



ULTILOW

Climate action asphalt

Warm mix asphalt that delivers climate action on carbon reduction.



think

If the UK applied low temperature manufacture to its asphalt production, in 2017, we could have saved 61kt of CO₂e entering the atmosphere.

Utilow is a warm mix solution to asphalt manufacture. By reducing the temperature during production, it reduces embodied carbon without affecting the asphalt performance. So effective, this proven manufacture can be used across almost our entire asphalt range of Ultimate Solutions.

Utilow warm and low temperature asphalts cut carbon, allow roads to be opened quicker and can reduce on-site costs. An absolute win in the battle against climate target actions. Yet the challenge remains – widespread adoption rates are not being realised as they should.

In 2014, **Tarmac and The Carbon Trust** launched the findings of a three-year study into how to improve the carbon manufacture of road materials. The findings offered safety, performance, and carbon reduction benefits. It also assumed that low temperature asphalt would have achieved 21% market replacement volume by 2024.

Conventional road material, commonly used across the UK, is made by bonding aggregates and bitumen to produce asphalt by heating them to temperatures of 160°C – 190°C. This project successfully trialled the use of a ‘Warm Mix Asphalt’ material. The bonded materials were as effective as the conventional method but using much lower temperatures and less energy. **Reducing carbon emissions by up to 12%, in an instant.** Today, despite our best efforts to promote the benefits of Utilow and trebling the amount we manufacture, less than 10% of the asphalt specified by our customers is produced at these lower temperatures.

Last count, the All Party Parliamentary Group on Highways report found that if the UK applied low temperature manufacture to its asphalt production we would have **cut the carbon emissions equivalent to those generated by 300 million car journey miles.**

Since the early trials we have been championing the innovation – **now it is time for customers to switch as default.**

Assuming an average reduction of 10%, Tarmac, warm mix asphalt installed across the UK has resulted in the saving of 16,260 tonnes of CO₂e.



Reduced on site costs

Take direct action today on climate change actions.

Utilow has the same bitumen content, same aggregate content, same grading, same void specifications, and delivers equivalent performance to hot mix asphalts, but all with lower carbon emissions during production.

Developing the technology further, it can now incorporate waste or recycled materials to further enhance more sustainable construction. This includes our Rubber Modified Asphalts that contain the granulated rubber from around 500 tyres per kilometre of road. In addition, these products can also include recycled steel slag aggregates or reclaimed asphalt planings taken from roads that have been resurfaced.



Challenge:

2014 study between The Carbon Trust and Tarmac

- To improve the carbon efficiency of the manufacture of road materials.

Funded by The Department of Energy & Climate Change (DECC) with support from the Department for Business Innovation and Skills.

Roads are the lifeblood of economic prosperity: they connect people to jobs and business to markets. There is tremendous potential for this project, given the scheduled improvements to our major roads and motorways. This programme is an example of how by establishing new models of working, we can unblock demand-supply stand-offs, to help the UK to deliver the infrastructure of the future, at a lower cost for taxpayers and the climate.

Technology Acceleration Manager
The Carbon Trust

think

In 2014, a Carbon Trust and Tarmac three-year study identified the potential to save £46.2m in energy costs over the next ten years. The reduced energy and CO₂e emissions are still waiting to be realised.

In 2013, Tarmac was a key signatory of the Infrastructure Carbon Review setting out a series of actions for government, clients, and suppliers to reduce carbon from the construction and operation of the UK's infrastructure assets.

In 2019, warm mix asphalts received the backing of The All Party Parliamentary Group on Highways in their published report 'Working for Better Roads'. They concluded it was a proven and under utilised opportunity to reduce net carbon emissions from highway maintenance and recommended increased use on the UK road network.

Today, we are proud of our part in the development of PAS 2080 (the standard for managing carbon in infrastructure) which is being increasingly adopted by many of our clients including HS2 and local authorities. Based on the commitments, Utilow should be the default asphalt for infrastructure. A quick win. But this, just like the UK commitment to meet Net Zero by 2050, and a 68% reduction by 2030, will only be achieved if we start to change behaviours and specification today.

think

**Instant action on climate change.
USA adoption of low
temperature asphalts 50%
- The UK, just over 5%.**

**Net zero by 2050 will only
be achieved if we start to
change behaviours and
specification today.**

Utilow is supplied at temperatures typically 40°C lower than a hot equivalent, reaching appropriate trafficking temperatures circa 90 minutes quicker than hot asphalt for earlier reopening of carriageways. This feature is particularly valuable when thick or dual construction layers are necessary.

Ultimate Convenience

Faster construction times keep busy roads moving, minimising disruption to road users.

Ultimate Productivity

Where time is restricted, larger sections of pavement can be laid and still opened to traffic as required, reducing the overall contract programme duration, and potentially reducing plant, labour, and traffic management costs.

Ultimate Availability

Utilow is not affected by poor weather conditions and can be supplied and laid all year round, subject to the accepted current hot mix restrictions.

Ultimate Sustainability

Utilow asphalts reduce the embodied carbon footprint by **up to 12%**.

Ultimate Safety

Lower temperatures mean less risk of burns and reduced fumes and steam on site (which can sometimes impact on visibility). This is particularly evident during cold and /or wet weather and during night shift operations.

**Trafficking temperatures
circa 90 minutes quicker
than hot asphalt**

think

**Three million tonnes
and counting...
...that's still less than 10%
of our production.**



Utilow Technology

Utilow asphalts are produced by using a warm mix additive during manufacture. The technology has been proven across UK networks to deliver equivalent performance to conventional hot asphalts on key performance criteria.

Additives

Warm Mix additives are designed to reduce the surface tension of the bitumen itself, allowing the mix to be manufactured and compacted at lower temperatures leading to enhanced workability and earlier completion times.

Utilow performs to the same standard as conventional hot asphalts, but offer the added benefits of enhanced workability, improved sustainability and earlier reopening times to traffic.

In July 2019 Highways England included warm mix asphalts in its Specification for Highway Works. Since then, they have also increased the use of lower carbon warm mix asphalts on the UK strategic road network.

**8-10%
typical monetary
savings from doing
things quicker**

Highways England figures.

By completing jobs faster, programme times are cut.

Less time spent on site delivers reduced costs of labour, plant and traffic management.



Expert advice

At Tarmac, technical excellence comes as standard. To ensure our customers get the best possible results, expert support is never more than a phone call away. If you want to find out more about our carbon reducing Utilow asphalts get in touch.

Utilow is now available throughout the UK as an alternative to conventional asphalts. We have started to switch asphalt plants to warm mix only manufacture to maximise carbon savings. Our ambition, and that of the asphalt industry, is to switch manufacture across the UK to low temperature asphalt as the norm. To do this, we need our customers to set warm mix as the default.

Most Ultimate Solutions are available as warm mix asphalts with Utilow binder technology. This includes Utilayer our flexible, crack resisting asphalts and Ultipave Single Layer our durable, single layer surfacing solutions. As a result, they offer the same benefits of improved sustainability, shorter programme times, earlier reopening to the public and a safer working environment for site operatives.



Utilow, like its hot equivalents, is 100% recyclable back into asphalts, giving further embodied CO₂e reduction benefits and helping to promote a more circular economy by conserving natural resources and future CO₂e benefits in reuse.

Frequently Asked Questions

Can the use of Utilow contribute to credits under BREEAM or CEEQUAL?

Yes, ask our technical team if you require support.

Can Utilow reduce my construction programme?

Yes, as Utilow is supplied and laid at lower temperatures, more can be laid per shift and / or the material can be reopened to traffic earlier.

Will Utilow provide carbon saving on a project using PAS 2080?

Yes, speak to our technical or sustainability teams if you require further support.

Can I order any conventional asphalt as an Utilow product?

Except for HRA that requires application of a pre coated chipping, all other products are available as an Utilow.

Do I need any additional equipment if I choose to use Utilow?

No, Utilow can be laid using conventional laying techniques with no need for any additional equipment on site.

Does Utilow provide sustainability benefits?

Yes, by using less fuel during the manufacturing process, Utilow reduces the embodied carbon footprint of the product. There are also carbon reductions related to less time on site re plant operations.

Are Warm Mix Asphalts being used anywhere else in the world?

Yes, prime examples are in the USA and France where low temperature asphalts currently form almost 50% and 15% of their total asphalt markets, respectively.

Do Utilow products have any seasonal restrictions?

No, Utilow products are available all year round and can provide advantages during cold winter periods where temperatures can be slightly raised on request if necessary, to assist in overcoming anticipated site difficulties.



think

Cut delays from road works. Standing traffic emits four times as much pollution as free flowing traffic - so keep traffic moving by reducing programme times. Utilow - less carbon emissions from the traffic, reduced carbon at manufacture.

Wiltshire Council

A530

Westbury, Wiltshire

Case study: *ULTILOW*

Challenge

The A350 Westbury Road condition was poor, resulting from the underlying ground conditions that are prevalent in this part of Wiltshire. The road reconstruction would require a 24/7 road closure, diverting HGV traffic onto the Highways England network, which was already at capacity and other traffic onto lengthy diversions on other local roads.

Solution

Wiltshire and Tarmac Contracting collaboratively reviewed the programme and found that using warm temperature asphalt would provide very significant efficiency savings.

Result

The scheme was completed seven days earlier than programmed, providing a saving on the overall cost of £70k, principally from traffic management, whilst allowing for 25% more work to be completed. The early completion reduced the diversion period and disruption for through traffic and the local community.

Highways Agency / AOne+

A46

Cossington Leicestershire

Case study: *ULTILOW*

Challenge

The Highways Agency requested a demonstration installation site be supplied with Warm Mix Asphalt to demonstrate 'business as usual' in terms of site operations and equivalence of product performance compared to hot mix equivalents.

Solution

The materials specified in the contract were a 20mm dense binder course 40/60 pen to clause 929 and a 14mm thin surface course to clause 942. Ultilow solutions are available for most requirements and the 20mm dense binder course and Ultipave 14mm clause 942 surface course were produced in both hot mix and warm mix versions. Areas of the base layer requiring reconstruction were planed out and Tarmac's Ultifoam cold recycled base solution was also manufactured from the road planings.

Result

The site was supplied without issue or any need to adjust normal site practices. Testing carried out on both the hot mix and the Ultilow warm mix materials, demonstrated that equivalent performance can be achieved for all the specified parameters such as surface texture, voids and resistance to rutting.



think

Assuming a UK market of 25.4 mt p/a, if the market switched to warm mix asphalts, the industry savings would be circa 82.5kt* tonnes CO₂e.

Talk to us about your climate action targets.

*We take the UK Industry average



Building **o**ur future

[TARMAC.COM](https://www.tarmac.com)

©2021 Tarmac Trading Limited. 'Ultlow', 'Ultipave', 'Ultilayer', 'Ultifoam' and 'Tarmac' and the 'circle logo' are registered trademarks.