

PRIME COAT/GRANULAR SEALING

PROCESS DESIGN OVERVIEW

1 SCOPE

In order to prepare a granular roadway for an asphalt pavement such as hot mix or chip or graded seal an application of a prime coat should be placed. A prime coat can be either a specially formulated asphalt emulsion or a low viscosity asphalt cutback. Their primary function is to; penetrate quickly into the granular surface and bind the material together; to partially waterproof the granular to prevent water erosion; to provide a temporary riding surface prior to overlay and to provide a bond between the existing surface and the new pavement layer.

1.1 DEFINITIONS

Prime Coat:

A prime coat consists of a single application of a special asphalt emulsion or cutback asphalt on an existing granular surface. The prime coat helps to protect the existing granular from water intrusion, provides a temporary riding surface before an overlay is placed.

2 MATERIALS

2.1 Asphalt Emulsions:

The asphalt emulsions used as prime coats typically contain a combination of asphalt and special penetrating agents to aid in penetrating the granular surface, while binding the aggregate particles to achieve stabilization. Products such as Enviro-Prem or EDL can be used for this purpose.

2.2 Cutback Asphalt:

The cutback asphalt used as a prime coat is a low viscosity asphalt containing a high quantity of solvent. The solvent allows the asphalt to penetrate into the granular and then evaporates out to leave the asphalt residue. RC 30 or Primer are used as prime coats.

3 DESIGN CRITERIA

In order to satisfy the prime coat function some emulsion or cutback must penetrate into the base. The tightness of the granular surface can influence the degree of emulsion dilution needed. The type and the gradation of aggregate will require adjustments to the quantity of prime coat needed. If the surface is very hard it may be necessary to loosen the surface by scarifying prior to spraying. Damping the surface will help to allow for penetration. If ponding develops a blotter sand may be required to absorb the free standing emulsion or asphalt cutback.

PRIME COAT/GRANULAR SEALING

PROCESS DESIGN OVERVIEW

4 RECOMMENDED PERFORMANCE GUIDELINES

In order to construct a proper well designed prime coat the following guidelines should be followed:

- Determine the type of prime coat to be used. Emulsion or cutback.
- Evaluate the road surface to be primed.
- Determine the dilution rate of the emulsion.
- Determine if scarification is needed.
- Calibrate and inspect all equipment.
- Follow proper construction techniques.
- More than one application of dilute emulsion may be needed.
- A sand blotter may be needed.
- Use traffic control to protect seal.
- Work only in weather suitable for type and grade of emulsion being used.

5 RESOURCES

1. "Basic Asphalt Emulsion Manual", Fourth Edition, Asphalt Institute and Asphalt Emulsion Manufacturers Association, 2008
2. "Recommended Performance Guidelines", Second Edition, Asphalt Emulsion Manufacturers Association, Annapolis Maryland, 2006



McASPHALT INDUSTRIES LIMITED

8800 Sheppard Avenue East T 416.281.8181 TF 1.800.268.4238
Toronto, ON M1B 5R4 F 416.281.8842 E info@mcasphalt.com

mcasphalt.com
ISO 9001/14001/45001