

2019 NWPMA

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Western Emulsions is committed to Sustainable Solutions for Pavement Preservation and Recycling

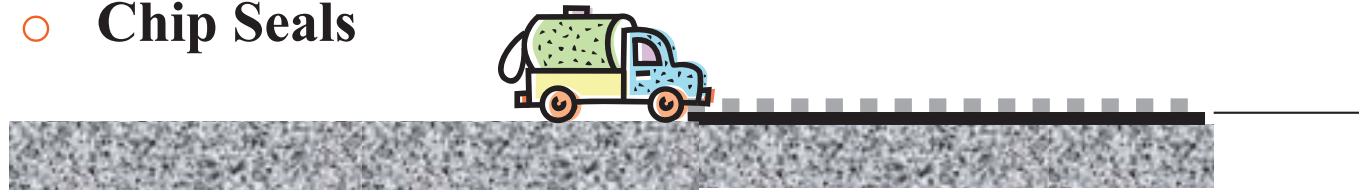
Terminology



- **Scrub Seals**



- **Chip Seals**





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What is PASS ?

PASS is a Polymer Asphalt Surface Sealer used as a binder for aggregate chips while also sealing cracks in distressed pavements. (original PMRE)

It contains.

- Asphalt
- Solvent-free rejuvenating agent (15%)
- High-quality emulsifier
 - (The emulsifier is changed to facilitate the end use)
- Tough Polychloroprene Polymer (3.5%) PA-AS-1

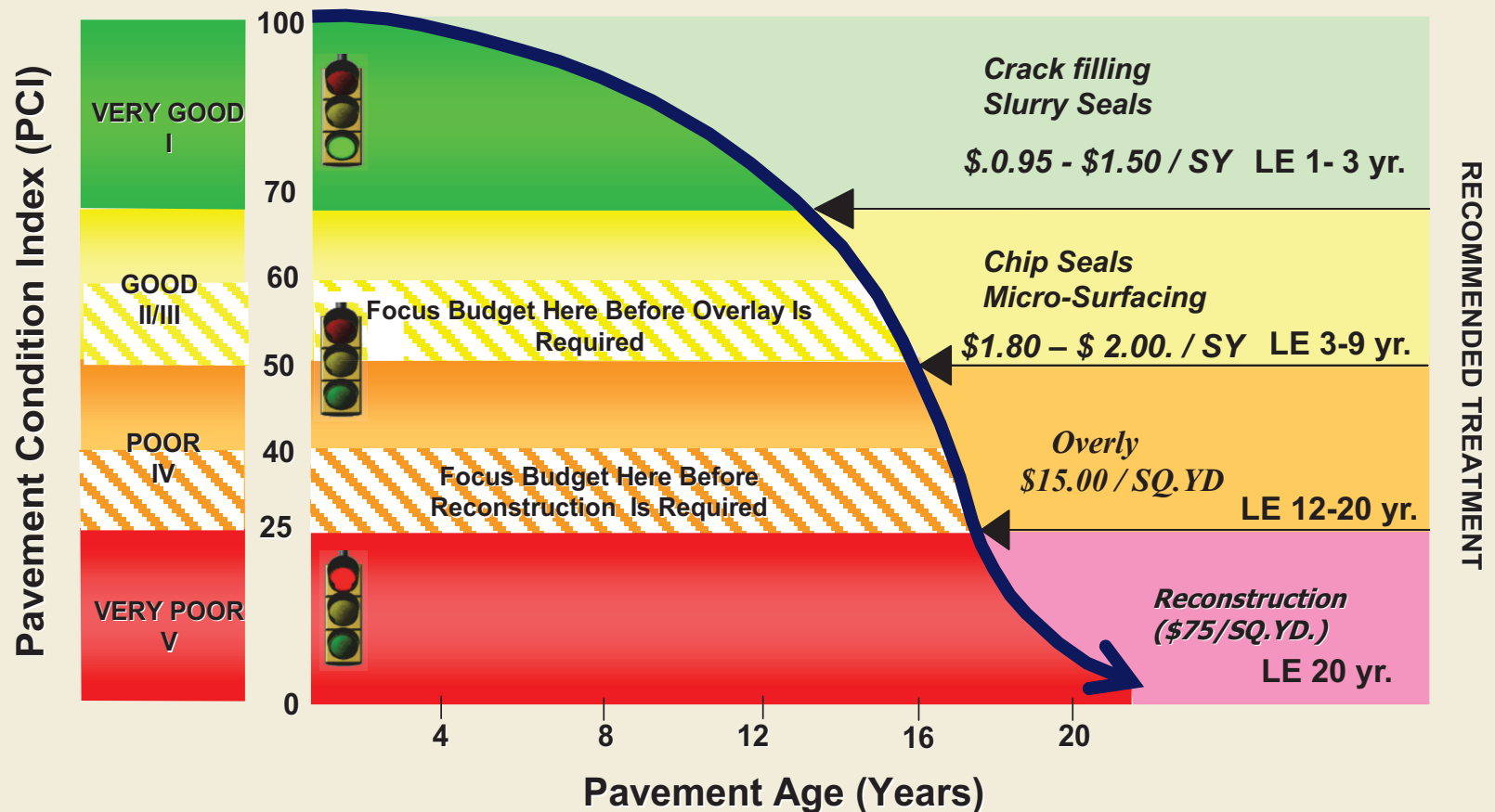
Aggregates

- All common chip seal sizes
- Cinders – colored
- Crushed Fines
- RAP
- Slags

The Concept of Pavement Preservation

Traditional Approach

APPROACH - CATCH STREETS BEFORE THEY FAIL



Product Advantages: Compared to standard Emulsions

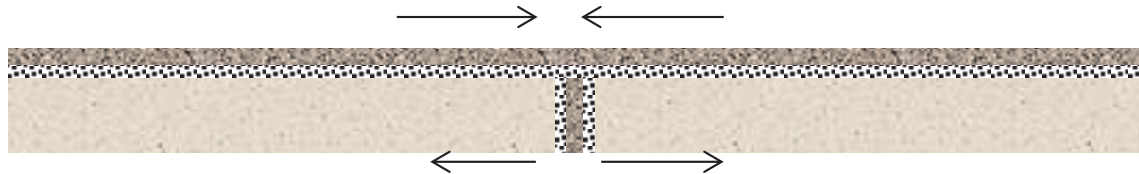
- ❑ Minimal / to no Crack Filling is Required
- ❑ Can be applied at both low and high Temperature.
 - (50° F - 105° F) best practice
- ❑ High Flexibility (3.5 % Polymer)
- ❑ Will work with dirty chips – within reason

How does PASS Work

Mechanics

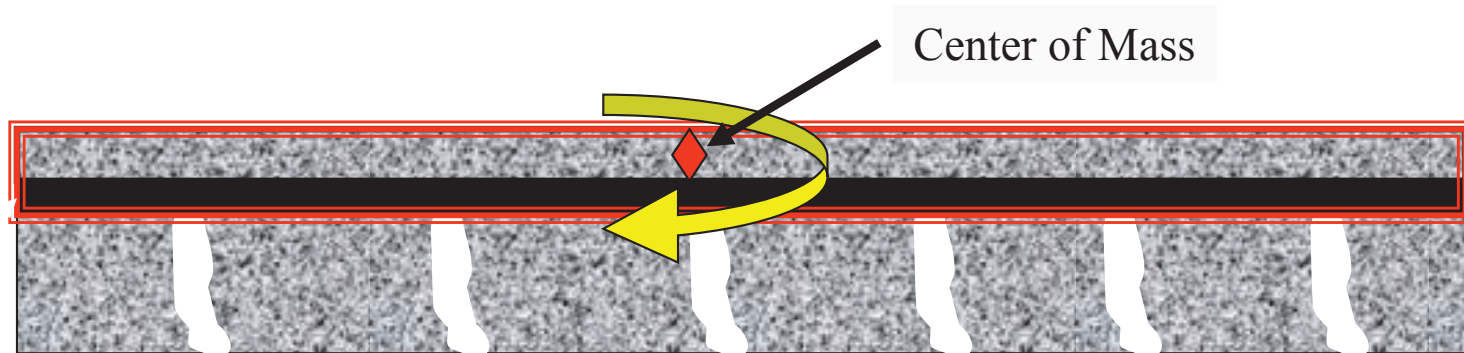


Zero Flexural Strength



**The rejuvenator penetrates, rejuvenates and anneals to develop a permanent bond on the surface and on the walls of the crack..
The end result is the reconstruction of a structural beam able to withstand flexural loading.**

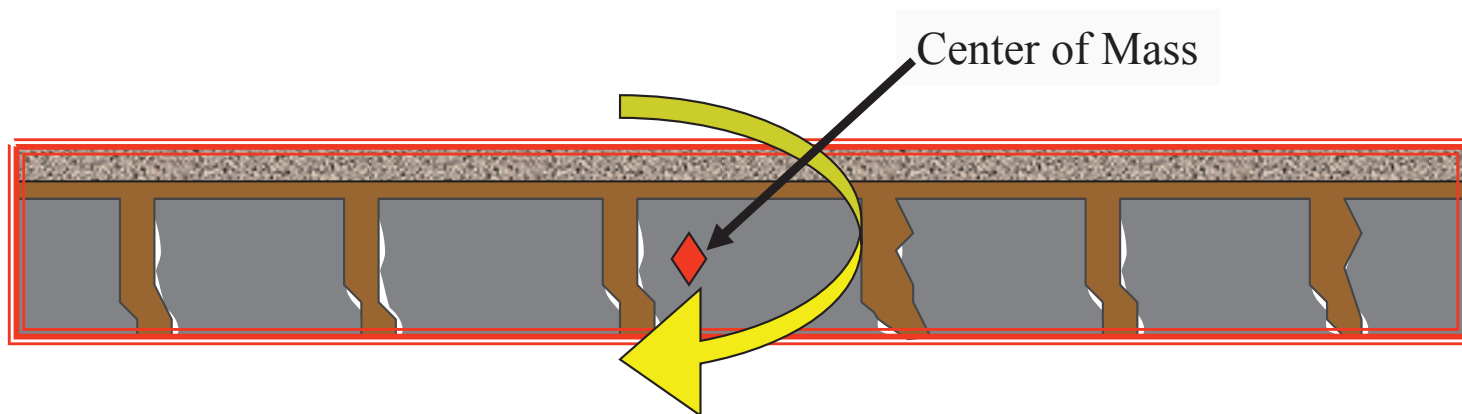
Comparing Treatment Alternatives



System boundary in red

Bridging Systems

Hot Rubber Chip and Fabric

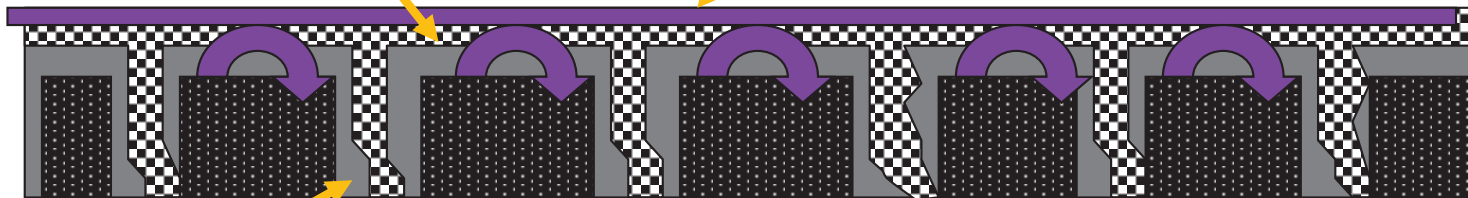


PASS[®] System

Polymer Mechanics

Chip and Asphalt

Polymer works independently to force the rejuvenator into the pavement



Rejuvenator

Rejuvenator in simple terms works independently to work on aged asphalt. If the rejuvenator breaks down the polymer two things happen:

- **The polymer steals the rejuvenator and therefore no replacement of maltene's to aged and distressed asphalt.**
- **Become sticky and gooey.**



Scrub Seals



Scrub Seals



Scrub Seals



Scrub Seals



Prospective Scrub Seal Candidates

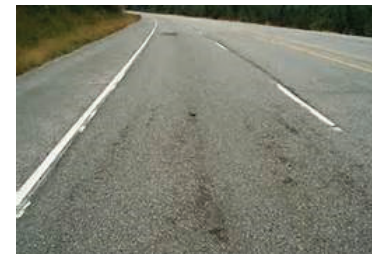
- **Alligator Cracks**



- **Block Cracking**



- **Raveling**



- **Open Graded**



Prospective Seal Candidates

- ❑ **Some minor distress**
- ❑ **Aged AC or heavy oxidation**
- ❑ **Climatic conditions**
 - ❖ **In some geographical locations it is difficult to meet temperature requirements for standard emulsions.**



NOTE: Limitations

Structural failures need to be identified and repaired prior to application.



Execution:



Application Steps

for

Scrub Seals

Set up **Traffic** Control



Sweep and Clean the Pavement Surface



Apply Fog Seal to all new patches < 3months old prior to sealing

New Patch without Seal

Fresh AC will absorb emulsion rate



Apply and Scrub the Emulsion

- ❑ The size of the emulsion wave is a function of the pavement surface and severity of cracks.
- ❑ Application rates for Scrub Seals factor in Chip size
- ❑ Scrub Seals generally require a higher application to afford the opportunity for the broom to build a wave of emulsion which is used to fill the voids of the distress.
- ❑ For roadways that are not distressed the broom is eliminated.



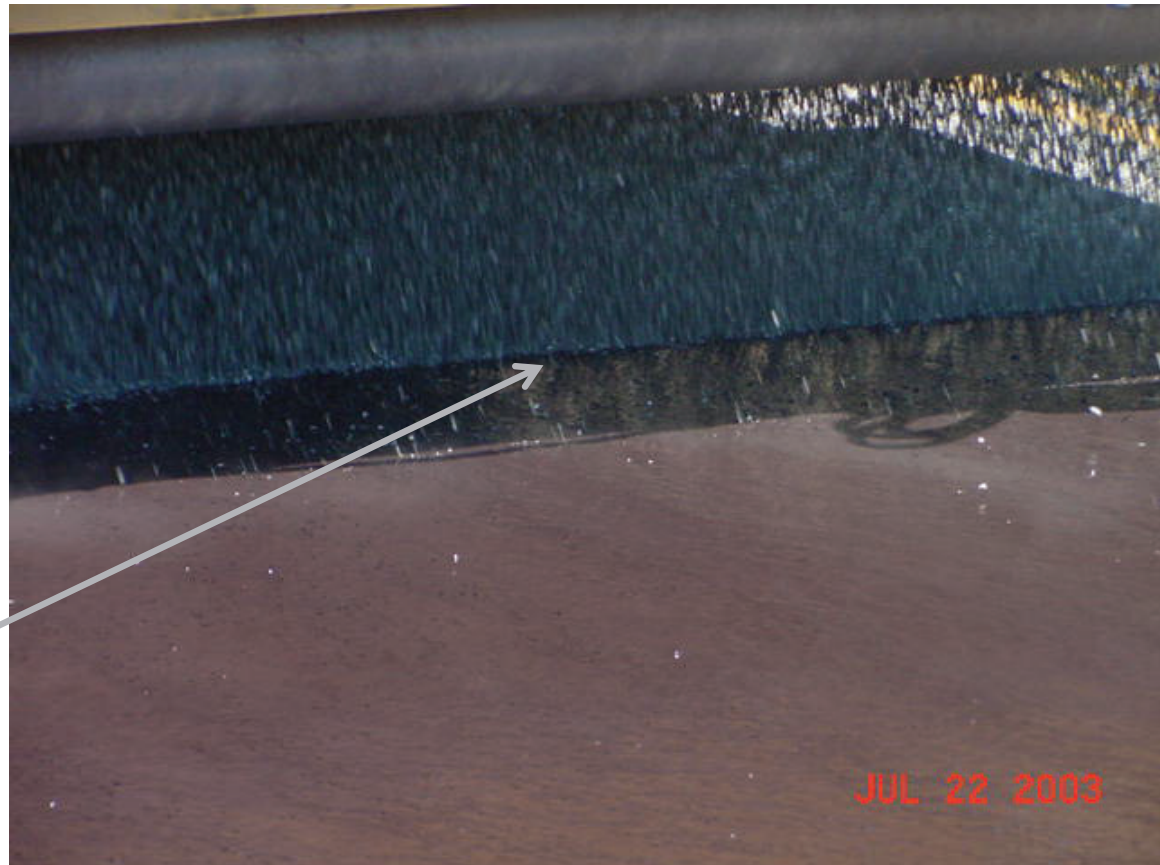
Broom dynamics



Apply the chips

Maximum chip retention is accomplished when the mean diameter chip is embedded 50-70%.

A scrub seal is a chip seal operation / need to pay attention to finished emulsion rate



Roll to set the chips

- Pneumatic tire rollers.
- Offset the Pattern
- Steel Drum
- Roll 3 times.



Sweeping Operations

Consider:

- Light Brooming
- Broom Cores
- Environmental requirements



Pick-Up Broom



Kick Broom

Open to Traffic



Some agencies prefer to fog seal chip seals or scrub seals after completion.

Benefits:

- Better chip retention**
- Provides good background for delineation**

“Re-Cap” of the Scrub Seal



Apply & Scrub Emulsion



Apply, Roll & Sweep the Chips



Scrub Seal placed as an Interlayer



- Emulsion rate was .25 gal. / SY
- Chip size 1/4"
- Chip application rate 15 lbs./SY

Sami's under HMA



Cape Seals



Scrub / Chip Seal application



Questions ??????

