

CUSTOMER CONNECT



Better Roads, Better Life

Hindustan Colas Limited



Quarterly News Letter Issue No. 18 / April - June 2014



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“CUSTOMER CONNECT”

The Quarterly Newsletter of Hindustan Colas Ltd, aims at strengthening exchange of information and experience sharing amongst its customers. The success of this communiqué is largely dependent on feedback and information inflow from our customers and we thank them for their continued support.

1. Cold Mix

Traditionally, aggregates and bitumen are heated to a temp of 150C for construction of pavements. It is extremely important to maintain stipulated temperatures at the time of producing the mix, laying and compaction. Failure to adhere to these temperature requirements could lead to reduced durability for the pavements. There are enormous challenges to maintain these temperature requirements in

- high rainfall areas as intermittent rain throughout the year affect production and laying of mixes
- high altitude or snow-bound areas as mix gets solidified quickly
- winter conditions
- long transit distance between the hot mix plant and the project site
- undue delay in laying the mix

This implies that Hot Mix technology is extremely temp sensitive. These challenges lead to wide spread usage of Cold Mix technology.

Cold Mix allows construction in all seasons and even with wet aggregates.

Cold Mix is made up of custom designed Cationic Bitumen Emulsions and aggregates.

Cold Mixes can be produced with a wide variety of equipment, either on-site, with in-place pulverizers, mixer/pavers, or at central plants. Both blade and paver mixes are commonly used. Mixing and laydown equipment is essentially the same as that for hot mix production. Cold Mix when used as paving mix can offer following advantages.

- Cold Mix eliminates heating of aggregate and binder. This results in energy savings and overall reduced cost as compared to typical hot mix
- Environmental friendly and conserves energy.
- It can be easily prepared using small set up on site.
- Cold Mix is particularly suited for construction of roads in remote and isolated areas of a country where plant produced hot mix may have set before reaching site.
- Cold Mix can be laid during wet or humid condition also.

Cold Mix being applied using Paver



Cold Mix being compacted



HINCOL Value Proposition:

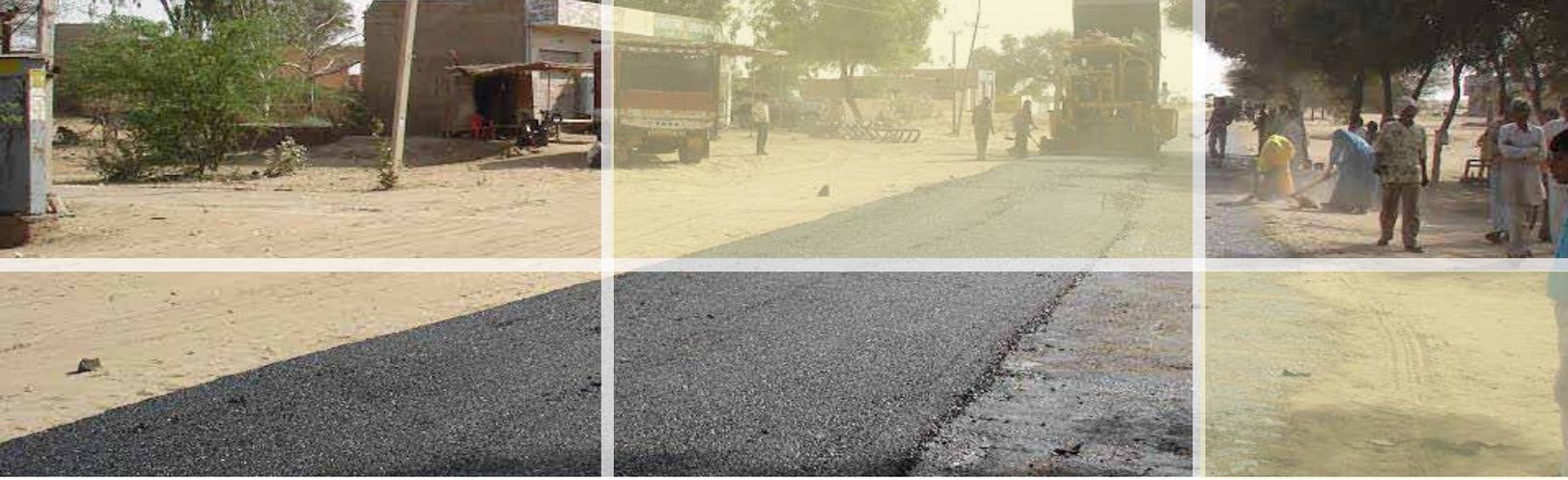
HINCOL believes Cold Mix Solutions are ideal suited to address numerous constraints pavement construction faces and has expanded its service portfolio with

Cold Mix Design Services

Cold Mix Application Services

Cold Mix Project Execution Services

These initiatives are aimed at helping our valued customers to fetch benefits of these systems effectively



2. Chip Seals

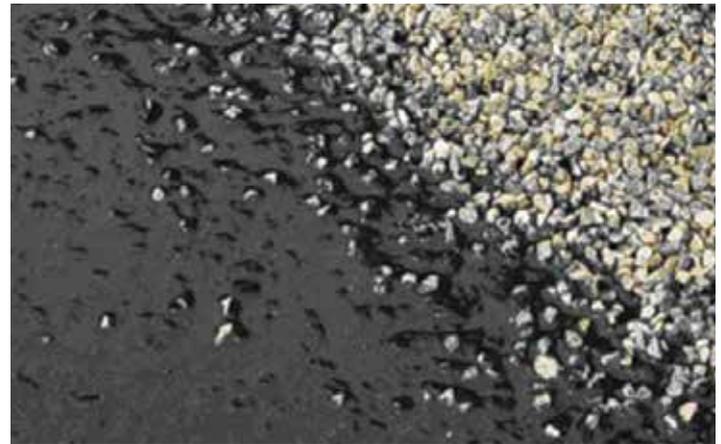


Chip seals are an effective maintenance tool for restoring a wearing course to a pavement. As a preventive maintenance tool, chip sealing prevents ingress of moisture into a pavement or base course and can prevent deterioration due to oxidative aging of a pavement. Emulsions for chip sealing include cationic polymer-modified formulations. Because many different geologic types and gradations of cover aggregate are used for chip sealing (single size, graded, hard, porous) the emulsion should be selected to accommodate the aggregate in a performance system. Ideally, chip seals should be applied when a road is still in good condition, with only minor surface problems, such as loss of friction, drying surface or very minor cracking. They may also be applied as a wearing surface over a prepared base on rural roads. Chip seals are an excellent choice for keeping good pavements in good condition.

The Strategic Highway Research Program found chip seals, which are a relative low cost treatment, to be one of the most cost-effective pavement preservation treatments

Equipment: Chip sealing utilizes Bitumen emulsion distributor trucks, chip spreaders designed and calibrated to deliver accurate quantities of chip, pneumatic rollers, and brooms for removal of excess chip. Steel wheeled rollers may be used on multiple application chip seals to “rack-in” aggregate.

Chip seals have been successfully applied on all types of bituminous pavements, from low volume rural roads over a prepared base to heavily trafficked superhighways over



hot mix asphalt. The road should be structurally sound with only minor surface defects.

Estimated life extension: 6-8 years over pavements in good condition; 4-6 years on pavements in fair condition; 3-4 years for pavements in poor condition.

HINCOLD
Better Roads, Better Life
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PAVING THE WAY FOR DURABLE ROADS WITH WEATHER FRIENDLY COLD MIX TECHNOLOGY.

Maintaining the temperature of hot mix is extremely important and failure to adhere to these temperature requirements could lead to reduced durability of the road. Not any more. Cold Mix Solutions from HINCOLD are ideally suited to address all the constraints that pavement construction faces and has



expanded its service portfolio with **Cold Mix Design Services, Cold Mix Application Services and Cold Mix Project Execution Services.**

The unbeatable Cold mix advantages:

- Eliminates heating of aggregate and binder, resulting in energy savings and overall reduced costs
- Environment friendly and conserves energy
- Can be easily prepared using small set-up on site
- Particularly suited for construction of roads in remote areas, residential areas, forest areas and hill ranges
- Cold mix can be laid during wet or humid conditions also



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3. Advanced Concepts – Dynamic Shear Rheometer



The dynamic shear rheometer (DSR) is used to characterize the viscous and elastic behavior of bitumen binders at medium to high temperatures. This characterization is used in the Superpave PG bitumen binder specification. As with other Superpave binder tests, the actual temperatures anticipated in the area where the bitumen binder will be placed determine the test temperatures used.

DSR tests are conducted on unaged, RTFO aged and PAV aged bitumen binder samples. The test is largely software controlled.

Bitumen binders are visco elastic. This means they behave partly like an elastic solid (deformation due to loading is recoverable – it is able to return to its original shape after a load is removed) and partly like viscous liquid (deformation due to loading is non-recoverable – it cannot return to its original shape after a load is removed).

The DSR measures a specimen's complex shear modulus (G^*) and phase angle (δ). The complex shear modulus (G^*) can be considered the sample's total

We look forward to enhanced contribution from our customers to further enrich this newsletter. We also welcome suggestions, recommendations and critics that will help us serve you better. You may send your feedback and contributions to us at: customerconnect@hincol.com www.hincol.com

resistance to deformation when repeatedly sheared, while the phase angle (δ), is the lag between the applied shear stress and the resulting shear strain. The larger the phase angle (δ), the more viscous the material. Phase angle (δ) limiting values are

- Purely elastic material: $\delta = 0$ degrees
- Purely viscous material: $\delta = 90$ degrees

G^* and δ are used as predictors of HMA rutting and fatigue cracking. Early in pavement life rutting is the main concern, while later in pavement life fatigue cracking becomes the major concern.

HINCOL Value Proposition:

HINCOL have a well-equipped Technical Centre having key instruments like Dynamic Shear Rheometer (DSR), Rolling Thin Film Oven (RTFO) and Pressure Ageing Vessel (PAV along with many other advanced instruments. We offer characterization on aged and unaged (short term and long term) bitumen binder helping our customers choose the right binder that offers superior resistance to rutting and fatigue.

**ADDING VALUE.
STRENGTHENING OUTPUT.
ENSURING A BRIGHT FUTURE**

LEADING VALUE ADDED BITUMINOUS PRODUCTS MANUFACTURER



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HINCOL is one of the major quality bituminous products suppliers in India. Our aim is to provide solutions through a wide range of innovative products and services that will meet client needs today and tomorrow.

At HINCOL, we deploy the latest technology in our manufacturing processes. All our processes strictly adhere to the highest international standards in Quality Products and Services.

OUR VALUE PROPOSITIONS:

Technology: Application Support, Mix Design Services, Binder Testing Services

Products: All Bitumen Emulsion grades as per BIS 8887 & ASTM D 2397, All Modified Bitumen grades as per IRC SP 53 & IS 15462, Roadbond (instant pothole repair mix), Bitugrip (anti-stripping agent) and many more customised products

Process: Job Work, Site Blending for Modified Bitumen

Services: Micro Surfacing, Cold Mix



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