

BOND/TACK COATS

PROCESS DESIGN OVERVIEW

1 SCOPE

In order to improve the bond between layers of pavement a tack coat should be applied. A tack coat is very cheap insurance to improve the structural integrity of the pavement layer. There are many different types of tack coats and emulsions used in tack coating.

1.1 DEFINITIONS

Conventional Tack Coat:

A spray application of asphalt emulsion, applied to an existing asphalt or Portland cement concrete surface prior to a new asphalt overlay or patching to eliminate slippage planes and provide better bond between new and existing pavement layers.

2 MATERIALS

2.1 Asphalt Emulsions:

The asphalt emulsions used for tack coats can be either anionic or cationic. Typically SS-1, SS-1h, CSS-1 or CSS-1h are used as tack coat emulsions. Normally these emulsions are diluted with water (1:1) prior to applying to reduce viscosity for spraying, fill small cracks and voids and to more accurately apply very small quantities of residual asphalt. In some instances rapid setting emulsions (CRS-1, RS-1) can be used especially in late season construction. In order to dilute these products they must be done by the emulsion manufacturer.

3 DESIGN CRITERIA

In order to design a proper tack coat the existing surface should be evaluated and repairs made prior to application. The existing road surface should be clean and dust free to ensure proper bond of tack coat to the existing surface. The dilution rate should be established so that the proper residual asphalt will be applied. The water for dilution should be clean, potable and free of detectable contaminants. If rapid setting emulsion is to be used determine if product has been diluted or not so the proper spray rate can be set.

4 RECOMMENDED PERFORMANCE GUIDELINES

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

- Evaluate pavement to be tacked.
- Determine desired spray rate.
- Ensure tacking surface is clean and dust free.
- Ensure compatibility of dilution water and emulsion.

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- Ensure using a proper distributor.
- Calibrate and inspect all equipment.
- Follow proper construction techniques.
- Allow tack to break and set before overlay placed.
- 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



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