

62nd Annual New Jersey Asphalt Paving Conference

Tack Coat Presentation

**TCNJ, Ewing, New Jersey
March 19, 2019**

What is Tack Coat?

Tack Coat is an Asphaltic Material used in the Asphalt Paving Industry

- Most Common Types of Tack Coat:
 - ASPHALT CEMENT
 - Performance Grade; PG 58-28, 64-22, 76-22
 - EMULSIFIED ASPHALT
 - Water Based; RS-1, SS-1H, CSS-1H
 - CUT BACK ASPHALT
 - Solvent Based; RC-70

“Tack Coat is Tacky”

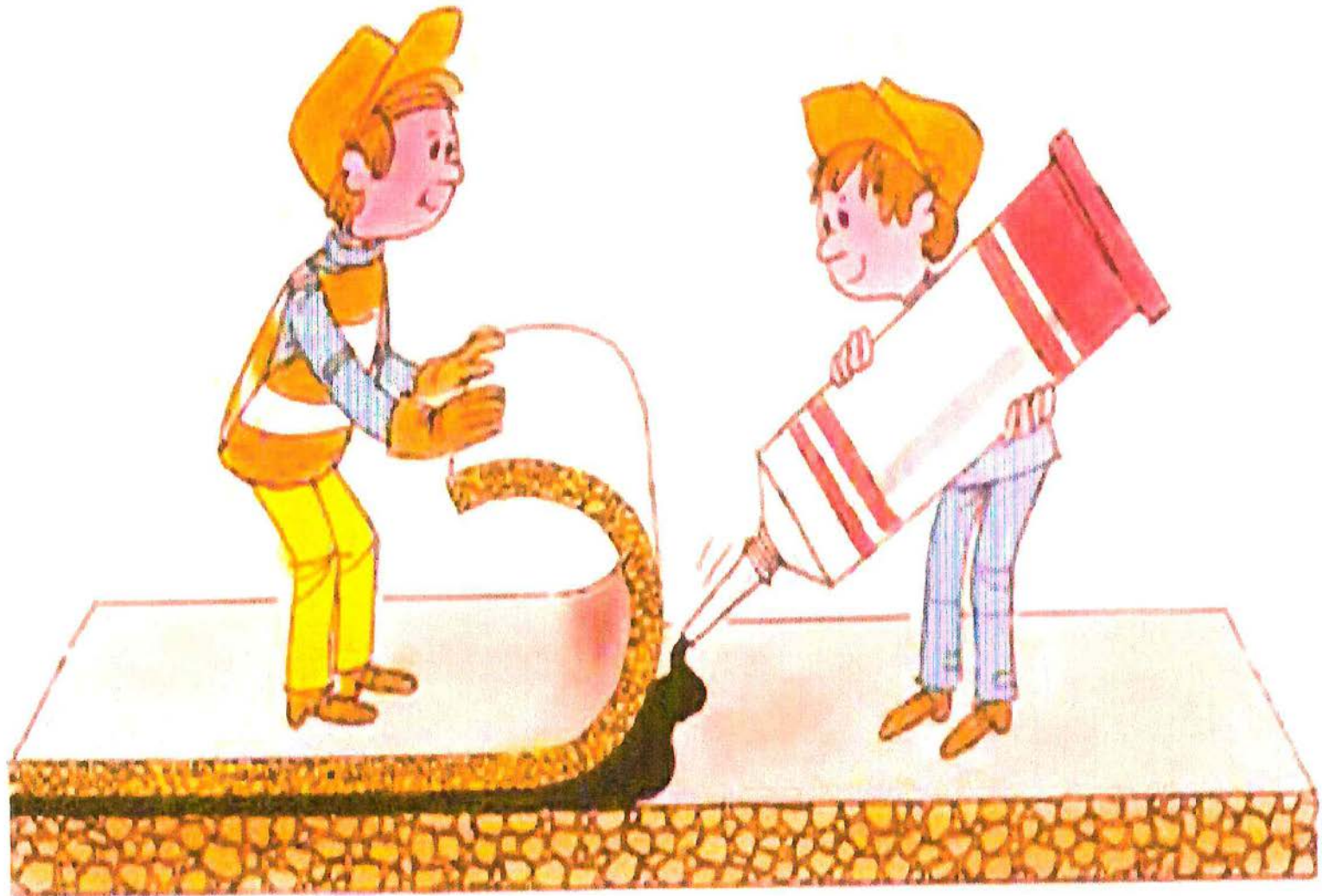
- Purpose of Tack Coat: Used to create the bonding capability between existing surface and the new asphalt that is being applied.



Importance of Tack Coat

1. The expense, risk and overall success of any good paving project comes down to the least expensive component of the entire process.
2. Tests show that the lack of tack coat can lead to the delamination of the surface and premature surface defects.

Bonding



Anionic “Water-Based”

- **Rapid Setting – 1 / Rapid Setting – 1 Hard**
- RS-1
- RS-1H

- ATT-1HPM “Trackless Tack”

Cationic “Water Based”

- **C Slow Setting – 1/ C Slow Setting – 1 Hard**
 - CSS-1
 - CSS-1H

- **Solvent Based**
 - RC 70

Water Based vs. Solvent Based

Water Based Pros

- Handling
- Temperature
- Storage
- Cost
- Minimal Tracking

Solvent Based Pros

- Better yield in colder environments

Water Based vs. Solvent Based

Water Based Cons

- Temperature Sensitive
- Possible Separation of Material

Solvent Based Cons

- Tracking
- Temperature Sensitive/Flash Point

Tack Coat Continues to Evolve

- **New Equipment Advances/Product Development**
 - **Computer rate control ensures:**
 - **Accurate amount of tack coat delivered every time**
 - **Prevents the chance of tack coat flushing up through the mat**
 - **Continues to add value to the success of paving projects**

Computerized Rate Control

- **The move from pressurized to computerized distributors**
- **Tack coat can now be applied as a fog seal**
 - **Keep very accurate application rates**
 - **Ensure total coverage of the entire surface, not just where the nozzles are**
 - **The ability to put paving equipment on the material immediately**
 - **Very little tracking if any as compared to cut backs/RC-70**

Computer Controlled Pressurized Distributors

- **Manual Application**
 - Applied by hand
 - Hand brooms
 - Dribble trucks or gravity feed

- **Computerization**
 - Pressurized distributors
 - Precise application rates
 - Computer controlled
 - Tack coat applied as a fog seal

Computerized Distributor



Typical Tack Pattern



Typical Tack Pattern



Fog Seal



Questions About Tack Coat

- When can I use water based emulsion?
- When do I use RC-70?
- Do I have to heat the material?
- What are the proper application rates?
- Can I switch from RC-70 to RS-1?
- Can I switch from RS-1 to CSS-1H?
- What is the shelf life of my product?

Reference

- DOT Database Form
- Requirement sample for Emulsified Asphalt



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View Database

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View of selected database entries.

SPREAD SHEET

Selected Database:	ASPHALT_BINDER_SUPPLIERS.DB
Producer:	DOSCH KING - WHIPPANY, NJ
Date/Time:	Monday, November 12, 2018 at 15:54:59
Material	Comments
ASPHALT, EMULSIFIED, RS-1	
ASPHALT, EMULSIFIED, RS-1H	
ASPHALT, EMULSIFIED, RS-2	
ASPHALT, POLYMER MOD TACK COAT CRS-1P	



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Table 1—Requirements for Emulsified Asphalt^a

Type Grade	Rapid Setting													
	RS-1h		RS-1		RS-1s		RS-2h		RS-2		RS-2s		HFRS-2	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
<i>Tests on emulsified asphalt:</i>														
Viscosity, Saybolt Furol at 25°C (77°F), s ^b	20	100	20	100	20	100								
Viscosity, Saybolt Furol at 50°C (122°F), s ^b							75	400	75	400	75	400	75	400
Storage stability test, 24 h, % ^{b,c}		1.0		1.0		1.0		1.0		1.0		1.0		1.0
Demulsibility, 35 mL, 0.02 N CaCl ₂ , % ^b	60		60		60		60		60		60		50	
Sieve test, % ^{b,c}		0.10		0.10		0.10		0.10		0.10		0.10		0.10
<i>Distillation:</i>														
Residue, % ^d	55		55		55		65		65		65		65	
<i>Tests on residue from distillation:</i>														
Penetration, 25°C (77°F), 100 g, 5 s, 0.1 mm	40	90	90	150	150	250	40	90	90	150	150	250	100	250
Ductility, 25°C (77°F), 5 cm/min, cm	40		40		40		40		40		40		40	
Ash content, %		1.0		1.0		1.0		1.0		1.0		1.0		1.0
Float test, 60°C (140°F), s													1200	

^a Refer to R 5 for typical applications.

^b This test requirement and associated specification limits are waived for emulsified asphalt products following dilution.

^c This test requirement on representative samples may be waived if successful application of the material has been achieved in the field.

^d For emulsified asphalts that are diluted, the percent residue requirements must be adjusted accordingly.

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