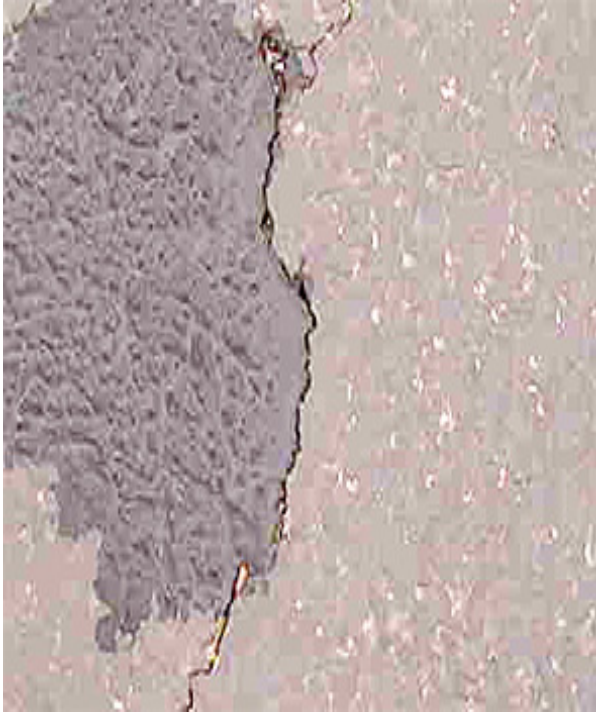


Crack Sealing: Best Practices

TERRA Pavement Conference

Feb. 12, 2015

Why Do Cracks Need To Be Sealed?



#1 – To seal out water. Water entering the ground below the pavement softens the soil, creating a pocket for the water to collect. Next, the weight of traffic on the pavement will displace the water. This is how potholes are created. Stopping water from entering into and under the pavement keeps the base stable and the pavement strong.

Why Do Cracks Need To Be Sealed?

SPRING/FALL



WINTER



SUMMER



Unsealed cracks grow larger because of the intrusion of water and debris entering and then the compressive forces on the debris during the summer months.

Untreated cracks continue to deteriorate. Oxidization of the crack edges leads to erosion. Thermal movement of cracks filled with incompressibles cause the cracks to grow in size. This deterioration is natural and if left untreated, continues to destroy the pavement.

Why Do Cracks Need To Be Sealed?

Do you know that Roads are the largest public capital investment in this country?

Sealing cracks will protect this public investment by stopping the imminent failures they cause and extending the service life of the pavement.

What GOOD crack treatments do for you?



- ~ Perform effectively for up to 7-9 years*
- ~ Reduce Pavement Life Cycle Cost*
- ~ Reduce vehicle maintenance for the traveling public.*
- ~ Reduce Traffic Interruptions*
- ~ Reduce Worker's Exposure to Traffic*

Roads are an investment and Crack Treatments are the most cost effective preservation tool available.

Crack Sealing Best Practices

Two Primary Methods:

- ✓ **Clean & Seal**
 - ✓ Longitudinal Cracks, High Crack Density or Cracks $>3/4"$ and $<1\frac{1}{2}"$

- ✓ **Rout & Seal**
 - ✓ Transverse Cracks $<3/4"$ wide.



Application Options



CAPPING



RESERVOIR

Two basic options for crack sealing:

- 1) Capping the crack by filling the existing crack opening and applying a cap of sealant on the pavement surface.
- 2) Cutting a reservoir in the pavement to accept a greater amount of sealant. Overbanding can also be done.

Both of these applications have their place and can provide a quality seal for the crack. The science of making the right choice is what we are going to review.

How To Choose The Best Option



Capping Done Right



So what is a quality crack capping application to seal the pavement?

Don't over do it!

Approximately 1/8 inch of sealant on the pavement surface and only 1 inch wider than the crack on each side is all that is required. Over application of sealant does not improve the results.

Proper Time For Capping

SPRING/FALL



WINTER



SUMMER



What is NOT a QUALITY APPLICATION when capping a crack?

Think About The Movement



RESERVOIR



CAPPING

Creating a reservoir in the pavement to accept the sealant is how you assure that the movement the sealant is subjected to is within the range that the sealant is designed to perform.

Pavement Cutting/Routing

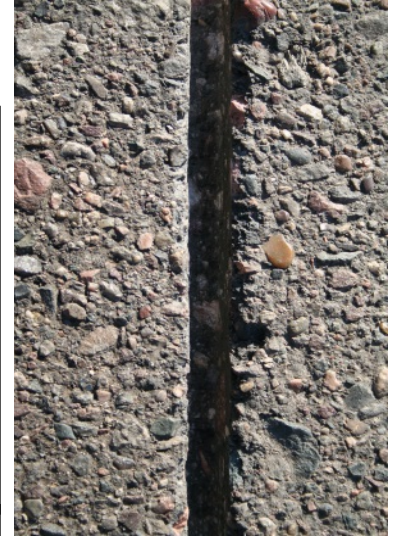
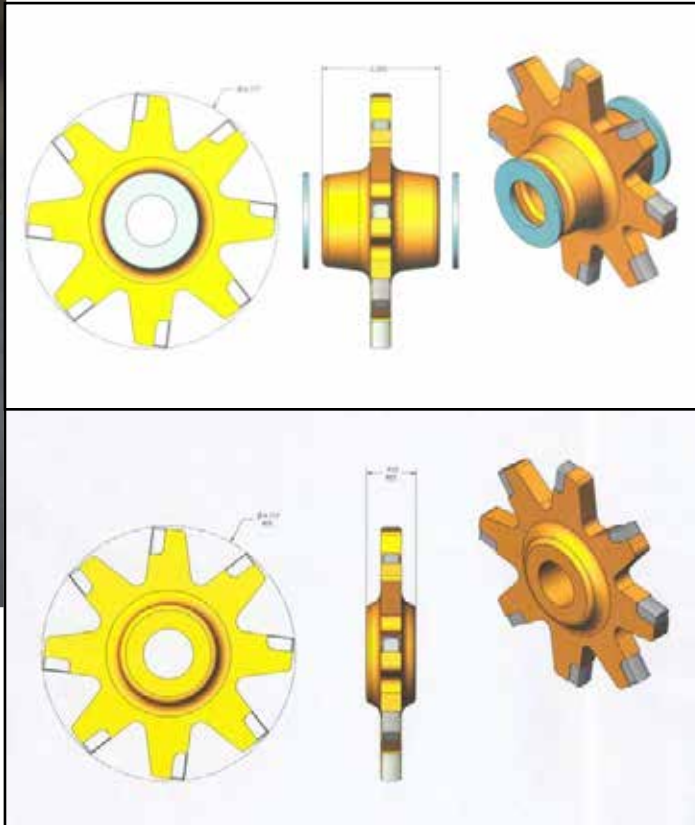


Key to success:

- Good Pavement



Important Factors In Routing



Key to success:

- Well-maintained equipment

Stay On **Route** With The **Rout**!

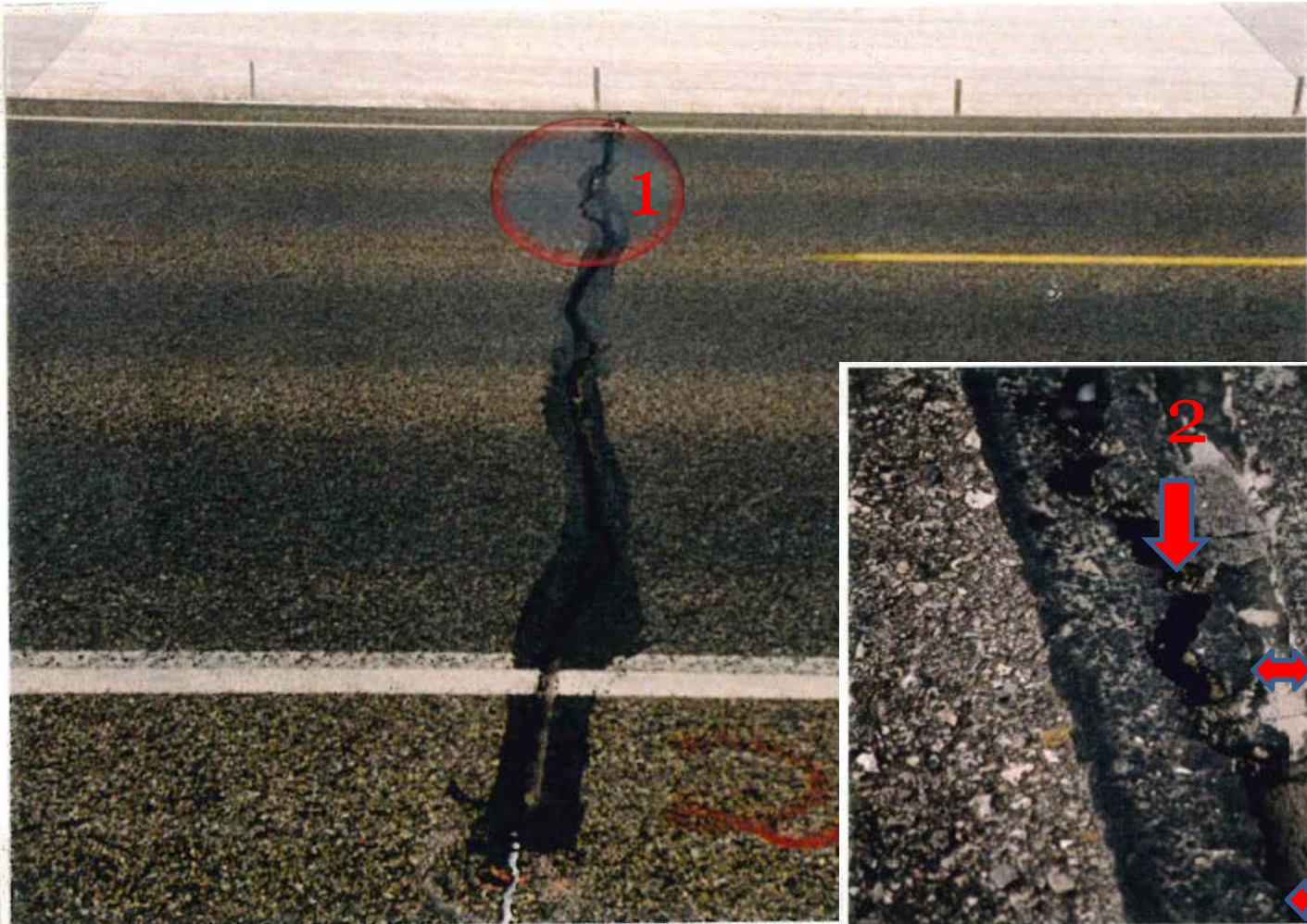


Key to success:

- Keep centered over the crack

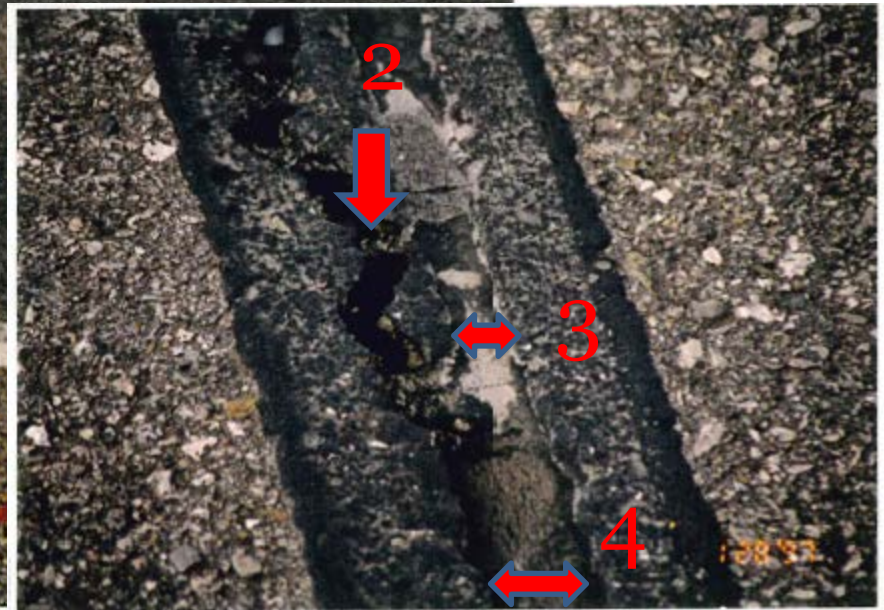
This rout was next to the crack placing all the stress on one side of the sealant.

Follow It!



Key to success:

- Hit the crack



Cleaner Routing IS Possible!



Keys To Successful Routing

Recap:

- Stay centered over the crack
- Hit the crack
- Use well-maintained equipment
- Focus on good quality pavements first

- OTHERS
 - Rout through minor surface treatments into sound pavement
 - If you get extreme spalling when routing, STOP!



Sealant Application

Key to Success

- Clean & Dry
- Correct Temperatures
 - Pavement
 - Sealant
- Tidy Application



Cleaning



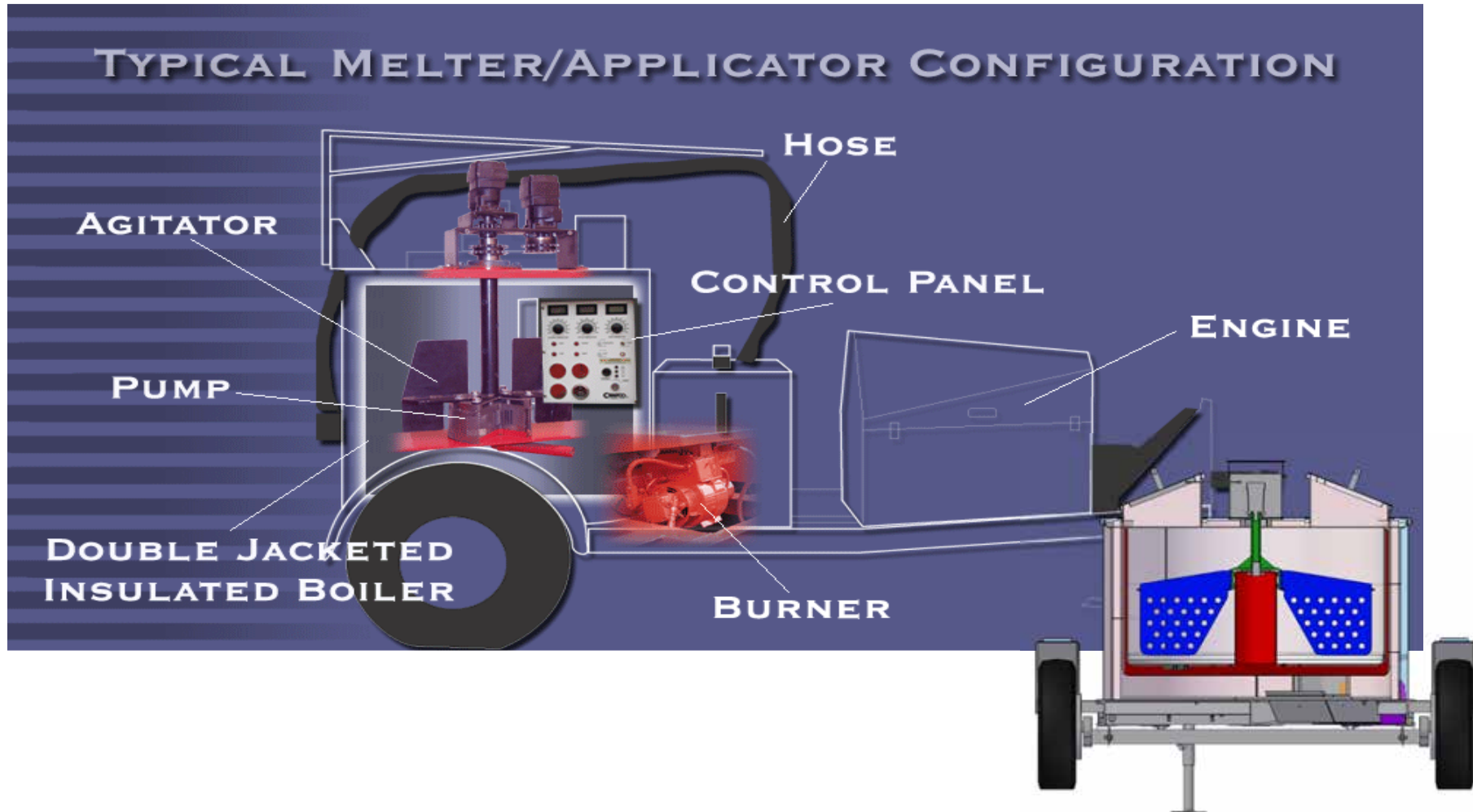
Heat Lance



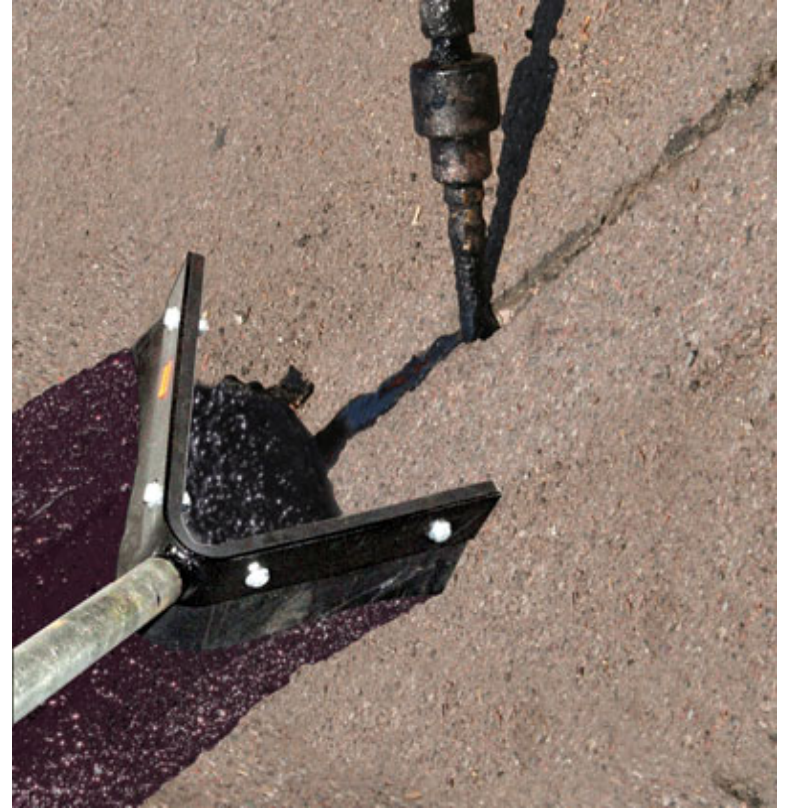
Weather...What's In Common?



Sealant Temperature



Sealant Application



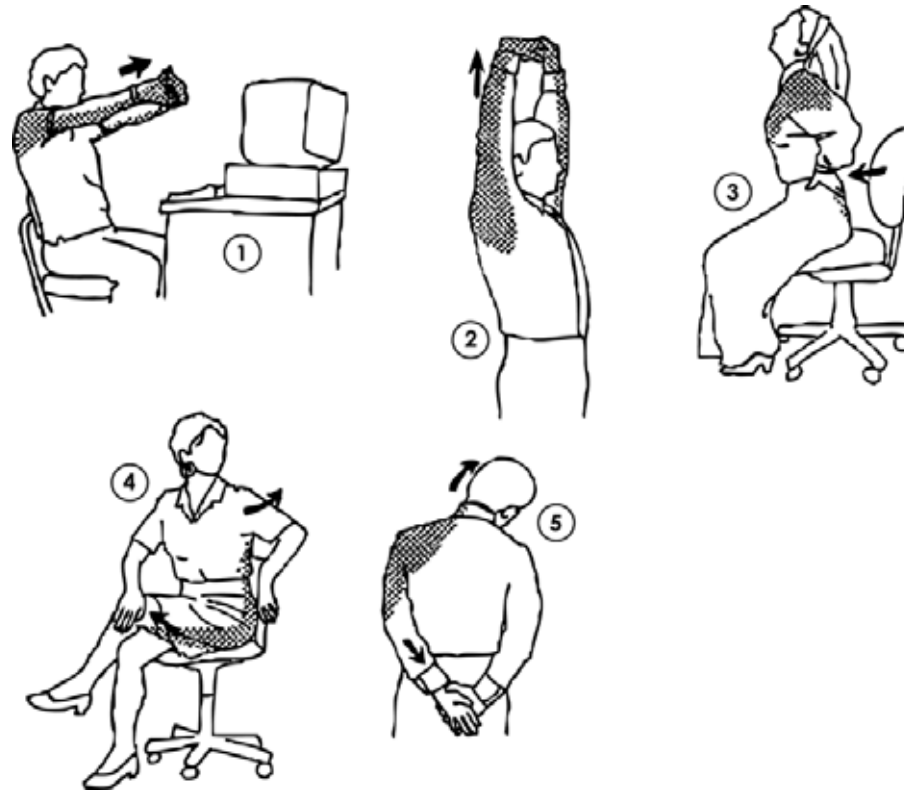
Detackifiers



Preferred Detackifiers



Stretch and Relax



Sealant Choices

Stretch and Relax



Sealant Specification:

- MnDOT 3725 – 200% extension at -20⁰F
- MnDOT 3723 – 100% extension at -20⁰F
- MnDOT 3719 – 50% extension at 0⁰F



Sealant Choices

- MnDOT 3725 – 200% extension at -20⁰F (Roadsaver 522)
 - Designed for reservoir sealing in high moving transverse cracks.
- MnDOT 3723 – 100% extension at -20⁰F (Roadsaver 535/515MN)
 - Designed for reservoir sealing in moving transverse cracks.
 - Designed to use in overband applications in low moving cracks.
- MnDOT 3719 – 50% extension at 0⁰F (Asphalt Rubber Plus)
 - Designed for maintenance sealing on low moving and high density cracking.

What is MOST important ?



