Different Grades of Bitumen Emulsion & Their Uses

Rapid Setting 1 - JS Bitumen RS1
Recommended for Tack Coat Application

Rapid Setting 2 - JS Bitumen RS2
Recommended for Surface Dressing Application

Medium Setting - JS Bitumen MS
The rate of deposition of the emulsion is delayed in order to allow mixing with clean coarse aggregates before breaking to form a continuous adhesive film without stripping. It is recommended for plant or road mixes with coarse aggregates, surface dressing and Penetration Macadam Application.

Slow Setting 1 - JS Bitumen SS1
Recommended for Fog Seal, Crack Sealing and Prime Coat Application

Slow Setting 2 - JS Bitumen SS2
Recommended for plant or road mixes with graded and fine aggregates. Cold Mixed MSS, SDBC and Slurry Seal Application

Cationic Slow Setting 1 - JS Bitumen CSS1
Recommended for Fog Seal, Crack Sealing and Prime Coat Application

Cationic Slow Setting 1H - JS Bitumen CSS1H
Recommended for Fog Seal, Crack Sealing, Slurry Seal and Prime Coat

Cationic Quick Setting 1H - JS Bitumen CQS1H
Recommended for Fog Seal, Tack Coat, and Quick Setting Slurry Seal

It is our duty to protect and preserve our mother land surrounded by the beautiful nature ensuring others to protect too.

For that our endeavour lives in using proper methods, and technological advancements giving us eco-friendly products which are capable to last long.

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JS BITUMEN-TARFELT INDUSTRIES PVT.LTD, is a sister Concern of BHARAT LUB INDUSTRIES PVT.LTD, which is engaged in manufacturing variety of petroleum products, Lubricants etc. for the last 45 years. Apart from these we have many other sister concern company namely M/S Bristol Petroleum Pvt. Ltd. J.K.B. Gas Pvt. Ltd., in service industries we have B.B.I.T Engineering and Management College, J.I.M.S Hospital and College under the same Management.

Since we have experience in many more petroleum products now we got entry into Bituminous Products which are also part of petroleum products.

JS Industries Vision

Since it has been a major problem, concern to road in India mainly Longibility and different climate conditions which are very much depend on quality of products, therefore we have taken interest to decrease the problem with better techno-commercial products and system.

Management:

The management of J.S.B.I Mr. Jagannath Gupta Director of the company has more than 45 years experiences managing company. One more Director Mr. Suresh Gupta has more than 30 years experience.

Quality Control:

To make better quality products we installed a fully automated plant with high speed colloidal mill to make bitumen emulsion. Our Quality control personnel have more than 18 years experience in making and maintaining quality of Bituminous Products. To assure best quality we have full pledge laboratory for checking each and every batch of production from raw material to finished Products.

The Business:

JS Bitumen and its other sister concern companies are in the following segment of business.

- Road Surfacing Products
- Cationic Bitumen Emulsion, Modified Bitumen, Oxidized Bitumen, Coldmix Emulsion, Mastic asphalt, Cutback Bitumen, Paving Bitumen.
- Petroleum Products.
- Lubricating Products.
- Hospital, Nursing and Medical College
- Management and Engineering College

What is Bitumen Emulsion?

Bitumen Emulsion is a dispersion of Bitumen in an aqueous continuous phase, stabilized by the addition of an emulsifier. They are prepared as emulsion at high temperatures, but applied as solid dispersion at ambient temperatures. In road making, Bitumen products are typically applied with mineral aggregate.

Based on the need of customers, climate and road condition, we manufacture following grades of emulsions:

- Micro surfacing
  - It is used in order to help preserve and protect underlying pavement structure and provide a new driving surface. polymer is commonly added to the asphalt emulsion to provide better mixture properties. The asphalt emulsion in micro surfacing contains chemicals additives which allow it to break without relying on the sun or heat for evaporation to occur.

- Slurry Seal
  - It is used in all over the world on highways with high traffic density roads to small residential streets. It is also preferred for the use on the airport runways as well, and absence of loose aggregates as well as excellent skid resistance is an important safety factor. Slurry Seal can be applied as thin as 2mm and not more than 6mm. Normally Fast Setting Emulsion is used for slurry seal.

- Cold Mix
  - It is a mixture of mineral aggregates, and Bitumen Emulsion is used for general surfacing or open graded premix carpet, road repairs and maintenance, damage road surfaces or potholes, restoring excavated surface etc.

- Tack Coat
  - It is a light spray of Bitumen Emulsion for ensuring a good bond between an old and a new bituminous surface layer. It should be applied very thin and must cover the entire surface evenly. Normally Fast Setting Emulsion is used for Tack Coat.

- Prime Coat
  - It is used for preparing a granular road base for bituminous surfacing. Depending upon the properties of the road base, Slow Setting or Medium Setting Emulsion can be used for Prime Coat.

- Fog Seal / Crack Seal
  - It is used to renew old bituminous surface suffering from oxidation, drying, cracks or surface voids. The Emulsion flows easily into the cracks and surface voids and prolongs the lifetime of the bituminous surface. Normally Medium Setting and Slow Setting Emulsion are used for Fog Seal.

- Soil Stabilization
  - It is used for upgrading marginal aggregates or increasing load bearing capacity and firmness of road base. Aggregates and Bitumen Emulsion are mixed while in a self-propelled plant when moving along the road. It leaves a uniform, properly coated mix on the road surface, which is then compacted. Normally Medium Setting and Slow Setting Emulsion are used.

Surface Dressing

It is simple and inexpensive road surface treatment. With proper drainage, maintenance and resurfacing, surface dressed road can last for a long time. Bitumen Emulsion is sprayed on the road surface followed by an aggregate cover and finished by rolling immediately. Road can be opened for slow traffic in less than thirty minutes. Normally Rapid Setting Emulsion is used for Surface Dressing.

Penetration Macadam

It is a base construction of compacted rock, which is sprayed over with Bitumen Emulsion. Bituminous Premix or surface designs are used as wearing course on Penetration Macadam. Normally Rapid Setting Emulsion is used for Penetration Macadam.

Potholes Repair

It is a mixture of special graded aggregates with specially formulated modified emulsion to fill the Potholes instantly at any weather conditions except during heavy rainfall.

JS BITUMEN is one of the largest manufacturer & supplier of Road Emulsion, Blown Grade Bitumen, Tarfch & all its by-products having latest technology, well equipped laboratory and highly experienced manpower situated at Bagnan on Kolkata – Mumbai National Highway 6 – a short distance from Kolkata & Kolkata port for easily marketing and export – import facility for business. Demand for Road Emulsion and all its Bitumen by-products in India are progressively increasing over the years. So for making India, it is necessary to connect India by road corridors. Our manufacturing capacity per month is more than 3000 M.T and would increase day by day for good quality & our behaviours.

INTRODUCTION

OUR OTHER PRODUCTS

1. All grade blown Bitumen is 90/15, 85/25, 115/15, 135/10 (IS : 702 - 1988)
2. Sealing Compound for sealing joints (Roof, Bridge Platform, Roads)
4. Black Japan IS 158 / 68, this is an Anti – Corrosive cold applied Bituminous Paints.
5. Curb rubber modified Bitumen (IRC SP – 53 – 2010)
6. Polymer Modified Bitumen (IRC SP – 53 – 2010)
7. JS Bitumen Cold Mix (IRC – 100 – 2014)
8. Mastic Bitumen - 10/20, 20/30, 30/40
9. Polymer Modified Emulsion - ASTM D 6372 - 15
10. Potholes Repair
TOW-COAT SURFACE DRESSING WITH CATIONIC BITUMEN EMULSION

As per IRC : 96 and MOORTH guidelines, Cationic Bitumen Emulsion can be used for the following,
1) Surfacing for low volume roads,
2) Renewal Coat and
3) Temporary Surfacing

Binder
The binder specified for these applications is Cationic Bitumen Emulsion, Rapid Setting 2 grade complying with IS:8887:2004.

Preparation of Surface
The existing base or on which surfacing is to be laid, should be prepared and corrected to a uniform grade and camber. All depressions and potholes should be filled up and compacted sufficiently. The surface should be cleaned to remove all loose particles, dust and foreign matter. If possible water should be sprayed to wash away loose dust and to expose a clean surface of aggregates (in case of granular base courses).

If the base on which surfacing is to be laid on an old bituminous surface, it should be swept clean and made free of sand, dust and other loose matter by means of wire, cobble-rushes, small picks or brooms etc.

For primed surface dressing should not be laid until the prime coat has thoroughly cured. The edges of the surface to be corrected are stretched rope lines.

Precaution before application
The Cationic Bitumen Emulsion should be sprayed on the prepared base by a mechanical sprayer or cans. While using spray cans, the holes should be of 6 mm diameter spaced at 30 mm apart to prevent clogging.

Rate of application
1. For granular base with aggregates of 13.2 mm (4.14 to 15/M3/M2) quantity should be 2.5 to 3.0 Kgs/M2
2. For subsequent or renewal coat with aggregates 11.2 mm (0.09 to 0.11/M3/M2) the emulsion quantity should be 1.2 to 1.4 Kgs/M2

Application of Aggregates
Immediately after spraying of emulsion, appropriate size aggregates should be spread at the given rate uniformly covering the surface completely and evenly, followed by rolling.

First coat
Application of Binder
The Cationic Bitumen Emulsion should be sprayed uniformly on the prepared base by a mechanical sprayer or cans. While using spray cans, the holes should be of 6 mm diameter spaced at 30 mm apart to prevent clogging.

Rate of application
For the first coat, rate of application of emulsion should be 1.2 to 1.4 Kgs/M2. Application of Aggregates immediately after spraying of emulsion, 13.2 Aggregate should be spread uniformly covering the surface completely and evenly, followed by rolling.

Second coat
Second coat of surface dressing may be applied on the same day as the first coat. However, the second coat should be before one hour after the rolling of the first coat. If possible water should be sprayed to wash away loose dust and to expose a clean surface of aggregates (in case of granular base courses).

Precaution before application
The Cationic Bitumen Emulsion should be rolled 5 to 6 times, to and fro, at slow speed, for a distance of about 10 meters from the contents property.

First Coat
Application of Binder
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Precaution before application
The Cationic Bitumen Emulsion should be rolled 5 to 6 times, to and fro, at slow speed, for a distance of about 10 meters from the contents property.
OPEN GRADE PREMIX CARPET WITH CATIONIC BITUMEN EMULSION

Asper IRC : 14 and IS:8887 guideline, Cationic Bitumen Emulsion can be for open graded premix carpet as follows:

Binder

The binder specified for this application is Cationic Bitumen Emulsion Rapid setting 1 for tack coat, medium setting grade for premix carpet and Slow setting grade for premix seal coat complying with IS 3887:2004. For liquid seal coat Medium setting grade may be used but use Rapid setting grade is preferable.

Preparation of Surface

The existing base which surface dressing is to be laid, should be prepared, shaped and compacted to a uniform gran and camber. All depressions and pot holes should be filled up and compacted sufficiently. The surface should be cleaned to remove all loose particles, dust and foreign matter. If possible water should be sprayed to wash away loose dust and to expose a clean surface of aggregates (in case of granular base courses).

Precaution before application

The Cationic Bitumen Emulsion drums should be rolled 5 to 6 times, to and fro, at slow speed, for a distance of about 10 meters mix the contents.

Application of Binder (Tack coat)

Granular surface treated with primer

Dry and hungry Bitumen surface

Normal Bitumen Surface (Existing black top)

Diameter spaced at 30 mm apart to prevent clogging. The range for spraying a mechanical sprayer or cans. While using spray cans. The holes should be of 6 mm dia-meter spaced at 30mm apart to prevent clogging.

The Cationic Bitumen Emulsion should be sprayed uniformly on the prepared base by a mechanical sprayer or cans. While using spray cans. The holes should be of 6 mm diameter spaced at 30 mm apart to prevent clogging. The rate for spraying temperature for emulsion should be 20 to 70 °C. The tack cost should be left to air all volatile have evaporated. On water Bound Macadam surface, water should be sprayed before applying tack cost.

Rate of Application of aggregates

Normal Bitumen Surface (Existing black top) 0.20 to 0.30 Kgps/M²

Dry and hungry Bitumen surface 0.25 to 0.35 Kgps/M²

Granular surface treated with primer 0.25 to 0.35 Kgps/M²

Granular surface (non-printed) 0.35 to 0.40 Kgps/M²

Concrete surface 0.25 to 0.40 Kgps/M²

20 mm Premix Carpet

Preparation of Premix

Premixing of Cationic Bitumen Emulsion and grit or sand may be done in a cold mixing plant or in a concrete mixer. For large works, continuous mixing may be done in batch or continuous mix plant.

Rate of Application of aggregates

For liquid seal coat crushing fine aggregates of 6.7mm should be done in a cold making 0.006 cu.m / M²

Premix Seal Coat

Cationic Bitumen Emulsion (Slow setting) should be used.

Preparation of Premix

Premixing of Cationic Bitumen Emulsion and grit or sand may be done in a cold mixing plant or in a concrete mixer. For large works, continuous mixing may be done in batch or continuous mix plant.

After thorough mixing the premix is transported to the laying site by suitable means. Too much mixing should be avoided.

Rate of Application of Binder

For premix seal coat, the emulsion should be used at rate of 1.0 to 1.2 kgs/M².

Advantages of JS Bitumen Emulsions

Application of JS Bitumen Emulsion in road work has the following unique advantages over the conventional hot Bitumen application.

- Environment Friendly
  - No hydrocarbon fumes
  - Arrests Dust Pollution
  - Helps maintain Ecological balance

- Economic
  - Time and labor saving
  - No Wastage of Binder
  - Reuse of drums
  - Extended working periods
  - Can be used with water

- Energy Saving
  - No heating
  - Saves National resources

- DURABILITY
  - Anti stripping property of emulsifier
  - Bonding characteristics of Bitumen remain intact

- Safe and Easy Handling
  - Applied cold
  - No handling risk
  - Non-hazardous and non-toxic
  - Emulsion can be used in wet weather

- Simple Application
  - No complicated machinery for mix preparation
  - Temperature independent spraying

JS BITUMEN: RS-1
JS BITUMEN: MS
JS BITUMEN: SS-1
JS BITUMEN: CSS-1
JS BITUMEN: CSS-1H
JS BITUMEN: CQS-1H
JS BITUMEN: Cold Mix