

Presented by  
 Tricor Refining  
 Jim Brownridge  
 Marketing Manager

RMAC 2016 – Maintenance 102  
 Economics of Pavement  
 Preservation

Preserving It Forward with Multiply  
 Options for Preservation




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Purpose of Asphalt Rejuvenators

“Maximizing the Performance of Your Road Inventory”

“Minimizing the cost of ownership of your Road Inventory”

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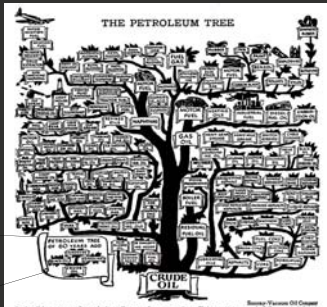
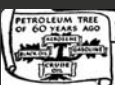
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Notice any changes in your  
 HMA pavements?

The chemistry of our asphalt has changed. Today over 2000 products are obtained from dividing crude oil. After distillates are removed, asphalt components remain and are engineered to make quality Hot Mix Asphalt (HMA)


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**Asphalt Rejuvenators**

Similar Concept to treating a fence to preserve and at about the same interval.



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**Asphalt Rejuvenators**

Can Give you This



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Instead of this...

Except they look like this.....



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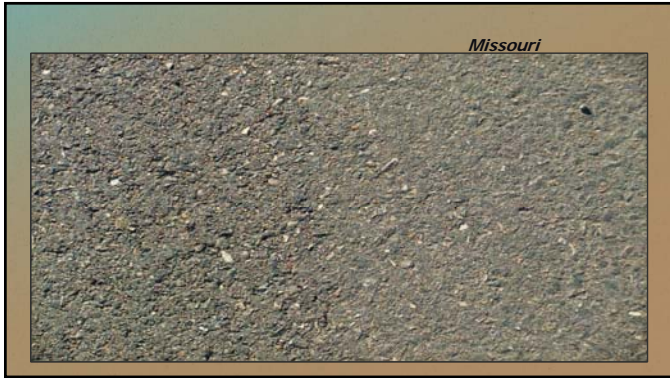
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Missouri

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Arizona

Thermo Paint

Reclamite, no need for immediate restriping of thermo paint

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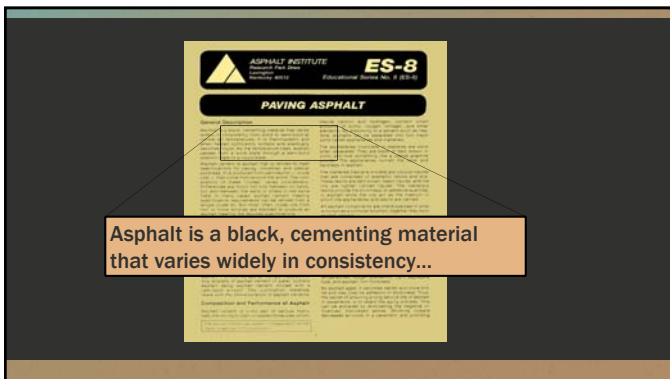
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Asphalt is a black, cementing material that varies widely in consistency...

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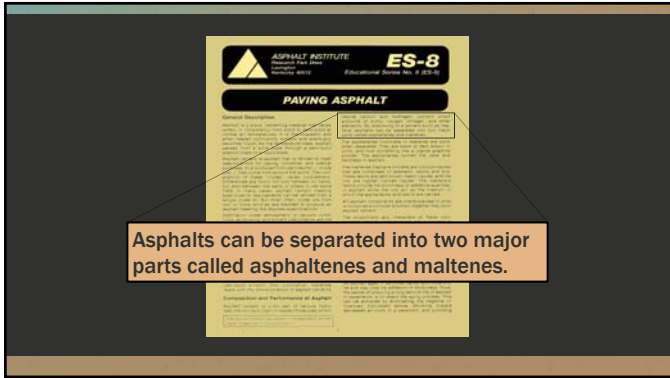
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Asphalts can be separated into two major parts called asphaltenes and maltenes.

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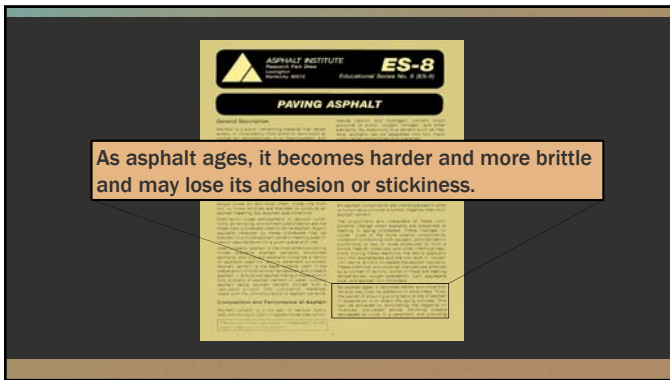
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As asphalt ages, it becomes harder and more brittle and may lose its adhesion or stickiness.

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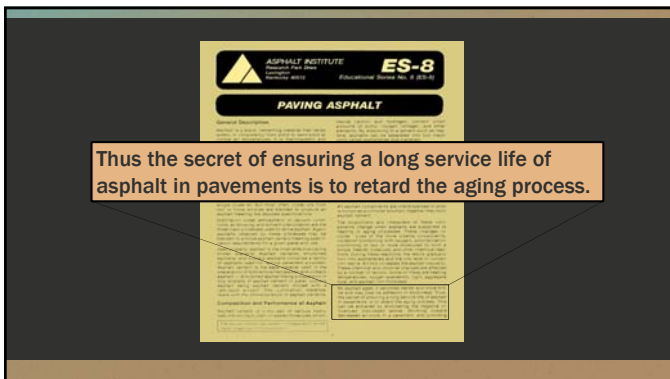
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Thus the secret of ensuring a long service life of asphalt in pavements is to retard the aging process.

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Larry Galehouse  
Director, National Center for  
Pavement Preservation

**“It’s important  
to get the true,  
maltene-based  
rejuvenator if a  
change in  
binder  
chemistry is  
desired.”**

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### What is an Asphalt Rejuvenator?

An asphalt rejuvenator is a petroleum maltene based solution used to prolong the life of asphalt. It restores and preserves the plasticity and durability in asphalt. f



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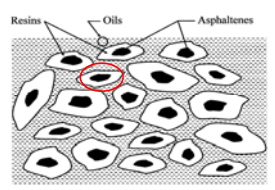
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### Treat the Cause...

Not the Symptoms.

#### What is a Asphalt Rejuvenator



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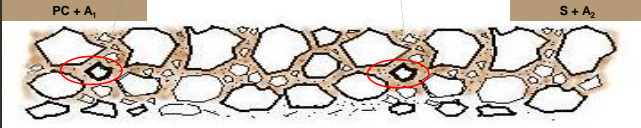
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### Function of the Maltene Fractions

Maltenes must penetrate into the pavement co-mingle and flux with the binder



PC + A<sub>1</sub> S + A<sub>2</sub>

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The constant UV ray exposure and heating effect from the sun cause the maltene fractions to be baked or oxidized from the pavement's AC.



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Reclamite is a petroleum maltene-based rejuvenator that:

- Restores chemical properties lost due to the heat of producing pavement, weathering and UV rays.
- Restores flexibility and ductility to the top 1/2" of asphalt pavement.
- Stops aggregate loss of the dry and brittle asphalt pavement.

### Reclamite



Petroleum Maltene Emulsion

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**Components of Asphalt**  
Petroleum Asphalt is comprised of two fractional components: Maltenes and Asphaltenes.

**Components of Reclamite**  
Petroleum Maltene Rejuvenator - No Asphaltenes



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Reactive Components Deteriorate causing an Imbalance with the Asphaltenes

The loss of the liquid asphalt oils or maltenes in the upper 3/8"-1/2" of the asphalt pavement begin the deterioration process



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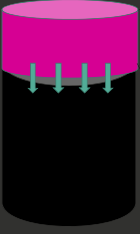
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**Petroleum Maltene Rejuvenator**



**Reclamite** petroleum maltene rejuvenator

Penetrates +/- 1/2 inch, co-mingling, fluxing and densifying the surface creating an "in-depth" seal.

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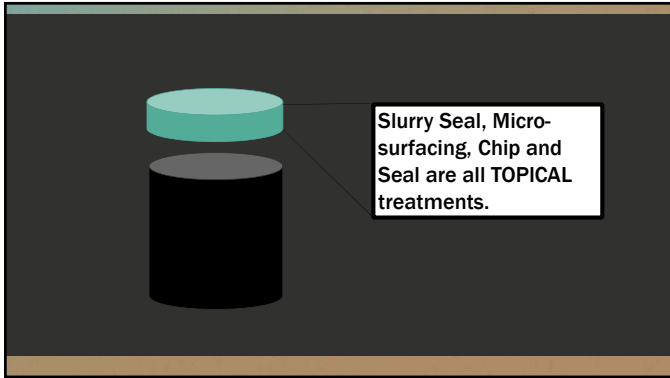
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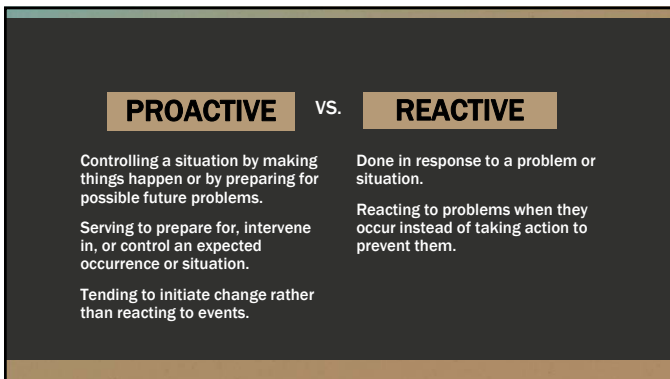
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**MAINTENANCE** vs. **PRESERVATION**

...consists of work that is planned and performed on a routine basis to maintain road system.  
i.e. Repair a pothole

...Long term proactive strategy that enhances pavement...extends pavement life cycle.  
i.e. preventing cracking and potholes

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**Economics of Rejuvenation...**

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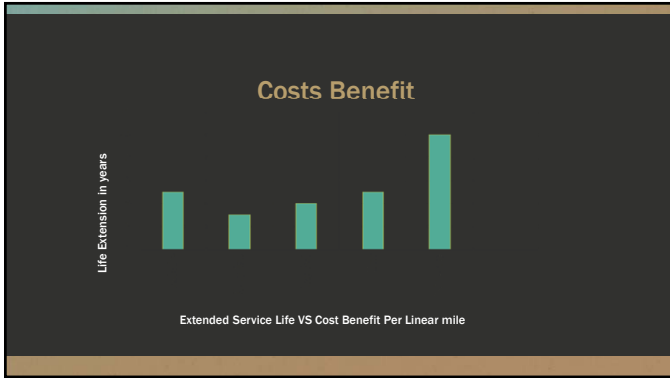
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Summary of Extended Service Life - Linear Mile Life Cycle Cost

	SLURRY	CHIP SEAL	MICRO	HMA OVERLAY	RECLAMITE REJUVENATOR
Contract Cost Per Linear Mile	\$28,000	\$35,000	\$56,000	\$112,000	\$14,000
Contract Price Per Square Yard	\$2.00	\$2.50	\$4.00	\$8.00	\$1.00
Extended Service Life (ESL)	3 years	4 years	5 years	10 years	5 years
Current Extended Service Life Cycle Cost Per Year, Per Linear Mile	\$9,300	\$8,750	\$11,200	\$11,200	\$2,800

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An agency can assume to have a cost of \$112,000 per mile every 10 years. If the same agency adopted a rejuvenation program at year 5, 10, and 15 for a cost of \$42,000 over the 20 year period, this would **Eliminate** the need to overlay at \$224,000 for 10 and 20 years, thereby providing the agency a net cost saving of \$182,000 per linear mile over that 20 year period.

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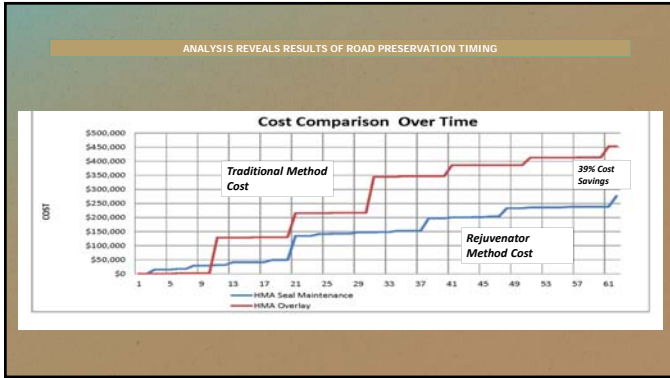
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A secondary benefit of maintaining the road with rejuvenator regularly will greatly reduce cracks and potholes along with their associated costs, safety issues and manpower.

With the right care, the miles don't show.

When you see potholes, cracks, or other signs of road damage, it's time to call for help. The longer you wait, the more damage you'll do to your road. Regular maintenance can help you avoid these problems. Call your local road maintenance contractor today for more information.

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When the right road is treated at the right time, the result is a highly durable asphalt, virtually equal to or better than the original.

Treated with rejuvenator  
Shows signs of aggregate and asphalt

Rejuvenator treated  
Shows signs of aggregate and asphalt

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Any agency can implement the use of Rejuvenators by simply deferring a small amount of resurfacing.



Miles of HMA Overlay

5 Miles

2 Miles

1 Miles

½ Mile

FOR



Miles of Rejuvenator

50 Miles

20 Miles

10 Miles

5 Miles

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The essence of pavement preservation is to simply keep your good roads good.



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### Preserving It Forward with Teamwork

Add Rejuvenators to your Program to Maximize Performance

Minimize the Cost of Ownership of your Road Inventory

You need to Sell. Sell the Concept to Management. Everyone sells whether tangible or in tangible.

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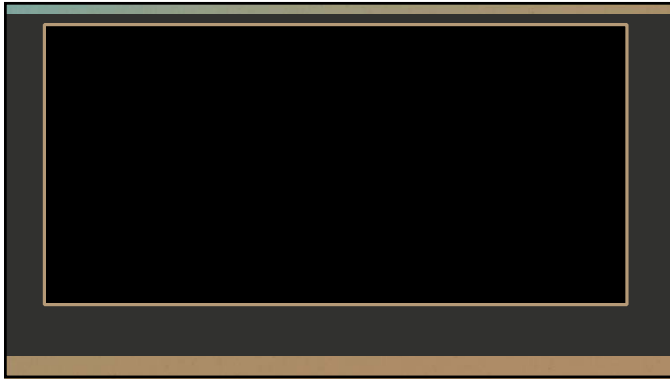
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Thank You – Questions Welcome  
Jim Brownridge  
Marketing Manager  
Direct Phone: 661.337.9979  
[www.tricorrefining.com](http://www.tricorrefining.com)

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