



**Nepal Bitumen & Barrel Udyog Ltd.**

*...building Trust through Quality*





**Nepal Bitumen and Barrel Udyog Ltd. (NBBUL)** is a Public Limited Company that was established by Nepal Oil Corporation Limited in 1984. The company was taken over by Panchakanya Group in the year 1994 under the government's privatization program. Its automatic manufacturing and filling plant is situated at Amlakhgunj, Bara Nepal equipped with state-of-the-art technology that ensures quality products as per international grades with efficient and accurate filling capacity. NBBUL is only industry in the country for producing CRMB, Emulsion, PMB and supplying Bitumen for the road and other infrastructure development since its establishment.

NBBUL is registered with Ministry of Industry in BS dated 16.08.2042 and 22.11.2042 and received a certificate from Nepal Bureau of Standard (NS) in BS 10.04.2057.

NBBUL serving the nation by its quality Bitumen and own brand name as Nepal Bitumen and Emulsion which meets the specification as specified in NS quality manual.

## OUR PRODUCTS LINE

### BITUMEN:

Bitumen as a black or dark brown non-crystalline soil or viscous material having adhesive properties derived from petroleum crude either by natural or by refinery processes is a common binder used in road, airfield runway and taxiway and other pavement construction. Bitumen is also used in industrial applications like roofing, felt manufacture, printing inks, electrical cable, junction boxes, mastic for flooring, water proofing for terraces, duplex paper manufacture, etc.

### VISCOSITY GRADE BITUMEN:

Depending on the applications, different viscosity grade bitumen is produced VG 10, VG 30 and VG 40. Earlier, the Industry followed bitumen classification based on penetration grades and due to some fundamental property it is change over to VG grade.



## EMULSION



**CATIONIC BITUMEN EMULSION**  
 State-of-the-art Dimension in Road Carpeting  
 A TRUE FRIEND OF ENVIRONMENT

In the manufacture of bitumen emulsions, hot bitumen is sheared rapidly in water containing an emulsifying chemical (emulsifier). Bitumen emulsions are a dispersion of very fine bitumen particles in water. These liquid products are functional in use and are widely popular in road construction and maintenance. Cationic bitumen emulsions have become more popular today because of their superior qualities over traditional bitumen. The characteristics of an emulsion are designated by the terms rapid (R), medium (M) and slow (S).

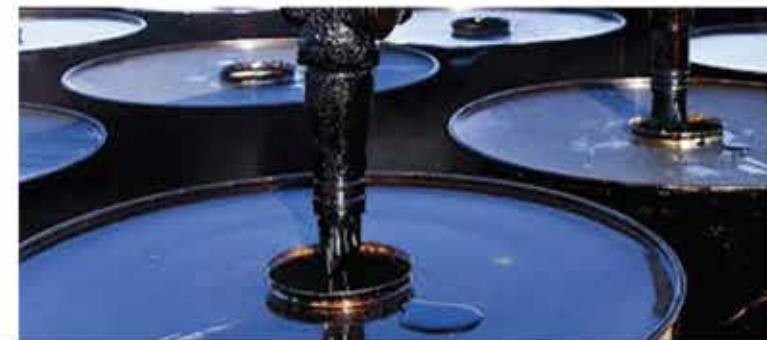
The main grades for bitumen emulsions are classified as follows:

- Rapid Setting (R/S)
- Medium Setting (M/S)
- Slow Setting (S/S)
- Slurry Seal (S/S)

### BITUMEN SPECIFICATION:

NBBUL presently producing Paving Bitumen Viscosity Grade bitumen conforming Nepal Standard NS dated 2073 which is derived from IS 73:2013.

S. No.	Characteristics	Paving Grades				Method of Test Ref. to
		VG10	VG20	VG30	VG40	
1.	Penetration at 25°C, 100 g, 5 s, 0.1 mm Min	80	60	45	35	NS 221:2047 (Part III)
2.	Absolute viscosity at 60° C, Poise	800-1200	1600-2400	2400-3600	3200-4800	NS 540:2073
3.	Kinematic Viscosity at 135° C, St, Min	250	300	310	400	NS539:2073
4.	Flash Point (Cleveland open cup), ° C, Min	220	220	220	220	NS 237:2049 (Part VII)
5.	Solubility in trichloroethylene, percent Min	99	99	99	99	NS 221:2047 (Part IV)
6.	Softening Point (R&B), °C, Min	40	45	47	50	537:2073
7.	Test on residue from rolling thin film oven test					
	a. Viscosity ratio at 60° C, Max	4	4	4	4	NS221:2046 (Part II)
	b. Ductility at 25° C cm, Min	75	50	40	25	NS 221:2046 Part I)°



## SPECIFICATION:

Bitumen Emulsion Specification: NS207-2046

Test Method: NS207-2046 and NS 221-2047

Type: Cationic



S. No.	Test Characteristics	Requirement		
		RS	MS	SS
1.	Residual on 600 micron sieve % by mass max % mss min.	0.10	0.10	0.10
2.	Binder content %	60	65	70
3.	Viscosity by Saybolt Furol Viscometer at 25°C in sec	-	20-100	
4.	Coagulation of emulsion at low temp.	Nil	Nil	Nil
5.	Storage stability after 24 hrs.....%	1	1	1
6.	Particle Charge	positive	positive	positive
7.	Stability to mixing with coarse aggregate.....% coagulation	20-80	<40	<5
8.	Stability to mixing with cement.....%	-	-	<2
9.	Miscibility with water	Nil	Nil	Nil
10.	Test on residue			
	a. Residue on distillation.....% (Min)	100-250	100-250	100-250
	b. Penetration 25°C/100 gms/5 sec			
	c. Ductility 25°C/cm	40	40	40
	d. Solubility in carbon disulphide	99	99	99

## CUTBACK:

Cutback Bitumen is dissolved in a solvent includes Naptha, Gasoline and Kerosene, White Spirit etc. The type of solvent controls the Curing time while the amount determines the Viscosity of the Cutback Asphalt. This is done to reduce the Viscosity of the Bitumen temporarily so it can penetrate pavements more effectively or to allow spraying at temperatures that are too cold for successful sprayed sealing with neat bitumen. The materials used to cutback bitumen will evaporate after application to leave the remaining material similar in hardness to the original bitumen.

Different grades of emulsion are produced:

MC 70, MC 30, MC 800, MC 3000.

## RECOMMENDATION FOR BETTER PERFORMANCES:

- Roll the barrels on ground for 10-15 minutes and stir/shake emulsion thoroughly before use.
- Close the lid of the barrel tightly.
- Use dust free aggregates.
- Screen aggregates prior to premis.
- Lay premix in clear surface.
- Roll, only after complete breaking of emulsion.
- Keep the traffic off the work in foggy weather, when evaporation is slow.
- Do not heat or dilute emulsion (Exception: Rapid setting hot sprayed grade.)
- Do not put back leftover emulsion in the barrels.
- Do not keep premix for a long period.





## MODIFIED BITUMEN

### CRMB:

Crumb Rubber Modified Bitumen - is useful and having good impact towards lifeline of the roads flexible pavement with asphalt concrete is wide used all over the world. It is processed by blending chemically crumb rubber with normal bitumen which acts as a binder for aggregates is a very important ingredient which enhances the durability life of the roads. In the CRMB variety, crumb rubber is blended with bitumen as modifier.

There are three grades in this type: CRMB 50, CRMB 55 and CRMB 60.

### MULTIPLE ADVANTAGES OF CRMB:

1. Higher resistance to deformation at higher temperature.
2. Lower penetration gives additional strength to roads.
3. Better adhesion and cohesion
4. Reducing damage caused by water
5. Resistance to cracking under stress

### SPECIFICATION:

Specification of CRMB as per IS 15462:2004

S. No.	Characteristics	Grade & Requirements			TEST Method IS No
		CRMB 50	CRMB 55	CRMB 60	
1.	Penetration @ 25°C, 0.1mm,100g, 5 sec	<70	<60	<50	1203
2.	Softening point (R&B) ° C, min	50	55	60	1205
3.	Elastic Recovery of half thread in Ductilometer @15°C,% min	50	50	50	
4.	Flash point °, min	220	220	220	1209(method C)
5.	Viscosity @150°C, pose	1-3	2-6	3-9	(Part-1)
6.	Separation difference in softening point (R&B)° max	4	4	4	
7.	Thin Film Oven test and test on residue				
	a) Loss in mass, % max1.0	1.0	1.0	9382	
	b) Increase in softening point,°C max	7	6	5	1205
	c) Reduction in penetration of residue @25°C max,	40	40	40	1203
	d) Elastic recovery of half thread in ductilometer @25°C, % min	35	35	35	

These superb characteristics make CRMB a better solution of road pavement which increases the life by 2-3 times higher than the conventional bitumen and is Environment Friendly.



### PMB:

**Polymer Modified Bitumen** - is one of the specially designed and engineered bitumen grades that are used in making pavement, roads for heavy duty traffic. PMB is normal bitumen with the added polymer, which gives it extra strength, high cohesiveness and resistance to fatigue, stripping and deformations, making it a favorable material for infrastructure. In this type, polymer is used to modify the bitumen and hence the name.

There are 3 grades PMB 40, 70 & 120

### SPECIFICATION:

Specification of PMB as per IS 15462:2004

S. No.	Characteristics	Grade & Requirements			TEST Method IS No
		PMB 120	PMB 70	CRMB 40	
1.	Penetration @ 25°C, 0.1mm,100g, 5 sec	90-150	50-90	30-50	1203
2.	Softening Point (R&B) ° C, Min	50	55	60	1205
3.	FRAASS breaking point, °C Max	-20	-16	-12	9381
4.	Elastic Recovery of half thread in Ductilometer @15°C,% Min	50	40	30	
5.	Flash point, COC, °C, Min	220	220	220	1209
6.	Viscosity @150°C, pose	1-3	2-6	3-9	1206 (Part-1)
7.	Separation difference in softening point (R&B)° max	3	33		
8.	Thin Film Oven test and test on residue				
	a) Loss in mass, % Max	1.0	1.0	1.0	9382
	b) Increase in softening point,°C Max	7	65	1205	
	c) Reduction in penetration of residue @25°C Max,	35	35	35	1203
	d) Elastic recovery of half thread in ductilometer @25°C, % Min	35	35	35	-



## DRUM/BARREL

Drum Manufacturing Lines at our factory Amlekhgunj where experienced labors are working in 2 Shifts which enable us to provide High Quality Bitumen Packaging Services to our Valued Customers. We use Best Quality Steel Sheets for making of Bitumen Drums. It has 300000 units production capacity per year. Available sizes are Barrels 200 litre capacity, Drums 167 litre capacity and Containers 20 and 50-litre capacity.



### AVAILABLE SIZES:

- i) Barrels 200 litre capacity
- ii) Drums 160 litre capacity
- iii) Containers 20 & 50 litre capacity

## ANTI-STRIPPING AGENT

It is a specially formulated compound for improvement of adhesion between Bitumen and Aggregates so as to avoid stripping of Bitumen on aggregates. It strengthens the bond between Bitumen and Aggregates which is added before mixing with aggregates. It works even in the presence of water. It is a liquid form and hence can be added directly to the Bitumen and considered economical in terms of life of Road/Pavement. Available in 45 liter pack.





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