



**Indulin®**

Cold mix

**ingevity™**



# Your eco to tradit

Cold mix is a combination of asphalt emulsion and aggregate that is mixed together at ambient temperatures. Because asphalt emulsion is liquid at room temperature, there is no need to heat or dry the aggregate. Consequently, cold mixes can be an economical alternative to traditional hot mix asphalt. This is especially the case in areas where there are long distances between the job site and hot mix plant. The versatility of cold mixes allows them to be mixed in-place at the job site or at a remote plant and then transported to the job site. Cold mixes can be used for base or wearing courses. Using straightforward techniques, cold mixes can be suitably designed for a broad range of asphalts, aggregates, base and field conditions as well as tailored to specific performance needs.

Cold mix examples include surface and wearing courses using virgin aggregate, grave emulsion, recycling base stabilization and full depth reclamation.

## **Technology offerings**

### **Indulin W-5**

Indulin W-5 can be used to produce either a cationic or anionic slow-setting asphalt emulsion. Indulin W-5 works well with dirty aggregates and /or when the aggregate has a high clay content. It produces an emulsion with good mixing and adhesion; passes the cement mix test; and is stable upon dilution.

### **Indulin SBT-50**

Indulin SBT-50 is a complex reaction product specifically formulated for cationic slow-set (CSS) emulsions. SBT-50 emulsions build strength and cohesion rapidly, allowing quick core and cap times.

### **PC-2024**

PC-2024 is an amphoteric chemistry specifically formulated for slow-set emulsions. PC-2024 produces an emulsion that offers

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superior mixing, coating and adhesion; can be used with graded or ungraded aggregates; passes the cement mix test; and is stable upon dilution.

## Indulin JAK

Indulin JAK is a cationic emulsifier designed specifically for full depth reclamation. Indulin JAK is formulated to provide excellent coating of road base material of varying compositions at low added-water levels, while also achieving rapid strength gain in the finished paving surface. It imparts exceptional bonding of asphalt to aggregate surfaces, resulting in high tensile strength ratio (TSR) values. Emulsions made with Indulin JAK provide excellent emulsion-to-aggregate compatibility in addition to superior mixing and coating with a wide variety of base materials.

## Emulsifier selection

Ingevity offers a broad range of emulsifiers to deliver top performance to even the most challenging cold mix applications. When selecting the proper emulsifier, the following should be taken into account: the characteristics of the asphalt and aggregate; the desired performance properties; and the climatic condition during application. Mixing, coating, workability and cure times can all be heavily influenced by emulsifier choice. Solvent-free cold mixes require the use of different emulsifiers than systems containing solvent.

## Recommended products and formulations

Application	Emulsifier	Cure time	Dosage %	Mix time
Cold-in-place full-depth reclamation	Indulin W-5	Slow	1.8-3.0	Slow
	Indulin SBT-50	Medium	1.8-2.5	Moderate
	PC-2024	Medium	1.8-2.5	Moderate
Full-depth reclamation	Indulin JAK	Rapid	2.0-2.5	Fast

## We partner with you to develop customized solutions

Pavement Technologies, a dynamic business within Ingevity, is the global leader in the development and delivery of high-performance products and technologies for the world's asphalt paving industry.

We specialize in customized solutions and support for a full range of asphalt paving demands. Ingevity partners with customers to:

- evaluate project materials
- offer plant-to-jobsite support in an effort to help ensure success
- optimize mix designs and emulsion formulations to meet project specifications

Ingevity  
5255 Virginia Avenue  
North Charleston, SC 29406  
800 458 4034  
[ingevity.com](http://ingevity.com)

