



# ARRMULS® TACK TECHNOLOGY

## FORMULATION GUIDELINES

### ARRMULS® FOR BETTER PAVING

ArrMuls Tack Technology is an interdependent, two-part chemical kit for producing anionic asphalt emulsion tack coat that eliminates vehicular tracking during construction. It can be formulated to conform to typical specifications, including AASHTO M-140/ASTM D-977 for SS-1h.

Tack coat is applied between asphalt pavement layers to promote bonding ensuring the complete pavement structure functions as a monolithic unit, providing adequate strength and long-term durability.

## APPLICATIONS

Non-Tracking Tack Coat for Asphalt Paving

### Better Efficiency

- Pave faster with less wait time for tack coat to dry
- Uses common paving-grade asphalts
- Easy to produce
- Storage stable

## BENEFITS

### Smarter Pavement

- Increase pavement strength by keeping tack where it belongs
- Paving-grade asphalt provides plenty of bond strength with strain tolerance, improving resistance to cracking and slippage versus hard pen asphalt tack.

### Save Money

- Eliminate costs to replace traffic paint and remove tracked tack
- Eradicate safety liability of reduced friction roads caused by tracked tack

# TYPICAL FORMULATION

Formulation	Typical Loading	Range
ArrMuls Tack Part A	1.25%	1.20% – 1.40%
ArrMuls Tack Part B*	4.25%	4.0% – 5.0%
ArrTekk TA**	0.00%	0.00% – 0.02%
Asphalt/Bitumen	58.0%	57.0% – 60.0%
PG64-22, PG67-22, PG70-22, 50-80 pen		

Percentages are by weight of emulsion (bwe).  
No soap pH adjustment is necessary.

## RECOMMENDED EMULSION PRODUCTION PROCEDURE

Always handle ArrMuls products in accordance with the Safety Data Sheets (SDS) and proper safety procedures.

1. Add warm water (40°C - 60°C) totaling approximately 50 percent of total calculated water needed for the desired batch size to the emulsifier soap solution tank. Begin agitation.
2. Add calculated amount of ArrMuls Tack Part A. Continue agitation of concentrated soap solution for approximately 15 minutes or until the solution is homogeneous.
3. Add calculated amount of ArrMuls Tack Part B.\*\*\* Continue agitation of concentrated soap solution for approximately 15 minutes or until the solution is homogeneous.
4. Dilute concentrated soap solution with water to desired batch volume. Continue agitation of soap solution for approximately 15 minutes.
5. Circulate the asphalt for approximately 30 minutes. Maintain asphalt temperature of 140°C - 150°C.
6. Emulsify in accordance with colloid mill manufacturer's recommended guidelines to the target residue percentage. Monitor emulsion at regular intervals, checking quality and residue percentage.
7. Upon completion of emulsion production, perform typical quality assurance tests to ensure specification compliance, if applicable.

\* For most paving conditions, 4.25% ArrMuls Tack Part B provides non-tracking characteristics. The following recommended usage levels are based on paving temperatures and can vary based on humidity, application rates, pavement temperature, etc. Maintain a softening point of the asphalt residuum of less than 60°C.

- Air Temp 30°C or less      4.0% - 4.5%
- Air Temp 30°C - 35°C      4.0% - 5.0%
- Air Temp > 35°C          5.0% - 6.0%

\*\* ArrTekk stabilizing additive may be required to achieve settlement requirements.

\*\*\* Alternatively, ArrMuls Tack Part B may be directly injected into the soap solution stream immediately prior to the mill. Never inject into the asphalt.

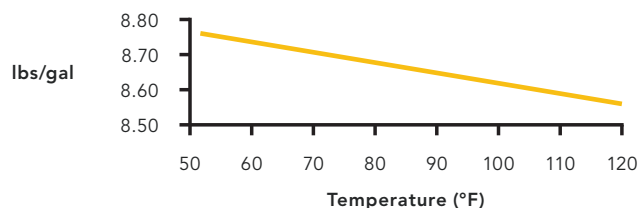
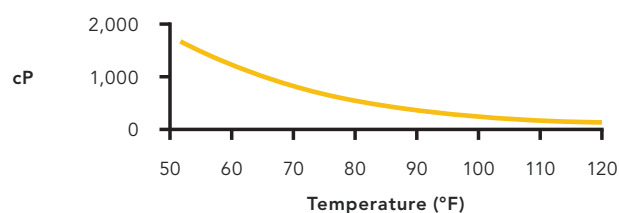
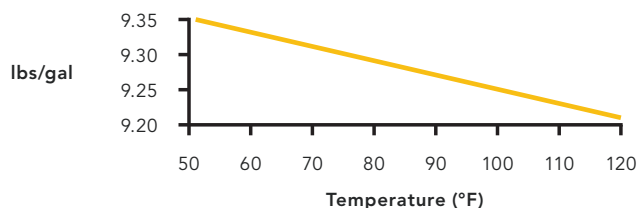
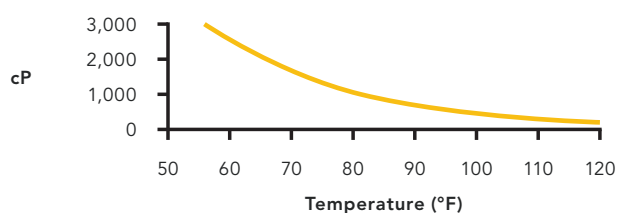
# CHEMICAL KIT PHYSICAL CHARACTERISTICS

## ARRMULS PART A

Property	Description
Appearance, 77°F (25°C)	Dark Liquid
Odor	Resinous
Density, 77°F (25°C)	9.30 lbs/gal (1.11 kg/L)
Viscosity, 77°F (25°C)	1,180 cP
Pour Point	< 32°F (0°C)
pH	10-12
TSCA Inventory	Listed
DSL Inventory	Listed
C.A.S. Number	Proprietary

## ARRMULS PART B

Property	Description
Appearance, 77°F (25°C)	White Liquid
Odor	Ammoniacal
Density, 77°F (25°C)	8.71 lbs/gal (1.04 kg/L)
Viscosity, 77°F (25°C)	440 cP
Pour Point	< 40°F (4°C)
pH	5-9
TSCA Inventory	Listed
DSL Inventory	Listed
C.A.S. Number	Proprietary



\*The density and viscosity data reported are typical and not specifications. Typical ranges for density and viscosity values are  $\pm 2$  and  $\pm 20\%$ .

## AVAILABILITY

ArrMuls Part A is available for shipment in bulk by railcar and tank truck. Packaged quantities are available in 275 gal/1,041 L IBC totes (2,400 lb/1,088.6 kg net weight) and 55 gal/208 L metal drums (480 lb/217.7 kg net weight).

ArrMuls Part B is available for shipment in bulk by tank truck. Packaged quantities are available in 275 gal/1,041 L IBC totes (2,250 lb/1,020.6 kg net weight).

## TECHNICAL SUPPORT

To request additional product information, contact your regional Road Science representative. You can also contact us at 918-960-3800 or [customerservice@roadscience.net](mailto:customerservice@roadscience.net), or visit our website at [www.roadscience.net](http://www.roadscience.net).

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