

Product Evaluation

RE: Review of CRF Restorative Seal

PRODUCT

The CRF Restorative Seal is formulated specifically to penetrate and rejuvenate aged asphalt pavement. CRF Restorative Seal is produced by Golden Bear Oil, California and distributed by Pounder Emulsions.

VENDOR CLAIMS AND INFORMATION

CLAIMS

CRF Restorative Seal provides pavement rejuvenation as well as sealing of the pavement surface and open areas. Unlike standard asphalt emulsion that hardens and becomes brittle, CRF kneads over time to provide a seal in depth. CRF emulsion and blotter sand can be applied to weathered pavements to serve as a low cost surface treatment. Product web link:

<http://www.huskyenergy.com/operations/downstream/facilities/asphaltrefinery.asp>

HISTORY

CRF Restorative Seal has been used with success in the US for 5 years as a crack filler that has properties required for a restorative seal. Restorative seal has also been used on raveled pavements at cost savings over conventional methods. The material performed differently than ordinary emulsion, it penetrated fine cracks and soil permitting dirt to remain in the crack during filling.

POTENTIAL USAGE

CRF can be used with blotter sand to provide a restorative sand seal coat. It will penetrate sealing off the surface and further restoring the asphalt binder. CRF can also be used as a preventable or restorative treatment on longitudinal pavement joints. CRF can also be used in place of a fog seal on pavement shoulders.

CRF is diluted with water 2:1 (2 parts product to 1 part water). Typical cure time is 20 minutes to one hour with ambient temperatures of 10°C (60°F). Application rates vary between 0.30 and 0.60 litres per square meter. Product stability is excellent; CRF can be stored for many months with minimal re-circulation required.

STANDARDS

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| ASTM D244 | Standard Test Methods and Practices for Emulsified Asphalts |
| ASTM D2006 | Method of Test for Characteristic Groups in Rubber Extender and Processing Oils by Precipitation Methods (discontinued). |

ALBERTA TRANSPORTATION COMMENTS

APPLICATION STANDARDS

The Alberta Transportation Specifications for seal coats are specification 3.22, Graded Aggregate Seal Coat and specification 3.24, Chip Seal Coat.

RECOMMENDATIONS

CRF Restorative Seal should be listed under Proven Products on the Alberta Transportation's Products List, Surface Treatment – Proprietary, based on the information provided.

TRIAL PROJECTS

Hwy. 1:10 – EBL shld., EBL rt. Lane, WBL shld., EBL offramp chestemere Int.

AP 137 – Galahad Access Road – applied in 2008

Hwy 18:10 – applied in 2008

Hwy 769:02 – applied in 2008

Based on field performance CRF restorative seal can be advanced to the Proven Products category.

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