SUPER MULSION

Cationic Bituminous Emulsions

DESCRIPTION :-

Super Mulsion C is cold applied Cationic Bituminous Emulsion. All the types of emulsion as listed in IS 8887 are available with us, i.e. Rapid setting RS-1, Rapid setting RS 2, Medium setting MS, Slow setting SS 1 and Slow setting SS 2. We also supply CSS 1 as per ASTM 2397.**Super Mulsion C** is a Cationic Emulsion, and is more popular due to its ability to absorb on to a wider range of mineral aggregates. It results in better adhesion to mineral aggregates, sets readily on all but the most electro-positive aggregates and is effective for use in all weather conditions. We use state of art range emulsifiers from World famous Akzo Nobel for manufacturing consistent and best quality emulsions

RAPID SETTING [PC 1115] :-

Supreme Super Mulsion Rapid Setting Grade is a high performance Cationic Rapid Setting Liquid. The average droplet size ranges between 3 and 7 microns. The Liquid is designed to react quickly with aggregate and break to provide a quality inter layer. Rapid Setting 1 grade is primarily used for tack coat applications and is sprayed on the surface at the rate of 0.25 to 0.5 Kg/sqm. The .tack coat must be very thin and must cover the entire surface evenly. Too much tack coat may create a slipping plane between the two courses as the bitumen may act as a lubricant. All bonding operations require a clean base. After spraying the tack coat, enough time should be allowed for complete breaking to occur before the new reinforcement or maintenance layer is placed. During this time, traffic should be kept off the tacked area. Rapid Setting RS 2 grade is specially recommended for surface dressing work. In surface dressing, bitumen is sprayed on the road surface by a sprayer tank. An aggregate cover follows immediately, laid by a grit spreader, and the surface is then rolled as soon as possible. Surface dressing is performed either in single or multiple (two or even three) layers, the thickness of each layer being approximately equal to the maximum dimension of the aggregates.Rapid Setting (RS) grades are designed to react quickly with aggregate and revert from the emulsion state to bitumen. They are used primarily for tack coat application and in spray applications, such as aggregate (chip) seals, surface treatments, asphalt penetration macadam and grouting. The purpose of surface dressing is mainly to bind the aggregates to the base course, improving the impermeability of the pavement. Surface dressing layer is laid on many types of road, from rural and mountain roads to city and major roads.

MEDIUM SETTING: [PC 1116] :-

Supreme Super Mulsion Medium Setting Grade is a high performance Cationic Medium Setting Liquid with a minimum Bitumen content of 65%.The average droplet size ranges between 3 and 7 microns. In comparison with Rapid Setting Grade, a Medium Setting Grade takes slightly longer to break. Medium Setting (MS) grades are designed for mixing with coarse aggregates and are ideal in premix. Since these grades do not break immediately upon contact with aggregate, MS grade used in aggregates remain workable for a few minutes. The MS grades have high viscosity to prevent runoff. This type of emulsion is highly recommended for surface dressing work.

These emulsions are ideally suited for cold mixes. In such cold mixes, the emulsion is mixed with unheated aggregate. While designing cold mixes, it is possible to adapt to many requirements with different kinds of aggregates. There are practically no emissions from cold mixes which is a great advantage over hot mixes.

The use of unheated aggregate means energy saving and elimination of fire hazards. Such cold mixes are ideally used for pot hole repair, patch work or 20 mm premix carpet.

Cold mixes can be storable or non-storable, the difference in storability depending on their application time. The storable cold mixes are manufactured in a stationary mixing plant for future use (from one hour to one month). The liquid used has generally a fluxed bitumen base. The product delivery to the customer is in bulk or in easy small packages (bags or drums). The laying is by hand, or with a grader or a paver. The non - stable cold mixes are manufactured on site in a mobile mixing plant for immediate use. Laying could be by hand, or with a grader or a vibrating table.

SLOW SETTING: [PC 1117] :-

Supreme Super Mulsion Slow Setting is a high performance Cationic Slow Setting emulsion with a minimum Bitumen content of 50% (Slow Setting Grade 1) and 60% (Slow Setting Grade 2). The average droplet size ranges between 3 and 7 microns. SS1 contains 30% solvent to delay the break and allow sufficient time to penetrate soil surfaces.

Slow Setting Grade 1 is a special penetration inverted Bitumen emulsion conforming to SABS: 1260-1979 specification for Prime Coat application. Inverted emulsions are non flammable and are less hazardous and safer to use than cut back Bitumen. Other advantages over cut back Bitumen include good adhesion, good wetting and less sensitivity to atmospheric humidity. Slow Setting Grade SS 2 is a Slow Setting emulsion with delayed breaking action and is ideally suited for Seal Coat, Prime Coat, Soil Stabilization and Cold Recycling applications. Seal Coat is an application similar to Tack Coat. Seal Coat (also called Protection Coat or Fog Seal) is used to renew old asphalt surfacing which, for example, suffer from dryness, cracks or surface voids. Prime Coat consists of adding a hydro carbon binder to a pavement which is made up of previously compacted untreated aggregate. The purpose is to stabilize the top part of the layer by providing an adhesive film between the neighboring surfaces of the aggregates. Soil stabilization produces a great decrease in permeability and water migration and consequently the bottom layers and the formation soil are better protected against the detrimental effects of water. Slow Setting Grade SS 2 is also suitable for cold recycling. Asphalt to be recycled is obtained either by milling or by grinding or crushing separate pavement layers. The cut material is then mixed with Bitumen emulsion. The treatment is performed either on site by a special machine or in a mixing plant.

ADVANTAGES :-

- Eco / user friendly, pollution free and non-toxic and economical to use.
- Being cold applied, no necessity of special equipments like boiler, pre-mix plant, etc. Saves fuel and labour for heating and avoids fire hazard.
- Applicable during all weather conditions including rain but excluding frost and heavy downfall.
- Retains fluidity until the penetration in the aggregate mass is completed and, hence, no possibility of using excess bitumen, which weakens the binder.

APPLICATION METHODOLOGY :-

- **Super Mulsion** is applied cold at ambient temperature. Two bitumen particles in a **Super Mulsion** will coalesce if they come into contact. Contact is prevented by electric charge repulsion and the mechanical protection offered by the emulsifier. Any effect that overcomes these forces will induce flocculation and coalescence. Flow of the **Super Mulsion**, caused by pumping, heating (convection currents) or transport is one such effect. Some emulsifiers have a tendency to foam, which itself is a potential cause of coalescence since bitumen particles in the thin film of a bubble are subjected to the forces of surface tension.
- Prior to application, surface should be cleaned of loose aggregates and dust. For better results, the surface should be slightly dampened with clean water immediately before application. Fluidity remains until

penetration is completed and no additional material is required to ensure penetration.

• Brushes, sprayers and other tools used in applications should be cleaned with water prior to, and after their use to avoid contamination/breaking of **Super Mulsion** on them. No brushing over **Super Mulsion** shall be done till it turned black. Workers should not be allowed to walk over uncovered area where **Super Mulsion** has been applied till it breaks and forms a black surface.

HEALTH & SAFTEY :-

• Keep adequate ventilation during application of the mix. Avoid deep breathing of vapours and skin contact.
• Use of gum boots, gloves, goggles, and nose covers is recommended.
• The cover should be replaced properly after drawing emulsion from the drum.
• Brushes, Sprayers, etc. should be cleaned thoroughly with water before **Super Mulsion** sets on them.
• If it rains before the **Super Mulsion** has set, spread the aggregate and wait until the surface is dry before rolling and opening to traffic.
• On no account should workmen be allowed to walk over uncovered area where Bitumen Emulsion has been applied.
• Never mix two types of **Super Mulsion** as this will cause coagulation.

PACKING :-

In tankers and 200 L mild steel /PVC re-used drums.

Characteristics of Super Bitumen Mulsion (Catonic Type)-Second Revision A IS 8887 –2004

		Grades of Emulsion				Method of Test. Ref to	
Characteristics	Rapid Setting - 1	Rapid Setting - 2	Medium Setting	Slow Setting - 1	Slow Setting - 2	1:No.	Annex of this standards
Residue on 600 micron IS Sieve, present by mass, Max	0.05	0.05	0.05	0.05	0.05	-	B
Viscosity by saybolt furol viscometer, seconds:						3117	-
1) At 25°C	-	-	-	20-100	30-150		
2) At 50°C	20-100	100-300	50-300				
Coagulation of emulsion at low temperature C	Nil	Nil	Nil	Nil	Nil	-	C
Storage Stability after 24h, percent max	2	1	1	2	2	-	D
Particle Charge	Positive	Positive	Positive	Weak Positive	Positive	-	E
Coating ability & water resistance :							
1) Coating dry, aggregate	-	-	Good	-	-	-	F
2) Coating after, spraying	-	-	Fair	-	-		
3) Coating wet, aggregate	-	-	Fair	-	-		
4) Coating after, spraying	-	-	-	Fair		-	-
Stability to mixing with cement (percentage coagulation), Max	-	-	-	2	2	-	G
Miscibility with water	No co-agulation	No co-agulation	No co-agulation	-	No co-agulation		H

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	Rapid Setting - 1	Rapid Setting - 2	Medium Setting	Slow Setting - 1	Slow Setting - 2	1:No.	Annex of this standards
Test on Residue :							
1) Residue by evaporation, percent, Min	60	67	65	50	60	-	J
2) Penetration 25° C / 100g /5 sec	80-150	80-150	60-150	60-350	60-120	1203	-
3) Ductility 27°C / cm, Min.	50	50	50	50	50	1208	-
4) Solubility : In trichloro-ethylene, Percent by mass, Min	98	98	98	98	98	1216	-
Storage Stability after 24h, percent max	2	1	1	2	2	-	-
Distillation in percent, by volume at							
1)190° C	-	-	-	20-55	-	-	-
2) 225° C	-	-	-	30-75	-	-	-
3) 260° C	-	-	-	60-100	-	-	-
4) 315°C	-	-	-	40-90	-	-	-
Water Content, Percent by mass, Max	-	-	-	20	-	-	-

Note 1: "This requirement shall be applicable only under situations where the ambient temperature is below 15 Deg. C.

We also manufacturer the following type of modified Bitumen :-

1) Natural Rubber Modified Bitumen
2) Crumb Rubber Modified Bitumen
3) Polymer Modified Bitumen (SBS)
4) Polymer Modified Bitumen (EVA)
5) Polymer Modified Bitumen (SBR)

Our products are well tested and supported with test report of Government Recognized Laboratories. You are requested to send your valuable enquiries to our below addresses.

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