requirements during manufacture lead to lowered project costs



Reduced cooling time allows for placement of multiple asphalt layers in one shift, and less road-user disruption



Lower temperature compactability allows for extended haulage time and distances



Third-party-certified carbon emissions savings

Downer issues Certificates of Sustainability to our customers, quantifying their contract's carbon emission savings and any recycled materials diverted from landfill.

Created using our independent Life Cycle Assessment (LCA) calculator powered by Gabi-Envision cloud-based software, these Certificates of Sustainability comply with international standards for LCA, ISO 14040:2006 and ISO 14044:2006, ensuring that each and every carbon emission saving Downer offers is real and reportable to your stakeholders, investors, and the community.

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Manufactured at 20–40 °C lower than traditional ‘hot mix’ asphalt, warm mix asphalt is enabled by technologies which reduce the viscosity of the asphalt binder during production.

The technologies employed to manufacture warm mix asphalt each have their own unique performance characteristics:



Hydro/foaming

The addition of water into the binder creates tiny steam bubbles which slowly collapse as the asphalt cools. This option is suitable for unmodified binders.



Synthetic additives

These additives either reduce the internal friction of the mix, or provide beneficial wetting properties of the aggregate by the binder.



Rheological modifiers

These are waxes which lubricate the binder and change the viscosity characteristics to achieve workability at lower temperatures. Once the asphalt has cooled to below the melting point of the wax, the effect ceases.



Proven performance

Since the first known use in Europe in the early 1990's, warm mix has been proven to provide the same performance as, or better performance, than traditional hot mix asphalt.

For further information about how warm mix asphalt creates stronger, longer lasting roads, while significantly reducing greenhouse gas emissions, visit:

<https://www.eapa.org/warm-mix-asphalt>

<https://www.afpa.asn.au/AfPA-Technical-Talk-Warm-Mix-Asphalt.pdf>