

EVOTHERM™ WARM MIX ASPHALT

The next-generation sustainable paving solution.



A NEW APPROACH TO PAVING

Evotherm™ warm mix asphalt technology – introduces a paving alternative that delivers longevity and performance – while dramatically reducing emissions and fuel demands. Our innovative technology is designed to improve mixing, coating, workability, compaction & adhesion of asphalt mixes. Evotherm is a long-lasting paving solution that significantly lowers temperatures for asphalt production and application. This means major reductions in fuel consumption, energy requirements and environmental impact.

Easy, Proven Technology

A liquid additive system designed to integrate with existing plant equipment and materials, Evotherm produces quality asphalt pavements at temperatures up to 100°F (55°C) lower than conventional hot mix asphalt. Plus, Evotherm requires no equipment changes at the plant or job-site – it is simply dropped into the existing materials design. Evotherm mixes use the same aggregates, volumetrics and binder content as conventional HMA.

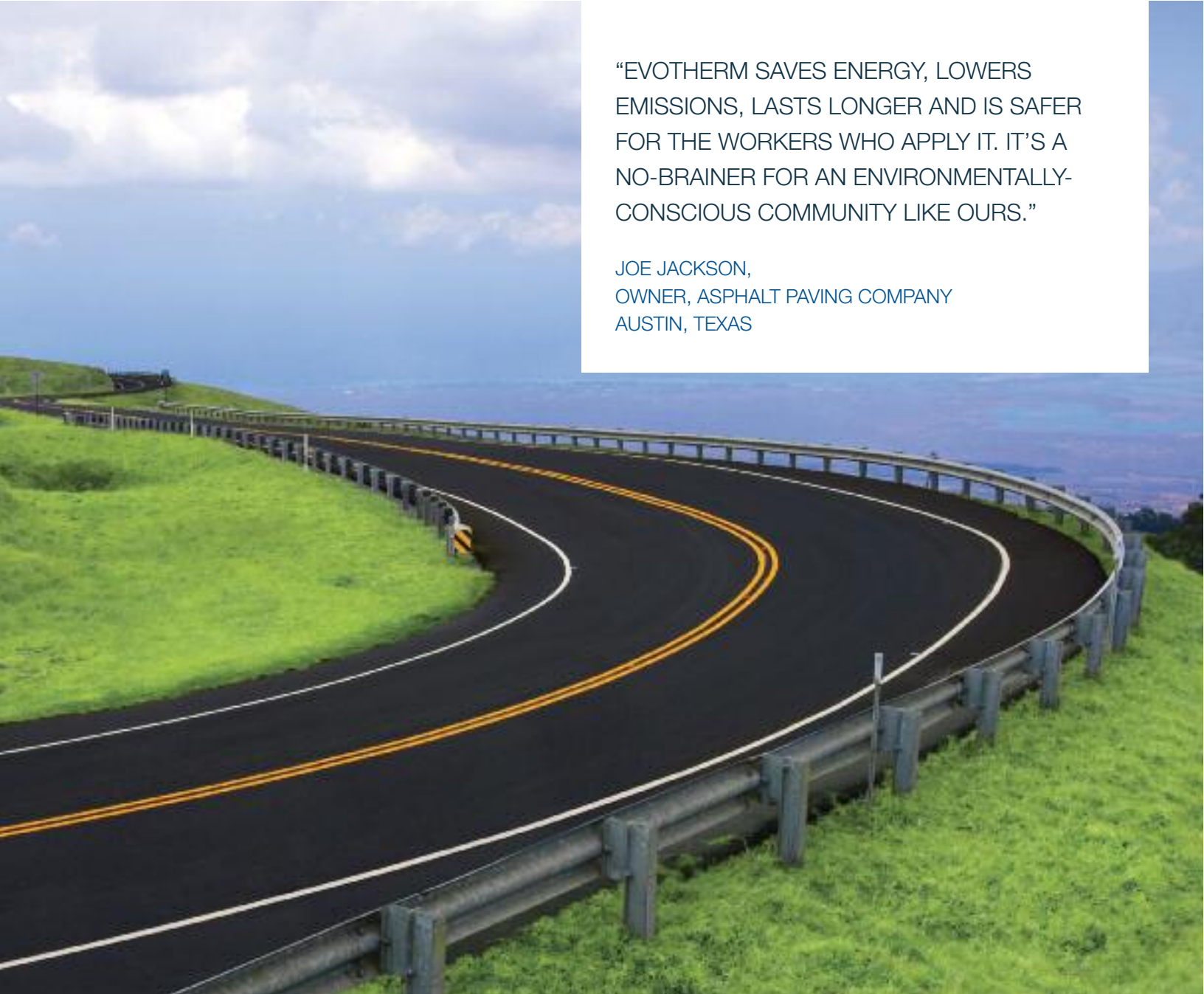
Evotherm Performs

From low volume roads to heavily traveled interstate highways, Evotherm performance has been proven in over 100 projects in 19 states, as well as France, Spain, Canada, South Africa, Mexico and China. Accelerated testing results at the United States National Center for Asphalt Technology's Pavement Test Track show that Evotherm pavements can stand up to the equivalent of more than 10 years of heavy truck traffic, performing exceptionally with virtually no deformation. In fact, Evotherm sections have endured over 8 million ESALs with less than 0.15 inches (3.4 mm) of rutting.

Lower Temperatures and Energy Savings

While many production conditions can affect fuel consumption, lowering process temperatures as much as 100°F (55°C) dramatically decreases fuel usage. Evotherm projects have had documented energy reductions from 30-60%... savings that go right to your bottom line.





“EVOOTHERM SAVES ENERGY, LOWERS EMISSIONS, LASTS LONGER AND IS SAFER FOR THE WORKERS WHO APPLY IT. IT’S A NO-BRAINER FOR AN ENVIRONMENTALLY-CONSCIOUS COMMUNITY LIKE OURS.”

JOE JACKSON,
OWNER, ASPHALT PAVING COMPANY
AUSTIN, TEXAS

Working with Evotherm at Your Plant

The Evotherm Warm Mix Asphalt Technology is delivered in three convenient forms:

1) **Evotherm ET (Emulsion Technology)** – a high AC content, water-based asphalt emulsion (~70% solids). Evotherm ET requires no plant modifications and simply replaces the liquid asphalt in your HMA design. Evotherm ET offers temperature reductions greater than 100°F (55°C).

2) **Evotherm DAT (Dispersed Asphalt Technology)** – a concentrated solution of Evotherm additives in-line injected at the mix plant. Evotherm DAT offers mix producers total flexibility in switching between warm mix and hot mix production while lowering mix temperatures 85-100°F (45-55°C).

3) **Evotherm 3G (Third Generation)** – developed in partnership with Paragon Technical Services and Mathy Technology & Engineering, this water-free form of Evotherm is suitable for introducing our additives at the mix plant or asphalt terminal. Evotherm 3G generally lowers mix temperatures 60-85°F (33-45°C).

Each version contains the same Evotherm additives optimized to deliver superior mixing, coating, workability, compaction, and moisture resistance.

Realize the Benefits of Evotherm

Worker safety & job-site emissions

By lowering pavement placement temperatures, jobsites become a more comfortable odor-free working environment. Contractors using Evotherm have reported increased worker productivity and decreased worker fatigue.

In addition to lowering temperatures and removing odors, Evotherm dramatically reduces jobsite fumes. The International Agency for Research on Cancer (IARC), an extension of the World Health Organization, is preparing a review on the potential hazards of hot mix asphalt fumes. Tests show that low temperature paving with Evotherm eliminates the emissions for which asphalt paving is most scrutinized.

Air quality - stack and job-site emissions

As with any industry that relies on elevated processing temperatures, HMA facilities emit off-gases from the combustion of fossil fuels. Plant stack testing of Evotherm compared to conventional HMA has shown major decreases in emissions.

- 46% reduction in CO₂
- 63% reduction in CO
- 30% reduction in VOC
- 34% reduction in PM
- 58% reduction in NO_x
- 81% reduction in SO_x

Greenhouse gas emissions

The Kyoto Protocol, relating to climate change, limits emissions of greenhouse gases. While the science is still under review, there is no question that public sentiment favors reducing the burning of fossil fuels. Fourteen US states have already legislated greenhouse gas emission reductions. Several US municipalities have also committed to following Kyoto guidelines. In fact, over 850 mayors of larger US cities have committed to reducing carbon dioxide emissions in their region. To see cities in your market interested in reducing emissions, go to www.usmayors.org/climateprotection/list.asp.

Easier compaction

Mixes made with Evotherm consistently achieve roadway densities more easily than conventional HMA. Even difficult to compact materials such as polymer modified asphalts and coarse mixes are easier to compact at lower temperatures using Evotherm. Better compaction means bonuses are easier to attain.

Extended hauls & paving season

The temperature of Evotherm mixes is much closer to ambient temperature than conventional HMA, so low temperature Evotherm mixes do not lose energy as quickly. A reduced rate of heat loss, combined with improved compaction, makes Evotherm an effective solution to cooler temperature paving and longer hauls – extending the paving season and the radius of operation for mix plants.

Increased production

Driving productivity gains within mixing facilities is of critical economic importance. Using Evotherm allows for increased throughput and production volumes by decreasing plant process temperatures.

Less wear on hot mix plants

Extending the life of capital assets and equipment helps asphalt plants stay competitive. Evotherm lessens the wear and tear on your equipment due to its lower processing temperatures.

Longer lasting asphalt cement

Lower temperatures mean less oxidative degradation of the asphalt in the mixing process. After 7 to 10 years of laboratory simulated aging, Evotherm binder performance actually matches or surpasses the qualities found in new hot mix asphalt. MeadWestvaco Asphalt Innovations is sponsoring additional studies to determine the long-term life cycle benefits of longer lasting warm mix asphalt.

Increased RAP usage

Because Evotherm-treated binders are less oxidized than conventional mixes & experience less hardening through the production process, warm mix asphalt allows for higher usage of recycled materials.

MWV Specialty Chemicals

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