



Lower costs and a safer work environment. Anova[®] gets you there.



Cargill Anova[®] Warm Mix Additive

Improved Compaction and Adhesion at the lowest cost

With Cargill's non-toxic Anova warm mix additive and adhesion promotor, crews can reliably achieve density and improve workability at lower temperatures while reducing emissions and odor.

The unique performance of our liquid warm mix additive are backed by more than 60 years of technical expertise in bio-based chemistry.





State-of-the-art technology. Sustainable success.



Improving performance

- Reliably achieve density and improve workability
 - Increase haul distance and production windows
 - Eliminate the need for adhesion promoters
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Creating economic value

- Lowest cost in use
 - Lower plant costs due to reduced fuel usage at lower production temperatures
 - Liquid product for simple implementation
 - Enhances opportunity for compaction or density bonuses
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Reducing environmental impact

- Non-hazardous, non-toxic, low odor
 - Made from bio-based chemistries
 - Reduce HMA plant emissions
 - Reduce fume exposure to work crews during placement
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Enriching communities

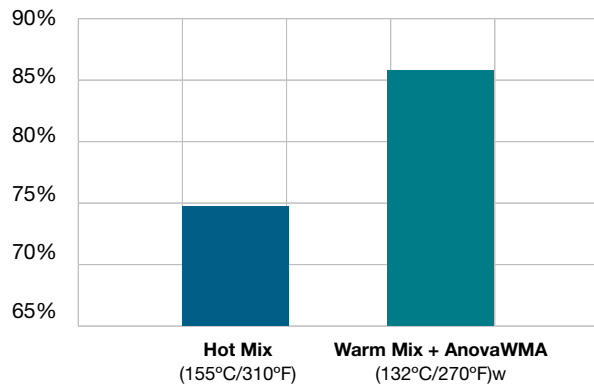
- Innovative technologies can enable efficient infrastructure investments
 - Renewable raw materials help support farmer livelihood, rural communities and agriculture industry growth
 - Working with farmers, government, industry groups, customers and consumers to make the future of industrial solutions more sustainable
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Our unique solutions. Proven performance.

Cargill Anova can enable reliable production of a balanced mix, regardless of the performance specification. Using any test method selected by the industry, the performance of Cargill's warm mix additive will be confirmed.

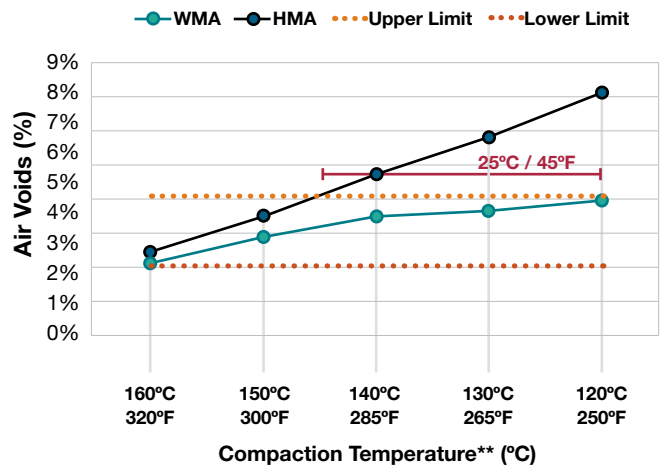
To demonstrate this performance, Cargill has performed several of these tests in their asphalt application lab. Anova WMA improves the moisture resistance of the asphalt binder when producing asphalt at a lower temperature. Compared to conventional hot mix asphalt, Anova warm mix additive also shows better rutting resistance and allows you to achieve better compaction at a lower temperature compared to conventional hot mix asphalt.

**Indirect Tensile Strength Ratio*
Improvement in Warm Mix (Aggregate A)**



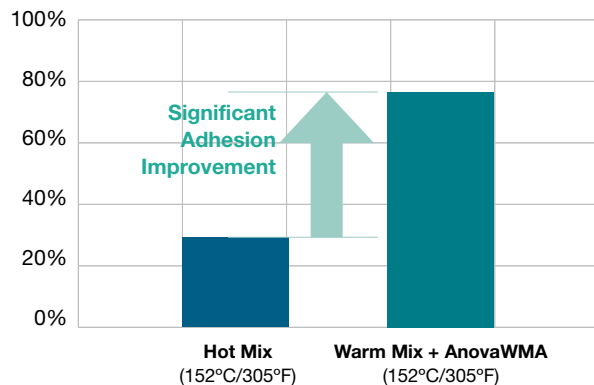
*AASHTO T283 IDT Tensile Strength Ratio test, after one freeze-thaw cycle

Bitumen with 0.4% Anova™ WMA



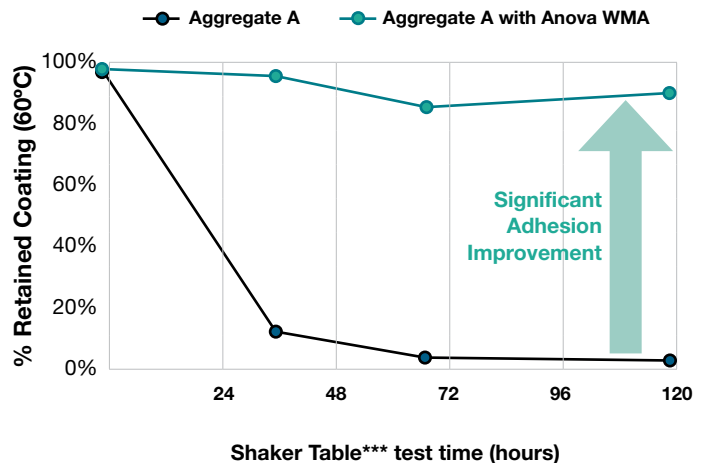
**Mix samples were produced at 160°C and compacted with a Marshall compactor at independent laboratory.

**Indirect Tensile Strength Ratio*
Improvement in Hot Mix (Aggregate Type B)**



*AASHTO T283 IDT Tensile Strength Ratio test, after one freeze-thaw cycle

Retaining Coating on High Stripping Aggregates



***LS 25-009 The Evaluation of Binder Resistance to Stripping for a Given Aggregate Surface." Quebec Department of Transportation, 2002



Cargill Anova Asphalt solutions have been proven in millions of tons of pavement around the globe.



Cargill Anova Products

CATEGORY	DESCRIPTION	VISCOSITY, CP AT 25°C	OPEN CUP FLASH POINT, °C
Warm Mix Additive			
Cargill Anova 1501 Warm Mix Additive	High-performance, non-toxic, liquid warm mix additive. Designed to reduce pavement application temperatures and aid in compaction.	150-200	>200
Modifiers			
Cargill Anova 1005 Rheology Modifier	Rheology modifier with long-term, high-temperature stability. Increases polymer compatibility with asphalt. Ideal for modifying penetration grades for emulsified asphalts.	45-55	>270
Cargill Anova 1006 Rheology Modifier	Rheology modifier with high-temperature stability. Increases polymer compatibility with asphalt. Ideal for improving low temperature performance grade and increasing penetration.	42-52	>220
Rejuvenators			
Cargill Anova 1815 Rejuvenator	High-performance rejuvenator designed to increase recycled content in hot mix asphalt. Will also aid in compaction.	90-110	>270
Cargill Anova 1845 Rejuvenator	High-viscosity rejuvenator designed to meet specifications for scrub seal emulsions.	400-500	>270

Listed above is a selection of the products we have to offer. Talk to us to find out which product will help you solve any challenges you may be facing.



Proven performance. The Cargill way.

A partnership with Cargill provides your business an undeniable advantage. We offer you a proven record of support from our state-of-the-art asphalt applications lab. Cargill's unique support system starts with materials evaluation, trial assistance, plant implementation and integration and continues through quality assurance and ongoing support, meaning you can count on us to provide the expertise and chemistries required to meet your toughest challenges.



**State-of-the-art
research**



**Bio-based
chemistry**



**In-depth binder
analysis**



**On-site
support**



**Proven global
technology**

Cargill Bioindustrial

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