

# Revolutionize your asphalt mix

Improve performance and reduce emissions with Cargill™ Anova® Warm Mix Additive, Adhesion Promoter, and Compaction Aid.







## Improved compaction and adhesion at the lowest cost

Cargill's bio-based\*\* chemistry, non-hazardous\* Anova® warm mix additive and adhesion promoter enables the production of smokeless asphalt — helping crews reliably achieve density and improve workability at lower temperatures than conventional hot mix asphalt, while reducing emissions and odor.

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

\*According to regulation (EC) No. 1272/2008 and 29 CFR 1910.1200

\*\*Compared to traditional Hot Mix Asphalt (HMA)



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



## Improving performance

- Reliably achieve density and improve workability at reduced temperature
- Increase haul distance and production windows
- Performs as an adhesion promoter



## 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 opportunities for compaction or density bonuses



## Reducing environmental impact

- Non-hazardous\*, low odor
- Made from bio-based chemistries
- Reduce HMA plant emissions
- Reduce fume exposure to work crews during placement with smokeless asphalt

\*According to regulation (EC) No. 1272/2008 and 29 CFR 1910.1200





*Anova® asphalt solutions  
have been proven in  
millions of tons of pavement  
around the globe.*



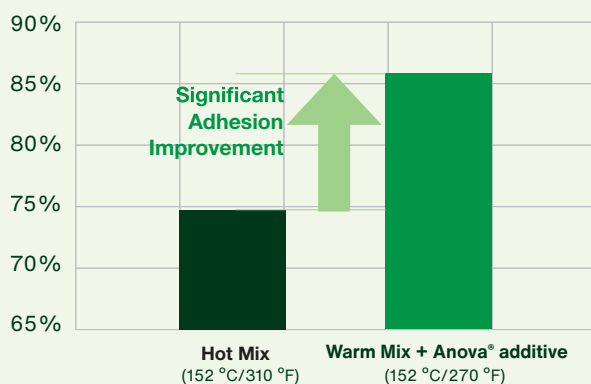


# Our unique solutions. Proven performance.

Cargill™ Anova® products can enable reliable production of a balanced mix, regardless of the performance specification. The performance of Cargill's warm mix additive has been confirmed using various test methods used by the industry.

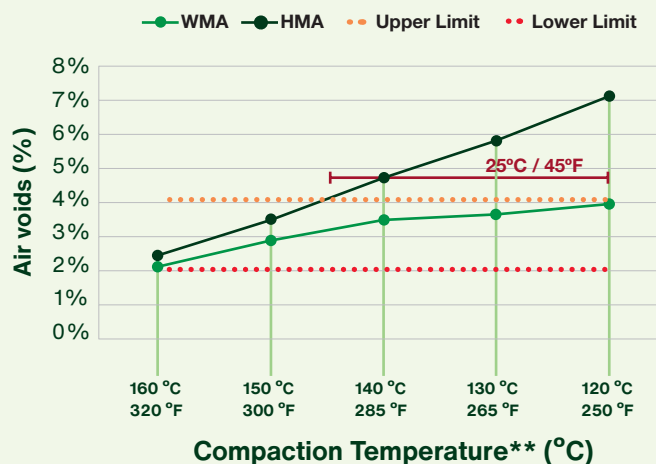
Anova warm mix additive has been shown to improve the moisture resistance of asphalt mixes. It maintains rutting resistance and improves compaction and workability, even at significantly reduced temperatures compared to conventional hot mix asphalt.

**Indirect Tensile Strength Ratio\*  
Improvement when used as  
Warm Mix Additive (Aggregate A)**



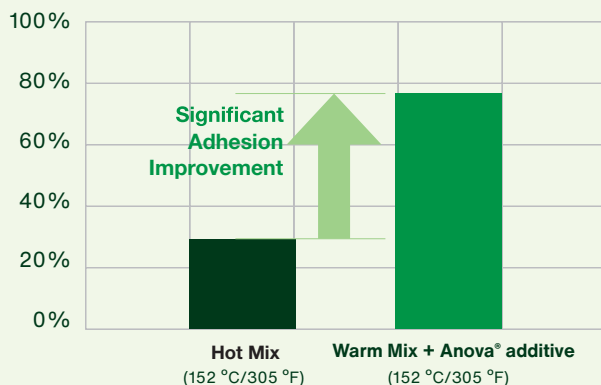
\*AASHTO T283 IDT Tensile Strength Ratio test, after one freeze-thaw cycle

**Bitumen with 0.4% Anova® Warm Mix**



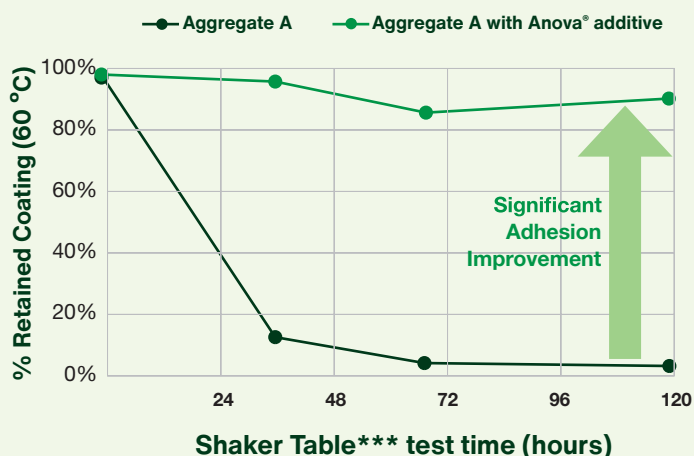
\*\*Mix samples were produced at 160 °C and compacted with a Marshall compactor at independent laboratory.

**Indirect Tensile Strength Ratio\*  
Improvement when used as an  
Adhesion Promoter (Aggregate 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® products

Category/ Product Name	Description	Typical viscosity, CP at 25 °C	Open cup, flash point, °C	Compaction aid	Warm mix (temperature reduction)	Adhesion promoter
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## Warm Mix

<b>Anova® 1501 additive (NA and LATAM)</b>	High performance, bio-based*, non-hazardous <sup>1</sup> , and low-odor liquid warm mix additive, compaction aid, and adhesion promoter, that enhances asphalt mixture workability allowing for lower temperature compaction and the production of smokeless asphalt.	210	211	●●●	●●●	●●
<b>Anova® 1503 additive (EU and APAC)</b>	High performance, bio-based*, non-hazardous <sup>1</sup> , and low-odor liquid warm mix additive, compaction aid, and adhesion promoter, that enhances asphalt mixture workability allowing for lower temperature compaction and the production of smokeless asphalt.	210	211	●●●	●●●	●●
<b>Anova® 1599 additive</b>	High performance, bio-based*, non-hazardous <sup>1</sup> , and low-odor liquid warm mix additive, compaction aid, with significantly enhanced adhesion promoter properties, asphalt mixture workability, and lower temperature compaction and the production of smokeless asphalt.	1,500	289	●●●	●●●	●●●

Category/ Product Name	Description	Typical viscosity, CP at 25 °C	Open cup, flash point, °C	Rheology modifier
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## Modifiers

<b>Anova® 1000 modifier (EU and APAC)</b>	Basic high quality bio-based* rheology modifier, ideal for modifying low temperature Performance Grade (PG), reducing viscosity, and increasing penetration grades in paving grade and emulsified asphalt binders.	51	290	●●
<b>Anova® 1005 modifier</b>	High performance bio-based* rheology modifier with enhanced Useful Temperature Interval (UTI), long term stability, and polymer compatibilization. Ideal for modifying low temperature Performance Grade (PG), reducing viscosity, and increasing penetration grades in paving grade and emulsified asphalt binders.	61	290	●●●
<b>Anova® 1006 modifier (NA and LATAM)</b>	High performance bio-based* rheology modifier with enhanced Useful Temperature Interval (UTI), long term stability, and polymer compatibilization. Ideal for modifying low temperature Performance Grade (PG), reducing viscosity, and increasing penetration grades in paving grade and emulsified asphalt binders.	63	213	●●●

Category/ Product Name	Description	Typical viscosity, CP at 25 °C	Open cup, flash point, °C	Adhesion promoter
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## Anti-Strips

<b>Anova® 1440 adhesion promoter</b>	High-performance, low-odor, bio-based* liquid anti-strip additive that significantly enhances asphalt-aggregate adhesion. The additive is non-corrosive <sup>1</sup> , non-amine based, and non-acidic for ideal use and handling.	420	303	●●●
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<sup>1</sup>According to regulation (EC) No. 1272/2008 and 29 CFR 1910.1200

\*Bio-based according to ASTM D6866

Additional marks equals enhanced feature: ●



Category/ Product Name	Description	Typical viscosity, CP at 25 °C	Open cup, flash point, °C	Compaction aid	Rejuvenator
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## Rejuvenators

<b>Anova® 1815 rejuvenator (NA and LATAM)</b>	High-performance rejuvenator, supporting high levels of recycled content. Enhances durability and aging resistance, while improving compaction and workability.	100	300	●	●●●
<b>Anova® 1817 rejuvenator (EU and APAC)</b>	High-performance rejuvenator, supporting high levels of recycled content. Enhances durability and aging resistance, while improving compaction and workability.	100	300	●	●●●
<b>Anova® 1825 rejuvenator</b>	Basic high quality rejuvenator, supporting medium levels of recycled content. Enhances durability, while improving workability. *Limited availability.	60	277	—	●●
<b>Anova® 1845 rejuvenator</b>	Highest performance rejuvenator and compatibilizer for highly aged recycled binder. Enhances durability, significantly enhances aging resistance, while improving compaction and workability.	470	265	●●	●●●

Category/ Product Name	Description	Typical viscosity, CP at 25 °C	Open cup, flash point, °C	Adhesion promoter	Rejuvenator	Rheology modifier
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## Cold Mix Modifiers

<b>Anova® 1300 rejuvenating cold mix modifier</b>	High-performance, low VOC**, high flashpoint cold mix and cold patch additive that can be used with both virgin and 100% RAP mixtures.	12	180	—	●●●	●●●
<b>Anova® 1310 rejuvenating cold mix modifier (NA and LATAM)</b>	High-performance, low VOC**, high flashpoint cold mix and cold patch additive that can be used with both virgin and 100% RAP mixtures. Formulated for improved coating and moisture resistance.	14	175	●●	●●●	●●●
<b>Anova® 1312 rejuvenating cold mix modifier (EU and APAC)</b>	High-performance, low VOC**, high flashpoint cold mix and cold patch additive that can be used with both virgin and 100% RAP mixtures. Formulated for improved coating and moisture resistance.	14	175	●●	●●●	●●●

Category/ Product Name	Description	Typical viscosity, CP at 25 °C	Emulsion stabilizer
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## Emulsion Stabilizer

<b>Anova® 1701 emulsion stabilizer</b>	Additive that stabilizes both anionic and cationic bituminous emulsions, significantly extending both short term and long term storage stability and improve homogeneity in emulsions with oil phase floatation or settlement issues due to density differences.	Water Soluble Powder	●●●
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<sup>1</sup>According to regulation (EC) No. 1272/2008 and 29 CFR 1910.1200

\*Bio-based according to ASTM D6866

\*\*Low VOC compared to typical asphalt cut-back

Additional marks equals enhanced feature: ●





## 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



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or email [anova-asphalt@cargill.com](mailto:anova-asphalt@cargill.com)



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