

BITUMEN DERIVATIVES
PRODUCT CATALOGUE

For the Roads of Today and Tomorrow



IndianOil Total Pvt. Ltd.

(Joint venture of IndianOil and TotalEnergies Marketing Services)



About Us

Road construction sector in India is undergoing a paradigm shift with a renewed focus on sustainable infrastructure development. Modern and emerging technologies are instrumental in changing the face of Indian road construction. This will lead to the rise of demand for improved material for road construction.

IndianOil Total Private Limited has been formed in 2020 as a 50:50 Joint Venture Company between TotalEnergies, which is the one of the biggest producers and supplier of bitumen products in Europe and Indian Oil Corporation, the country's leading refiner and retailer of petroleum products.

The venture produces and markets high quality bitumen derivatives for India's booming road construction industry and is headquartered in Mumbai. The commercial operation of the company has commenced in March 2021.

ITPL combines the Marketing and R&D strengths of both IndianOil and TotalEnergies to manufacture and market innovative bitumen formulations and superior quality products.

With our culture of innovation, safety, and sustainability, ITPL is poised to contribute significantly to the pavement sector in India.



Our Promoters



IndianOil

Indian Oil Corporation

Indian Oil Corporation (IOCL) is India's highest-ranked energy PSU in fortune global 500 listing. IOCL is an integrated energy major with a presence in almost all the streams of oil, gas, petrochemicals, and alternative energy sources.

IOCL is the largest producer and market leader in viscosity grade Bitumens in India with a state-of-the-art R&D center based in Faridabad.



TotalEnergies

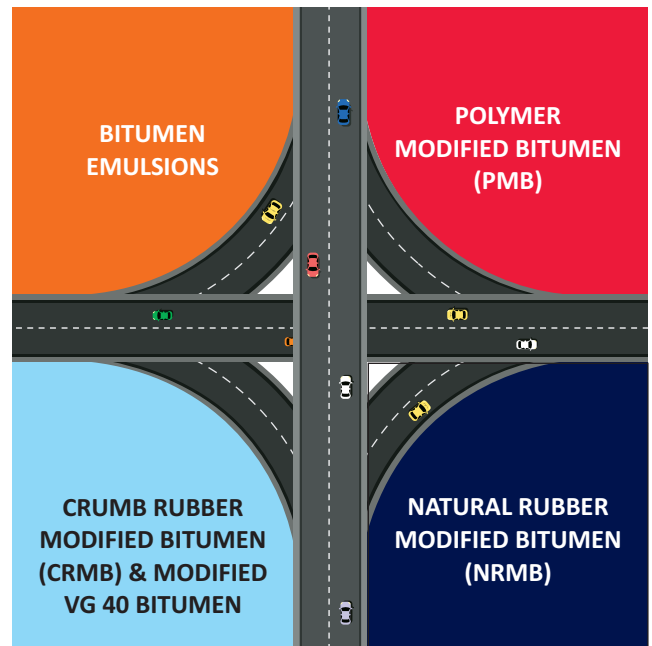
TotalEnergies

TotalEnergies is a broad energy company that produces and markets energies on a global scale, oils and biofuels, natural gas and green gases, renewables, and electricity.

Active in more than 130 countries, TotalEnergies puts sustainable development in all its dimensions at the heart of its projects and operations to contribute to the well-being of people.

A Comprehensive Range of Bitumen Derivatives

ITPL offers a comprehensive range of bitumen derivative products for all the requirements of road construction. Our products are manufactured in strict accordance with the highest quality and safety standards in adherence to our HSEQ policy.



Bitumen Product Range

EMULSION – RAPID SETTING

DURAPAVE EMULSIS RS1

EMULSION – MEDIUM SETTING

DURAPAVE EMULSIS MS

EMULSION – SLOW SETTING

DURAPAVE EMULSIS SS1
DURAPAVE EMULSIS CSS-1h (ASTM)
DURAPAVE EMULSIS SS2

COLD MIX EMULSION

DURAPAVE EMULSIS CM
DURAPAVE EMULSIS CM MS
DURAPAVE EMULSIS CM MS2
DURAPAVE EMULSIS CM SS2

POLYMER MODIFIED EMULSION

DURAPAVE EMULSIS RS PoMo
DURAPAVE EMULSIS SS PoMo

MODIFIED VG 40 BITUMEN

VG 40 M

MICRO SURFACING EMULSION

DURAPAVE EMULSIS MiSu

POLYMER MODIFIED BITUMEN (PMB)

Styrelf® PMB 40
Styrelf® PMB 70
Styrelf® PMB 40 Super
Styrelf® PMB 40 Hyma
Styrelf® PMB 64-10 S/H/V/E
Styrelf® PMB 70-10 S/H/V/E
Styrelf® PMB 76-10 S/H/V/E
Styrelf® PMB 82-10 S/H/V/E
Styrelf® PMB 76-22 S/H/V/E

A technology of Total

CRUMB RUBBER MODIFIED BITUMEN (CRMB)

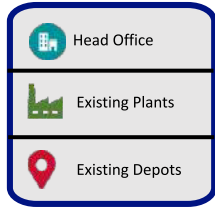
CRFlex® 55 / CRFlex® 60

NATURAL RUBBER MODIFIED BITUMEN (NRMB)

NRFlex 40 / NRFlex 70



Manufacturing Facilities & Depots



To ensure an efficient and reliable supply of products to the customers, ITPL has set up manufacturing facilities & depots at strategic locations. At present, ITPL has full-fledged state-of-the-art manufacturing plants at Jodhpur in the state of Rajasthan, Haldia & Howrah in the state of West Bengal, Mathura in the state of Uttar Pradesh, Vadodara in the state of Gujrat and Chennai in the state of Tamil Nadu.



Research and Development

ITPL offers a detailed technical evaluation of a complete range of products to the customers. ITPL's state-of-the-art labs are equipped with the latest equipment for analysis of Performance Grade Binders (PMB/CRMB) with DSR (Dynamic Shear Rheometer) and short term and long-term aging process through RTFO (Rolling Thin Film Oven) / PAV (Pressure Aging Vessel).



Technical Assistance

The Technical Assistance to customers is a result of in depth experience and expertise of IndianOil and TotalEnergies which includes:

- Training on storage, handling, and applications of the products.
- Technical Assistance to define the best conditions to obtain the required performance of the products.
- Laboratory support for optimal mix design.
- Technical support on Hot Mix and Cold Mix processes from production to applications.







IndianOil Total Pvt. Ltd.

(Joint venture of IndianOil and TotalEnergies Marketing Services)

3rd floor, Gala Impecca, Vijay Nagar Colony,
J. B. Nagar, Andheri Kurla Road, Andheri (E),
Mumbai, Maharashtra, 400 059 India.

Email: contact@itpl.net Tel: +91 22 6907 7400.



POLYMER MODIFIED BITUMEN

Styrelf® PMB PG GRADING

A technology of TotalEnergies

APPLICATIONS:

The STYRELF® PMB group of binders comprising a range of elastomerically modified bitumen. It is developed to provide high performance over a range of different applications and different conditions. Styrelf® PMB Bitumen is modified with elastomeric polymers using a TotalEnergies innovative cross-linking technology which gives them exceptional properties in terms of storage stability, cohesiveness, elongation capacity and resistance to aging. The Styrelf® PMB is homogenous and superior quality PMB; which enhances life of the pavement.

PRODUCT CERTIFICATIONS: Bureau of Indian Standards (BIS): CM/L-No-3269160

AVAILABLE GRADES:

- STYRELF® PMB 64-10 S/H/V/E
- STYRELF® PMB 70-10 S/H/V/E
- STYRELF® PMB 76-10 S/H/V/E
- STYRELF® PMB 82-10 S/H/V/E
- STYRELF® PMB 76-22 S/H/V/E

BENEFITS:

- Resistance at higher temperatures surface against rutting and ambient temperatures against fatigue.
- Higher resistance at low temperatures (-10°C) against thermal cracking because of viscoelastic nature.
- Better stripping resistance and ITSR (Indirect Tensile Strength Ratios).
- Better resistance against aging and oxidation compared to normal VG grades.
- Proven record of longer life of pavement.
- Saves natural resources and reduced pollution levels by deferring the frequency of overlays and period maintenance.
- Suitable as per Indian geography of moderate to extreme temperatures with lower susceptibility to temperature variation.
- Recommended for national/ state highways/ city roads/ fly overs/ round about etc. with overall improved mix performance.
- PMB grades available from selection criteria of standard (S) to extremely heavy (E) traffic condition as per IS 15462:2019.

PACKING: STYRELF® PMB is available in Bulk.

FOR TECHNICAL QUERIES, PLEASE CONTACT:

Dr. Pankaj Kumar Jain, Vice President - Marketing and Technical
Mob: +91 8451804665 / Email: drpankajkumar.jain@itpl.net

Anil Thondepu, Manager - Product Marketing (Techno - Commercial)
Mob: +91 8976773284 / Email: anil.thondepu@itpl.net



IndianOil



TotalEnergies

TABLE 1 REQUIREMENTS OF POLYMER MODIFIED BITUMEN (PMB) IS 15462:2019

(Clause 6.5 and 9.5.3)

Characteristics	Grades and Requirements					Method of Test, Ref to	
	PMB 64-10	PMB 70-10	PMB 76-10	PMB 82-10	PMB 76-22	Annex	IS/ASTM
(A) Tests to be Carried out on Original Binder							
Softening Point (R & B), °C, Min.	60	65	70	80	75	–	IS 1205
Elastic recovery of half thread in ductilometer at 15 °C, Min.	70	70	70	85	80	Annex A	–
Flash Point, COC, °C, Min.	230	230	230	230	230	–	IS 1209
Viscosity at 150 °C, Pa.s, Max	1.2	1.2	1.2	1.6	1.5	–	ASTM D 4402
Complex modulus (G*) divided by Sin delta (G*Sin δ) as Min 1.0kPa, 25mm Plate, 1mm Gap, at 10 rad/s, at a temperature, °C, Min.	64	70	76	82	76	Annex B	–
Phase Angle (δ), Degree Max.	75	75	75	75	75	Annex B	–
Separation, difference in softening point (R & B), °C, Max	3	3	3	3	3	Annex C	–
FRAASS breaking point, °C, Max.	-10	-10	-10	-10	-22	–	IS 9381
(B) Tests to be carried out on Rolling Thin Film Oven (RTFO) residue ²							
Loss in mass, %, Max.	1.0	1.0	1.0	1.0	1.0	–	IS 9382
Complex modulus (G*) divided by Sin delta (G*Sin δ) as Min 2.2kPa, 25mm Plate, 1mm Gap, at 10 rad/s, at a temperature, °C	64	70	76	82	76	Annex B	–
MSCR TEST							
a) Standard Traffic (S) Jnr 3.2 Max 4.5 kPa-1, Jnr diff Max 75 percent Test Temperature, °C	64	70	76	82	76	Annex D	–
b) Heavy Traffic (H) Jnr 3.2 Max 2 kPa-1, Jnr diff Max 75 percent Test Temperature, °C	64	70	76	82	76	Annex D	–
c) Very Heavy Traffic (V) Jnr 3.2 Max 1 kPa-1, Jnr diff Max 75 percent Test Temperature, °C	64	70	76	82	76	Annex D	–
d) Extremely Heavy Traffic (E) Jnr 3.2 Max 0.5 kPa-1, Jnr diff Max 75 percent Test Temperature, °C	64	70	76	82	76	Annex D	–
(C) Tests to be carried out on Pressure Vessel (PAV) residue ³							
Complex modulus (G*) multiplied by Sin delta (G* sin δ) as Max 6000 kPa, 8mm Plate, 2mm Gap, at 10 rad/s, at a temperature	31	34	37	40	31	Annex C	–

1) FRAASS Breaking Point only to be evaluated in case the project site has subzero temp conditions.

2) Method for Preparation of Rolling Thin Film Oven (RTFO) Residue is given in Annex E.

3) Method for Preparation of Pressure Aging Vessel (PAV) Residue is given in Annex F.

Procedure	Recommended Temperature Range
Mixing / Coating with Aggregates	170 - 185 °C
Laying of Mix	150-170 °C
Beginning of Compaction	Over 140 °C
End of Compaction	110-120 °C