



MANGALAM PETROLEUM

**Manufacturer of High Quality Bitumen Emulsion
and Allied Bituminous Products**

BITUMEN EMULSION	An IITian Enterprise
MODIFIED BITUMEN	
WATERPROOFING PRODUCTS	Manufacturing Quality Products with State of the Art Technology





About Us:

Mangalam Petroleum produces all types of Bitumen Emulsion and allied bituminous products from its state of the art, ultra modern, manufacturing plant at **Vidisha**. Mangalam Petroleum is sister concern of Mangalam Petro Chemicals, which was established in 1990 and is a leading refiner of used oil and waste oil in central India. We are committed to produce high quality bituminous products, with the use of state of the technology in the most eco friendly manner, that provides maximum cost benefit to its buyers. All our products confirms to the relevant **BIS /ASTM** specifications.

Our Vision:

To be the preferred and most trusted supplier of high quality bituminous products in the construction industry. To manufacture quality products using the latest technology in the most environmental friendly manner, that delivers the maximum satisfaction to our customers.

Our Manufacturing Facility:

We have a fully automated ultra modern manufacturing plant at sagar road, **Vidisha (M.P)**. Our Plant is equipped with the latest technology for manufacturing bitumen emulsion with high degree of precision and quality control. We are having a continuous type emulsion manufacturing plant that can produce emulsions @ **10 MT/hour**. We have **in house laboratory** for strict quality control and to develop products as per the need of customer.



Bitumen Emulsions

An emulsion is a dispersion of small droplets of one liquid in another liquid. Bitumen emulsions are dispersions of very fine bitumen particles in an aqueous medium. Standard bitumen (asphalt) emulsions are normally considered to be of the oil in water type in which bitumen is the dispersed phase and water is the continuous phase. There are two types of Bitumen Emulsion:

1. **Anionic Emulsion:** Bitumen particles have negative charge, and this type of emulsion is used with aggregates having a positive charge (e.g. limestone, dolomite etc).
2. **Cationic Emulsion:** Bitumen Particles have positive charge, and this type of emulsion is used with aggregates having a negative charge(e.g. granite or siliceous aggregates).

Depending on how quickly the bitumen particles coalesce, emulsions can be classified as:

1. **Rapid Setting (RS)**
2. **Medium Setting (MS)**
3. **Slow Setting (SS)**





Advantages of Bitumen Emulsion

- ❖ Bitumen emulsion is of considerably lower viscosity than bitumen itself, allowing it to be used at lower temperature without heating. Low temperature techniques for construction and maintenance reduce emissions, reduce energy consumption, avoid oxidation of the bitumen, and are less hazardous than techniques using hot bitumen.
- ❖ They are also more economical and environmentally friendly than cold techniques using cut back bitumen as they do not release harmful diluents.
- ❖ Use of emulsions facilitates not only flow at atmospheric temperature but also application to damp road surfaces and wet aggregates. They are easy to handle and find a wide application in road construction and maintenance; soil stabilization; grouting; tack coating; surface dressing; seal coating; premixing; dust laying and in various other special circumstances where cold application of bitumen is desirable.
- ❖ They are also compatible with hydraulic binders like cement and lime as well as water-based polymer dispersions like natural and synthetic latex.

Mangalam Bitumen Emulsion - Cationic Grade RS-1, RS-2, MS, SS-1, SS-2, SS-1H

We manufacture a wide range of cationic bitumen emulsion for various applications in construction and infrastructure projects. We manufacture bitumen emulsion using high grade bitumen and standard quality raw material of reputed companies. All grades of our bitumen emulsion confirms to the specification of **IS:8887- 2004 and ASTM D2397**. Our range of emulsion is highly stable and is designed to give superior performance and adequate setting time. We supply these emulsion either in bulk via tanker or in 200 Kg MS drums.

RECOMMENDED USE OF CATIONIC EMULSION as per IS 8887: 2004

Type	Recommended Uses
Rapid Setting (RS-1)	This grade of emulsion is specially recommended for tack coat applications
Rapid Setting (RS-2)	This grade of emulsion is specially recommended for surface dressing work.
Medium Setting (MS)	This grade of emulsion is to be used for plant and road mixes of open graded aggregates with low fines content, and also for surface dressing and penetration macadam.
Slow Setting (SS-1)	This grade of emulsion is used for other applications such as fog seal, crack sealing, prime coat applications.



Mangalam Cationic Rapid Setting (RS-1)

The rapid setting grade is designed to react quickly, even with low reactive aggregate. Mangalam Cationic Bitumen Emulsion RS-1 is primarily used for tack coat application. It provides uniform and strong Tack coat. It is also used for other spray application like chipseal, fog seal and penetration macadam

Physical & Chemical requirement of Bitumen Emulsion (Cationic Type) Grade Rapid Setting -1		
Characteristic	Value Obtained RS-1	Specified value as per IS : 8887-2004
Residue on 600 micron IS Sieve, % by mass, Max	0.05	0.05
Viscosity by Say bolt Furol Viscometer in Seconds, @ 50°C	52	20-100
Coagulation of the Emulsion at Low Temperature	Nil	Nil
Storage Stability after 24 hr, % Max	0.9	2
Particle Charge	Positive	Positive
Miscibility with water	No Coagulation	No Coagulation
Tests on residue		
Residue by evaporation, % Min	62.6	60
Penetration 25°C/ 100g / 5 sec	92	80-150
Ductility 27°C/cm, Min	63	50 Min
Solubility in Trichloroethylene % by Mass, Min	98.6	98

Mangalam Cationic Rapid Setting (RS-2)

Mangalam Cationic Bitumen Emulsion RS-2 is specially designed for use in surface dressing works. It can also be used for spray applications like chipseal and penetration macadam

Physical & Chemical requirement of Bitumen Emulsion (Cationic Type) Grade Rapid Setting -2		
Characteristic	Value Obtained RS-2	Specified value as per IS : 8887-2004
Residue on 600 micron IS Sieve, % by mass, Max	0.05	0.05
Viscosity by Say bolt Furol Viscometer in Seconds, @ 50°C	177	100-300
Coagulation of the Emulsion at Low Temperature	Nil	Nil
Storage Stability after 24 hr, % Max	0.9	1
Particle Charge	Positive	Positive
Miscibility with water	No Coagulation	No Coagulation
Tests on residue		
Residue by evaporation, % Min	67.8	67
Penetration 25°C/ 100g / 5 sec	85	80-150
Ductility 27°C/cm, Min	63	50 Min
Solubility in Trichloroethylene % by Mass, Min	99.3	98



Mangalam Cationic Medium Setting (MS)

Mangalam Cationic Medium Setting (MS) Grades are designed for mixing with coarse aggregates with low fines content. Medium Setting grade of emulsion is used for patch work, 20 mm premix carpet, surface dressing and penetration macadam.

Physical & Chemical requirement of Bitumen Emulsion (Cationic Type) Grade Medium Setting		
Characteristic	Value Obtained MS	Specified value as per IS: 8887-2004
Residue on 600 micron IS Sieve, % by mass, Max	0.05	0.05
Viscosity by Say bolt Furol Viscometer in Seconds, @ 50°C	152	50-300
Coagulation of the Emulsion at Low Temperature	Nil	Nil
Storage Stability after 24 hr, % Max	0.92	1
Particle Charge	Positive	Positive
Miscibility with water	No Coagulation	No Coagulation
Tests on residue		
Residue by evaporation, % Min	65.6	65
Penetration 25°C / 100g / 5 sec	88	60-150
Ductility 27°C/cm, Min	66	50 Min
Solubility in Trichloroethylene % by Mass, Min	99.1	98
Coating Ability and Water Resistance:		
1. Coating, dry aggregate	Good	Good
2. Coating, after spraying	Fair	Fair
3. Coating, wet aggregate	Fair	Fair
4. Coating, after spraying	Fair	Fair

Mangalam Cationic Slow Setting (SS-1)

Mangalam Cationic Slow Setting grades are used with reactive aggregates with high fines content. This grade of emulsion can be diluted with additional water. This grade of emulsions used for prime coat, fog seal and crack sealing.

Physical & Chemical requirement of Bitumen Emulsion (Cationic Type) Grade Slow Setting-1		
Characteristic	Value Obtained SS-1	Specified value as per IS: 8887-2004
Residue don 600 micron IS Sieve, % by mass, Max	0.05	0.05
Viscosity by Say bolt Furol Viscometer in Seconds, @ 25°C	38	20-100
Coagulation of the Emulsion at Low Temperature	Nil	Nil
Storage Stability after 24 hr, % Max	0.97	2
Particle Charge	Weak Positive	Weak Positive
Stability To Mixing with Cement (% coagulation), Max	0.9	2
Tests on residue		
Residue by evaporation, % Min	52.7	50
Penetration 25°C / 100g / 5 sec	99	60-350
Ductility 27°C/cm, Min	72	50 Min
Solubility in Trichloroethylene % by Mass, Min	99.2	98
Distillation In %, by volume at:		
1. 190°C	34.3	20-55
2. 225°C	49.8	30-75
3. 260°C	56.5	40-90
4. 315°C	69.4	60-100
Water Content, % by mass, Max	17.8	20



Mangalam Cationic Slow Setting (SS-2)

This grade of emulsion can be diluted with additional water and their application includes prime coat (WBM), fog seal, crack seal, slurry seal, premix seal coat and dust palliatives.

Physical & Chemical requirement of Bitumen Emulsion (Cationic Type) Grade Slow Setting -2		
Characteristic	Value Obtained SS-2	Specified value as per IS : 8887-2004
Residue on 600 micron IS Sieve, % by mass, Max	0.05	0.05
Viscosity by Say bolt Furol Viscometer in Seconds, @ 25°C	43	30-150
Coagulation of the Emulsion at Low Temperature	Nil	Nil
Storage Stability after 24 hr, % Max	0.96	2
Particle Charge	Positive	Positive
Stability To Mixing with Cement (% coagulation), Max	1.1	2
Miscibility with water	No Coagulation	No Coagulation
Tests on residue		
Residue by evaporation, % Min	61.9	60
Penetration 25°C/ 100g / 5 sec	95	60-120
Ductility 27°C/cm, Min	69	50 Min
Solubility in Trichloroethylene % by Mass, Min	98.7	98

Mangalam Cationic Slow Setting (SS-1h) as per ASTM D2397

This emulsion is specially manufactured as per ASTM D2397 specifications and is used for prime coat of WMM/WBM surfaces.

Physical & Chemical requirement of Bitumen Emulsion (Cationic Type) Grade Slow Setting -1h		
Characteristic	Value Obtained SS-1h	Specified value as per ATSM D2397
Residue on 600 micron IS Sieve, % by mass, Max	0.05	0.1
Viscosity by Say bolt Furol Viscometer in Seconds, @ 25°C	43	20-100
Coagulation of the Emulsion at Low Temperature	Nil	Nil
Storage Stability after 24 hr, % Max	0.91	1
Particle Charge	Positive	Positive
Stability To Mixing with Cement (% coagulation), Max	1.1	2
Miscibility with water	No Coagulation	No Coagulation
Tests on residue		
Residue by evaporation, % Min	58.4	57
Penetration 25°C/ 100g / 5 sec	72	40-90
Ductility 27°C/cm, Min	69	40
Solubility in Trichloroethylene % by Mass, Min	98.3	97.5



Methods of use of Mangalam Emulsion:

- ❖ Before using Emulsion Drum, its content should be thoroughly mixed by rolling the drum 6-8 times . Draw the required quantity from the drum and immediately reseal the container airtight for subsequent use.
- ❖ In case emulsion is stored in tanks than emulsion should be agitated by circulation before use.
- ❖ Appropriate grade of emulsion should be used for different type of application. For good performance use mangalam emulsion within one year of manufacturing date.
- ❖ For Prime Coat, clean the surface to remove dust and unbound material, moist the surface avoiding any standing water and spray appropriate grade of Mangalam Emulsion in correct quantity. Allow to cure for 24 hours or such other period as is found necessary to allow all the volatiles to evaporate before any subsequent surface treatment or mix is laid. A Slow setting Grade provides the deepest penetration of primed surface, although depth varies with the porosity of the primed layer, ambient temperature, degree of moisture, viscosity of Bitumen Emulsion, chemical nature of aggregates and quantity of Bitumen Emulsion used per Square Meter
- ❖ For Tack Coat, clean the surface to remove dust and debris, if the surface is hungry or excessively hot, apply a fine spray of water avoiding standing water or water run-off. Spray Mangalam Emulsion in correct quantity and allow to cure until all the volatiles have evaporated before any subsequent construction is started.
- ❖ For repair work, clean the surface to remove dust and debris, apply a tack coat with a suitable grade of Mangalam Emulsion and allow to cure. Mix correct quantity of emulsion with aggregates to get uniform coating, fill in the required place and than compress as required and allow curing.
- ❖ For Special applications / Road Constructions, use as directed by Engineer in charge.





Our Forthcoming Products

Mangalam Crumb Rubber Modified Bitumen (CRMB)

Mangalam Polymer Modified Bitumen (PMB)

Mangalam Industrial Bitumen

Mangalam Tar- Felt and Polyfelt.

Mangalam Anti Stripping Agent.



Contact Us

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