

# CRS-1P Product Data Sheet



## Description and Physical Properties

CRS-1P is a polymer modified, cationic water-based emulsified asphalt designed for use as a bituminous binder for chip seals. CRS-1P is designed for use at lower air temperatures. Most failures of seal coats occur when there are applied in cool weather, usually at the end of the season. CRS-1P is specially formulated with emulsifier chemistry developed in combination with polymer modified asphalt to give excellent results when it is too cold to obtain proper curing and adhesion with conventional rapid setting emulsions. Chip Seals can now be successfully done earlier and later in the season. CRS-1P is useful for night sealing, avoiding closing roads to traffic during busy daytime hours. The polymer gives elasticity, reduced temperature susceptibility and durability to the finished chip seal. CRS-1P typically has earlier chip retention than conventional emulsions. CRS-1P is not for use, however, at higher air temperatures where conventional chip seal emulsions (CRS-2, CRS-2P, RS-2, HFRS-2 and HFRS-2P) give good performance. CRS-1P is supplied in bulk.

### Physical Properties:

- C.A.S. Number: 8052-42-4
- Boiling Point (F): 212°F
- Specific Gravity (H<sub>2</sub>O=1): 1.01
- Flammability: Non-flammable in water-based state
- Percent Volatile: 0
- Solubility In Water: Soluble
- Appearance and Odor: Brown Liquid, Faint Petroleum Odor

### Recommended Use

CRS-1P emulsions should be applied with well-calibrated distributors. The distributor nozzles and spray bar should be sized and set to deliver the desired shot rate. The shot rate should be determined by a laboratory chip seal design with the project aggregate and the conditions of the existing pavement. The air and pavement temperatures should be sufficiently high to allow the emulsion to fully cure. Item 316 of the TxDOT Standard Specifications requires that seal coats and surface treatments be placed when the air temperature is above 50°F and rising. CRS-1P should not be applied when the air temperature is below 60°F and falling. TxDOT further states that no asphalt binders should be applied during rain or imminent threat of rain. If an unexpected shower arises during operations, the asphalt distributor should be shut off immediately and placement of aggregate continued until all asphalt has been covered. This area should be rolled well and watched carefully after opening to traffic. After a rain, operations should always be suspended until the pavement has completely dried.

### Specifications CRS-1P Conforms to Texas Department of Transportation Specifications-Item 300.2:

Properties	Test Procedure	Minimum	Maximum
Viscosity, Saybolt Furol, 122°F, sec.	T72	50	150
Sieve test, %	T59	-	0.1
Demulsibility, 35ml of 0.8% sodium dioctyl sulfosuccinate, %	T59	60	-
Storage stability, 1 day, %	T59	-	1
Breaking index, g	Tex-542-C	-	80
Particle charge	T59	Positive	
Distillation test: <sup>1</sup>	T59		
Residue by distillation, % by weight		65	-
Oil distillate, % by volume of emulsion		-	3
Tests on residue from distillation:			
Penetration, 77°F, 100g, 5 sec.	T49	225	300
Solubility in trichloroethylene, %	T44	97.0	-
Elastic recovery, 50°F, %	Tex-539-C	45	-

<sup>1</sup> Exception to T59: Bring the temperature on the lower thermometer slowly to 350°F ±0°F. Maintain at this temperature for 20 min. Complete total distillation in 60 ±5 min. from the first application of heat.

### Storage and Handling

The water-based emulsion should not be exposed to freezing temperatures or overheating. The emulsion is a chemically stabilized system, so care should be taken not to upset the chemical balance with contamination by chemicals, over-exposure to air, or adverse mechanical or thermal conditions. Rapid setting emulsions are formulated to be stable during storage and transport, but to break immediately on application to the road surface. As such, they are the least stable of asphalt emulsions. Typically, CRS-1P should not be diluted with water. Before being filled, tanks and trucks should be examined for possible contaminants. Tanks may be circulated top to bottom with a pump, but over-pumping is to be avoided. Recommended use and storage temperatures are given in the table.

Recommended Temperatures	Min	Max
Storage	50°F	185°F
Application	110°F	160°F

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