



POSITION STATEMENT ON

Recycling of Asphalt Containing Polymer-modified Bitumen



EXTENDED
SERVICE LIFE



LOWER EMISSIONS
OVER TIME



RECYCLED.
REUSED. RESILIENT.



Established in 1969, Eurobitume is the voice of the bitumen industry in Europe. Bringing together producers, marketers, users, hauliers, etc, the association's purpose is to develop and promote the safe, sustainable and efficient use of bitumen in road, industrial and building applications.

Through its network of experts, Eurobitume develops guidance, contributes to regulatory and technical discussions, and supports the continuous improvement of industry standards across Europe.

Representing its members, Eurobitume combines industry expertise and insight to support dialogue with policymakers and engagement across the entire bitumen value chain. It promotes best practices in health, safety, environmental stewardship and technical excellence, while communicating the value and benefits of bitumen through credible, evidence-based information.

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Introduction

The bitumen and asphalt industries are continuously seeking sustainable practices to minimise environmental impact and maximise resource efficiency in the construction of roads, of which they are key constituent materials. A key strategy towards that objective is the increased use of recycled asphalt pavement (RAP), which contains recycled bitumen.

One of the key attributes of bitumen is its inherent recyclability which contributes to the sustainability credentials of asphalt, waterproofing membranes and other materials. Asphalt is widely acknowledged to be one of the most recycled materials (in terms recycling / re-use rate), with an average of 96% of asphalt mixtures from road deconstruction being re-used or recycled in 2024 in Europe [1].

When it comes to speciality materials, specifically asphalt binders modified with polymers (PMB), this paper summarises the available evidence of their recyclability, while highlighting the sustainability benefits of these materials.

Extended Service Life and Performance Benefits of Polymer-Modified Bitumen (PMB)

The primary advantage of using PMB in asphalt pavements is the substantial increase in the service life [2] and durability of the pavement. Polymers enhance the physical properties of the bitumen binder, improving resistance to common pavement distresses such as rutting (permanent deformation) and fatigue cracking [3,4].

The improved performance translates directly into long-term sustainability benefits:

Lower lifecycle GHG emissions: Fewer maintenance interventions reduce cumulative GHG emissions from material production, transport and construction activities over the pavement life [5,6].

Improved resource efficiency: Extended service life and delayed reconstruction lower the total demand for virgin raw materials, supporting more efficient use of natural resources [2,4].

When this long-lasting material is eventually recycled, the new pavement produced inherits some of these enhanced characteristics, further extending the lifecycle value chain [7-10].

The Recyclability of Polymer-Modified Bitumen (PMB)

Contrary to outdated assumptions, the polymers within PMB asphalt do not prevent it from being recycled. Standard asphalt recycling processes effectively reincorporate the aged PMB binder into the new mix. Multiple studies and field applications have demonstrated that these materials can be successfully reclaimed and reused [8,9], often with the addition of rejuvenators or virgin binder to restore optimal rheological properties [10,11].

Leading transportation agencies and research bodies confirm that PMB RAP can be utilised in high percentages in new mixes without compromising performance [12]. Modern recycling techniques and quality control ensure that the valuable properties introduced by the polymers are retained and leveraged in subsequent uses, making PMB a circular economy success story within the paving industry [1,10,12].

Conclusion

Recycled polymer-modified asphalt should not be recognised as a constraint, but as a strategic asset for sustainable road construction. PMB's proven recyclability, combined with significantly enhanced durability and reduced maintenance needs, contributes directly to lower lifecycle resource consumption and GHG emissions.

Extensive research and field experience confirm that asphalt containing polymer-modified bitumen can be successfully reincorporated into new mixtures, including at high recycling rates, using standard industry processes and appropriate quality control measures.

Eurobitume therefore supports the continued and expanded use of PMB in asphalt, and its full integration within circular economy policies. Recognising the role of PMB in extending pavement life and enabling efficient recycling is essential to delivering durable, cost-effective and environmentally responsible transport infrastructure across Europe.

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