



## Chemistry to Easily Maximize the Use of Recycled Asphalt Pavement (RAP)

The asphalt industry is being challenged to reduce its carbon footprint by using sustainable solutions that minimize environmental impact. Maximizing the use of recycled asphalt pavement (RAP) to build new roads while maintaining performance, durability and safety is key to addressing this challenge. Cecabase RWI is an additive that facilitates higher recycling rates while delivering equivalent or greater performance compared to virgin binder mix. Unlike binder softeners, Cecabase RWI restores the rheological properties of the RAP binder and improves operational efficiency, making higher RAP mixes easier to handle with better workability and compaction.



### BENEFITS

#### LOWER CARBON FOOTPRINT

- ✦ Facilitates higher RAP utilization and less virgin bitumen usage without construction or performance problems.
- ✦ Enables high-RAP mixes to be produced, laid down and compacted at lower temperatures.

#### IMPROVED OPERATIONAL EFFICIENCY

- ✦ Adaptable to any process or equipment thanks to its outstanding thermal stability.
- ✦ Quickly remobilizes oxidized bitumen from the RAP.
- ✦ Facilitates faster blending of extracted bitumen and virgin bitumen during mix production resulting in consistently performing asphalt.
- ✦ Allows easier lay down, compaction and better mat density with fewer roller passes.
- ✦ In addition to the base course, enables the use of high-RAP mixes for surface and intermediate layers.

#### REDUCED COSTS

- ✦ Reduces mix cost by enabling higher RAP utilization allowing for less virgin aggregate and bitumen usage.
- ✦ Decreases working capital needed for bitumen inventory by avoiding the use of softer grade bitumen.
- ✦ Ensures consistent supply with no need for additional storage or heating.

#### BETTER PERFORMANCE

- ✦ Lowers critical cracking temperature of asphalt to levels found in low-RAP mixes.
- ✦ Prevents aging of recombined bitumen for added durability.
- ✦ Improves moisture resistance of the mix.

## MARKET APPLICATIONS

### BITUMEN PAVING USING:

- ✦ Non-modified asphalts
- ✦ Asphalts modified with:
  - Styrene-butadiene-styrene (SBS)
  - Styrene-butadiene rubber (SBR)
  - Ethylene-vinyl acetate (EVA)
  - Ground tire rubber (GTR)
  - Polyphosphoric acid (PPA)

### AGGREGATE TYPES INCLUDING:

- |            |                              |             |
|------------|------------------------------|-------------|
| ✦ Granite  | ✦ Dacite                     | ✦ Limestone |
| ✦ Diabase  | ✦ Chert                      | ✦ Dolomite  |
| ✦ Diorite  | ✦ Marble                     | ✦ Sandstone |
| ✦ Basalt   | ✦ Quartzite                  | ✦ Slag      |
| ✦ Gabbro   | ✦ Gneiss                     | ✦ RAP       |
| ✦ Rhyolite | ✦ Natural Sand<br>and Gravel |             |
| ✦ Andesite |                              |             |

## FEATURES

Comparison Criteria	Traditional Softeners	Cecabase RWI
Facilitates increased use of recycled asphalt pavement (RAP)	✓	✓
Compatible with most bitumens	✓	✓
Improves mix workability and compactability		✓
Thermally stable – no performance loss at high temperatures		✓
Faster RAP binder remobilization		✓
Prevents premature aging of recombined bitumen		✓
Performance durability spans years		✓
Improves moisture resistance of the asphalt mix		✓
Facilitates high-RAP warm mix asphalt production without additional additives		✓



## THE ARKEMA-ROAD SCIENCE ADVANTAGE

Arkema-Road Science is a leader in the development of asphalt additives, emulsifiers, and paving and recycling system technologies for the asphalt industry worldwide. Our offerings span the entire customer value chain from producing key chemical components for asphalt refineries, terminals, emulsion plants and asphalt mix plants, to providing laboratory and field engineering support of pavement applications. Arkema-Road Science delivers responsive, comprehensive and dependable customer support focused on helping our customers succeed.

## CONTACT

Contact Arkema-Road Science today and learn how we can help you make the grade.

Email [asphalt.surfactants@arkema.com](mailto:asphalt.surfactants@arkema.com) for further information.

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