Performance that goes the distance

Cargill™ Anova® Rejuvenators reverse the impact on aging asphalt, enhancing durability, improving workability, and supporting sustainable paving practices.

Our bio-based rejuvenators reverse the impact of aging on pavement

Cargill™ Anova® rejuvenators help build and maintain better roads allowing for up to 100% usage of recycled asphalt pavement (RAP). The unique performance of our rejuvenators is backed by more than 60 years of technical expertise in bio-based chemistry.

Working with Cargill means we are with you every step of the way: from testing your materials and tailoring dosages, to supporting you on-site and collaborating on solutions that work for you.

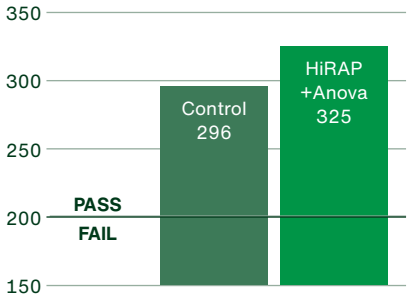
Proven performance. Measurable results.

Cargill™ Anova® Rejuvenators consistently deliver on performance — no matter the test method or performance specification. Designed to support balanced mix design with high levels of recycled content, Anova products help producers meet demanding standards with confidence.

To validate this performance, Cargill partnered with the National Center for Asphalt Technology (NCAT) to construct a test section using 45% RAP and Anova Rejuvenator. This section was benchmarked against a standard 30% RAP mix. After nearly 20 million ESA.

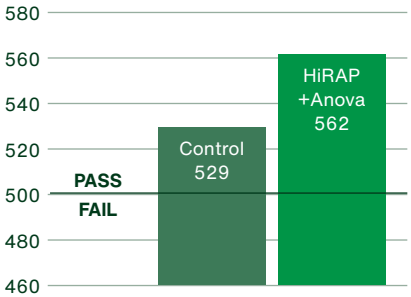
Increased reflective cracking resistance

Cycles to failure, overlay tester*



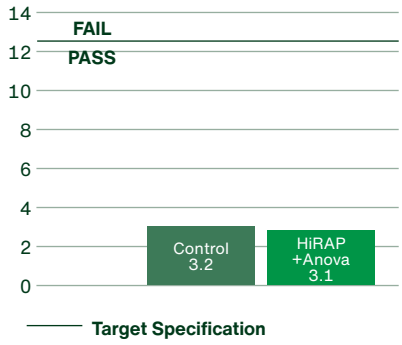
Improved thermal cracking resistance

Fracture Energy (J/m2), DCT*



Maintaining rutting resistance

Rutting depth (mm), Hamburg wheel*



*Data provided by NCAT.

Proven savings. Reducing embodied carbon footprint.

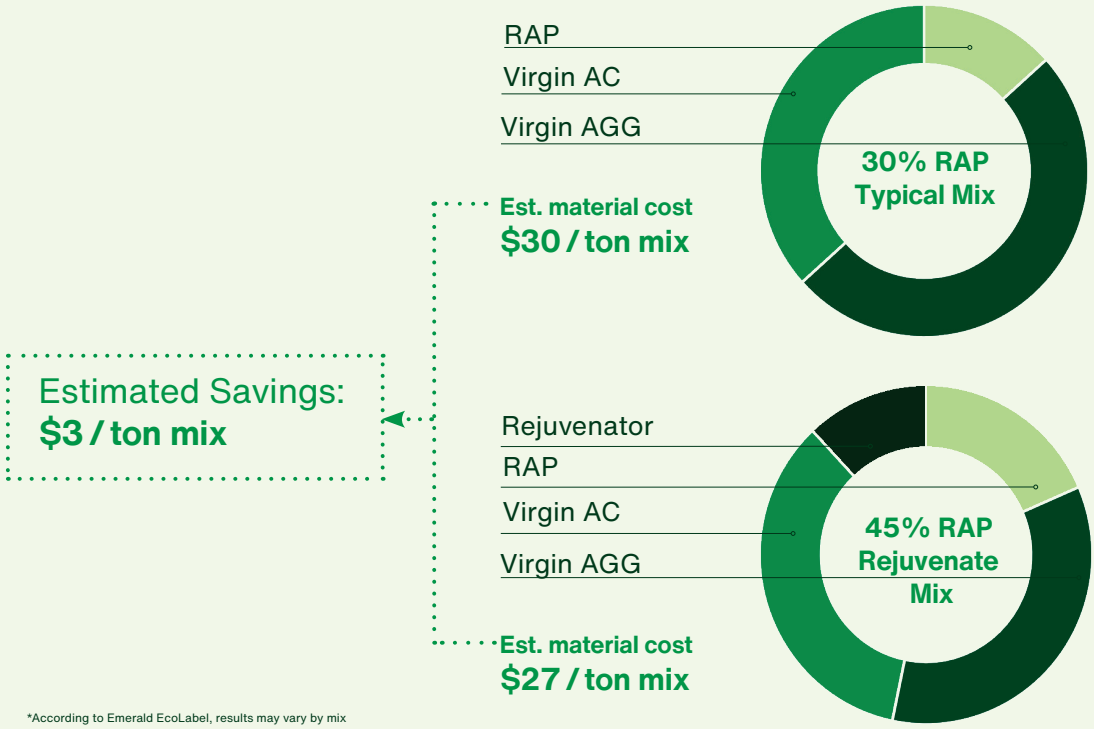
While you are building roads, you are also building a business. We provide a custom financial analysis to show you how our products can save you money. This is just one example of how we add value every step of the way.

We certainly don't stop there. In addition to custom financial analysis, we conduct customized laboratory analysis and offer on-site support when you start working with our products. We will stand beside you as a partner, no matter where you are located, no matter what challenges you face.

Creating economic value

- Lower mix costs (higher recycle)
- Lower paving costs
- Ease of cleaning equipment
- Better compaction for increased project bonuses
- Lower plant costs
- Less equipment wear and tear

Material Cost Comparison



This is just one example of how our Cost Savings Calculator demonstrates the potential overall savings by choosing Cargill's Anova Rejuvenator.

Now let's go over your numbers and see how we can help you save money.

*According to Emerald EcoLabel, results may vary by mix

Our unique solutions deliver unmatched performance

Cargill™ Anova® Rejuvenator allows you to use up to 100% RAP and still meet performance specifications. Our proprietary technology goes further than simply softening the aged bitumen in RAP. By rejuvenating the aged bitumen with Cargill Anova products, your mix will deliver performance that equals or exceeds that of your typical asphalt mix.

Recycling Agent / Criteria	Rebalancing Bitumen Chemistry	Cracking Resistance	Maintain Rutting Performance	Workability and Compaction	Durability and Aging	Handling Advantages
Anova® 1845 Rejuvenator	◆◆◆	◆◆◆	◆◆◆	◆◆◆	◆◆◆	◆◆◆
Anova® 1815/1817 Rejuvenator	◆◆◆	◆◆◆	◆◆	◆◆	◆◆◆	◆◆◆
Anova® 1825 Rejuvenator	◆◆	◆◆	◆	◆	◆◆	◆◆◆
Commodity Vegetable Oils	–	◆◆	–	–	◇	◆◆◆
Soft Asphalt / Flux	–	◆	◇◇	–	◇	◇
Modified Tall Oil-based	◆◆	◆◆	◇	–	–	◆◆◆
Tall Oil-based	–	◆	◇	–	◇◇◇	◇
Aromatic Oils	◆◆◆	◆	◇	–	◇	◇◇
Paraffinic Oils / REOB	◇◇◇	–	◇	–	◇◇◇	◇

◆ Positive Impact ◇ Negative Impact – No Impact

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
Warm Mix						
Anova® 1501 additive (NA and LATAM)	High performance, bio-based*, non-hazardous[1], 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	♦♦♦	♦♦♦	♦♦
Anova® 1503 additive (EU and APAC)	High performance, bio-based, non-hazardous[1], 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	♦♦♦	♦♦♦	♦♦
Anova® 1599 additive	High performance, bio-based, non-hazardous[1], 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
Modifiers				
Anova® 1000 modifier (EU and APAC)	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	♦♦
Anova® 1005 modifier	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	♦♦♦
Anova® 1006 modifier (NA and LATAM)	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
Anti-Strips				
Anova® 1440 adhesion promoter	High-performance, low-odor, bio-based liquid anti-strip additive that significantly enhances asphalt-aggregate adhesion. The additive is non-corrosive[1], non-amine based, and non-acidic for ideal use and handling.	420	303	♦♦♦

[1]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
Rejuvenators					
Anova® 1815 rejuvenator (NA and LATAM)	High-performance rejuvenator, supporting high levels of recycled content. Enhances durability and aging resistance, while improving compaction and workability.	100	300	♦	♦♦♦
Anova® 1817 rejuvenator (EU and APAC)	High-performance rejuvenator, supporting high levels of recycled content. Enhances durability and aging resistance, while improving compaction and workability.	100	300	♦	♦♦♦
Anova® 1825 rejuvenator	Basic high quality rejuvenator, supporting medium levels of recycled content. Enhances durability, while improving workability. *Limited availability.	60	277	–	♦♦
Anova® 1845 rejuvenator	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
Cold Mix Modifiers						
Anova® 1300 rejuvenating cold mix modifier	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	–	♦♦♦	♦♦♦
Anova® 1310 rejuvenating cold mix modifier (NA and LATAM)	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	♦♦	♦♦♦	♦♦♦
Anova® 1312 rejuvenating cold mix modifier (EU and APAC)	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
Emulsion Stabilizer			
Anova® 1701 emulsion stabilizer	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	♦♦♦

[1]According to regulation (EC) No. 1272/2008 and 29 CFR 1910.1200

*Bio-based according to ASTM D6866

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

Find more information at **cargill.com/anova**
or email **anova-asphalt@cargill.com**

Cargill™