

**CRS-2**

**CATIONIC RAPID-SETTING ASPHALT EMULSION**

**PRODUCT DESCRIPTION**

**CRS-2** is a rapid-setting cationic asphalt emulsion that reacts quickly with aggregate to convert from an emulsion to asphalt.

Asphalt emulsions are classified according to the electric charge that surrounds the emulsion's asphalt particles (i.e. whether it is a cationic or an anionic emulsion) and how quickly the suspended asphalt particles separate from the surrounding water ("breaking"). A rapid-setting emulsion is one that will destabilize quickly when in contact with aggregate. The setting speed of any emulsion is relative to atmospheric conditions at the time of construction.

**GENERAL PRODUCT FEATURES**

- May be sprayed in thicker films due to higher viscosity than **CRS-1**
- Thicker coatings on aggregates due to **CRS-2's** high viscosity lead to increased durability.
- Traffic can be restored very shortly after application.
- Ideal for use in hot temperatures
- No runoff
- Seals narrow cracks against moisture penetration
- Prevents slippage plane between layers

**RECOMMENDED USE**

**CRS-2** cures quickly and produces heavy asphalt films. Its relatively high viscosity permits a higher spray rate without the danger of run-off when compared to the **CRS-1** grade. **CRS-2** is ideal for spray applications such as spray patching, sand seals, chip seals, and double surface treatments.

**CERTIFICATION OF QUALITY**

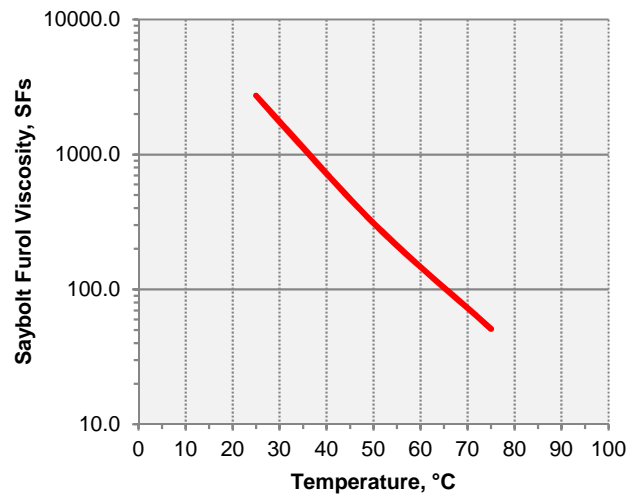
**McAsphalt Industries Limited** is accredited to the quality management standard **ISO 9001**, the environmental management standard **ISO 14001**, and the occupational health and safety standard **ISO 45001**.

Each lot of **CRS-2** is produced using the strictest quality, safety, and environmental guidelines. Each production lot is tested to ensure it meets or exceeds all performance requirements and is delivered with a Certificate of Analysis.

**SPECIFICATIONS AND TYPICAL RESULTS**

TEST	TYPICAL DATA	SPEC.	
		Min	Max
<b>Tests on Emulsion</b>			
SF Viscosity, 50°C, SFs	<b>230</b>	100	400
Sieve Test, 850 µm, %	<b>0.04</b>	-	0.1
Settlement, 5 days, %	<b>2.1</b>	-	5.0
Demulsibility, 35 ml 0.8% DOSS, %	<b>67</b>	40	-
Distillation Residue, 260°C, %	<b>68.8</b>	67	-
Oil Portion of Distillation, %	<b>trace</b>	-	3
Particle Charge	<b>(+)</b>	<b>(+)</b>	
<b>Tests on Residue</b>			
Penetration, 25°C, dmm	<b>125</b>	100	250
Solubility in TCE, %	<b>99.91</b>	97.5	-
Ductility, 25°C, cm	<b>68</b>	60	-

**TEMPERATURE VISCOSITY CHART**



**MCASPHALT INDUSTRIES LIMITED**

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 ISO 9001/14001/45001

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**APPLICATION GUIDELINES**

- Clean/prime/tack pavement surface prior to application.
- Do not apply **CRS-2** if precipitation is anticipated.
- Contact your local **MCA Marketing** representative for application temperature guidelines.

**DESIGN GUIDELINES**

Designs should be formulated prior to initial production and each time aggregate sources are changed. Testing of the final product is highly recommended to ensure a quality seal. **MCA Technical Services** offers complete design services and product quality analysis.

**POTHOLE PATCHING**

When repairing potholes in pavement, the edges surrounding the pothole being patched should be coated with tack to ensure a bond between the asphalt edge and the patching material. Apply an even coating of **CRS-2** to all sides of the hole (approximately 0.20 to 0.25 L/m<sup>2</sup> (0.04 to 0.06 gal/yd<sup>2</sup>)).

**SPRAY PATCHING**

Spray patching consists of alternate applications of **CRS-2** and aggregate to repair deteriorated areas in the pavement surface. Alternating layers of **CRS-2** and aggregate may also be used to repair depressions in the road due to rutting or ravelling. Excellent adhesion means longer lasting repairs.

**SINGLE AND MULTIPLE CHIP SEALS**

A controlled application of **CRS-2** asphalt emulsion to a prepared surface followed by a controlled application of cover aggregate (per lift). Aggregates should be single-sized, washed chip with sizes ranging from 6 mm (¼ in) to 19 mm (¾ in). **CRS-2** provides durable, longer-lasting surface treatments with an increased resistance to rutting and low-temperature cracking.

**PACKAGING, STORAGE AND HANDLING**

- **CRS-2** should be stored in bulk tanks, ideally vertical to minimize surface area.
- Do not allow **CRS-2** to either freeze or boil: it will break. Safe storage temperatures range from 10°C (50°F) to 85°C (185°F).
- In bulk storage, mix the **CRS-2** every 1 to 2 weeks (more frequently in cold weather). Mixing may be done by paddle agitator (slow), loose gear pump, slow centrifugal pump, or other suitable low shear pump.
- Do not bubble air through **CRS-2** to agitate it: this creates excessive foam and may cause the **CRS-2** to break.
- Always use clean storage containers. Make sure prior contents are compatible with **CRS-2** or the emulsion may break.
- Only use approved and sealed containers for sampling the emulsion.

**PRODUCT SUPPORT**

With the **MCA Advantage**, you get a partner and advisor who will consult with you about designs, specifications, technical services, processes, and material selection. By developing innovative, custom-designed products that offer additional benefits such as peak performance in unique conditions, improved field performance, and greater environmental and health benefits, the **MCA Advantage** provides significant long-term cost savings, resulting in lower total cost of ownership.

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