



# Bitumen VG 20 – Full Technical Specification

*(Viscosity Grade Bitumen for Road Construction)*

## 1. Product Description

Bitumen VG 20 is a viscosity grade paving bitumen manufactured from selected crude oils through controlled vacuum distillation. It is specifically designed for road construction in moderate climate regions and is widely used in hot mix asphalt, dense bituminous macadam, and surface dressing.

VG 20 offers balanced stiffness, strong aggregate adhesion, and improved resistance to rutting under medium to heavy traffic loads.

## 2. Applicable Standard

- IS 73:2013 (India Standard – Paving Bitumen, Viscosity Graded)
- Equivalent to performance-based viscosity grading system

### 3. Technical Specification Table

Property	Test Method	Requirement for VG 20
Absolute Viscosity at 60°C	ASTM D4402 / IS 1206 Part 2	1600 – 2400 Poise
Kinematic Viscosity at 135°C	ASTM D2170	Min 300 cSt
Flash Point (Cleveland Open Cup)	ASTM D92	Min 220°C
Softening Point (Ring & Ball)	ASTM D36	Min 45°C
Penetration at 25°C, 100g, 5 sec	ASTM D5	60 – 80 dmm
Ductility at 25°C	ASTM D113	Min 75 cm
Specific Gravity at 27°C	ASTM D70	0.99 – 1.05
Loss on Heating (TFOT)	ASTM D1754	Max 1.0 %
Retained Penetration after TFOT	ASTM D5	Min 50 %
Ductility after TFOT at 25°C	ASTM D113	Min 50 cm

### 4. Physical Characteristics

- Appearance: Black, homogeneous, semi-solid material
- Odor: Slight petroleum odor when heated
- Solubility in Trichloroethylene: Min 99%
- Water Content: Negligible

## 5. Performance Characteristics

Bitumen VG 20 provides:

- Excellent coating and adhesion with aggregates
- Controlled workability at mixing temperatures
- Improved rutting resistance in moderate climates
- Good fatigue resistance under repeated traffic loads
- Stable viscosity during pumping and spraying

It performs better than softer grades such as VG 10 in areas with higher traffic intensity.

## 6. Recommended Application Areas

- National highways
- Urban main roads
- Dense Bituminous Macadam (DBM)
- Bituminous Concrete (BC)
- Asphalt base and binder courses
- Surface dressing

## 7. Heating & Handling Guidelines

Recommended Temperatures:

- Storage Temperature: 150°C – 170°C
- Mixing Temperature: 150°C – 165°C
- Maximum Heating Temperature: 180°C (short duration only)

Overheating above 190°C should be avoided as it may cause oxidation and performance degradation.

## 8. Storage Requirements

- Store in insulated bitumen storage tanks
- Maintain uniform heating
- Avoid direct flame contact
- Prevent water contamination
- Agitate tank periodically to maintain homogeneity



## 9. Packaging Options

Bitumen VG 20 is available in:

- Bulk tankers
- Bitutainers
- New steel drums (150–180 kg)
- Jumbo bags (with heat-resistant liner)
- Flexitanks (for export shipment)

## 10. Shelf Life

If stored properly in closed and insulated tanks, Bitumen VG 20 maintains quality for extended periods without significant property changes.

## 11. Safety Information (General)

- Use protective gloves and safety clothing when handling hot material
- Avoid contact with skin at high temperature
- Ensure proper ventilation during heating
- Refer to MSDS for detailed safety procedures

## 12. Quality Assurance

Each batch should be accompanied by:

- Certificate of Analysis (COA)
- Batch number traceability
- Laboratory test report
- Export documentation

Quality testing must be conducted before dispatch to ensure compliance with IS 73 and ASTM standards.



## Summary

Bitumen VG 20 is a medium viscosity paving grade designed for moderate climate regions and medium to heavy traffic roads. It provides reliable performance, stable viscosity during mixing, and strong aggregate bonding, making it suitable for long-lasting pavement construction.