

Rapid-Curing Cutback Asphalt (RC)

RC-70 • RC-250 • RC-800 • RC-3000

In accordance with AASHTO M 81 / ASTM D2028 — Standard Specification for Cutback Asphalt (Rapid-Curing Type)

1. Description

Cutback asphalts — also called liquid asphalts — result from diluting asphalt cement with petroleum distillates. They are hydrocarbon binders obtained by incorporating more or less volatile liquid fractions from crude distillation into asphalt cement. The diluents act as a vehicle and produce a lower-viscosity binder, applicable at temperatures considerably lower than hot asphalt. After application the solvent evaporates and the asphalt cement recovers its original properties.

According to curing rate, determined by the nature of the diluent used, cutback asphalts fall into three families: RC (rapid curing), cut back with naphtha or gasoline, fast-evaporating; MC (medium curing), cut back with kerosene, medium-evaporating; and SC (slow curing), cut back with low-volatility oils, slow-evaporating. The abbreviation is followed by a number indicating the kinematic viscosity grade at 60 °C: 30, 70, 250, 800 or 3000.

Rapid-curing asphalts are cut back with naphtha or gasoline, highly volatile solvents. The binder rapidly recovers the consistency of the base asphalt cement, which allows the road to be reopened to traffic within short periods. They are the usual choice for tack coats and surface treatments. Because of their greater volatility they require stricter flammability precautions than the MC and SC grades.

2. Applications

- Prime coats over granular bases and sub-bases (MC-30, MC-70).
- Tack and bond coats between layers (RC-70, RC-250).
- Single and double surface treatments (RC-250, RC-800, RC-3000).
- Cold dense-graded and open-graded mixes and stockpile mixes (MC-250, MC-800).
- Stabilisation of bases, soils and unbound surfacings (SC).
- Seal coats and crack sealing.

3. Specifications

Property	Method	RC-70	RC-250	RC-800	RC-3000
Kinematic viscosity at 60 °C (mm ² /s)	T 201	70–140	250–500	800–1,600	3,000–6,000
Flash point, Tag open cup (°C), min.	T 79	27	27	27	27
Water content (%), max.	T 55	0.2	0.2	0.2	0.2
Distillation — MINIMUM percentage recovered of total distillate to 360 °C					
Distillate to 190 °C, % of total distillate, min.	T 78	10	—	—	—
Distillate to 225 °C, % of total distillate, min.	T 78	50	35	15	—
Distillate to 260 °C, % of total distillate, min.	T 78	70	60	45	25
Distillate to 316 °C, % of total distillate, min.	T 78	85	80	75	70
Residue from distillation, % by volume, min.	T 78	55	65	75	80
Tests on the distillation residue					
Absolute viscosity at 60 °C (poises)	T 202	600–2,400	600–2,400	600–2,400	600–2,400
Ductility at 25 °C, 5 cm/min (cm), min.	T 51	100	100	100	100
Solubility in trichloroethylene (%), min.	T 44	99.0	99.0	99.0	99.0

Requirements of AASHTO M 81 / ASTM D2028. NOTE THE DIFFERENCE FROM THE MC GRADES: in rapid-curing asphalts the distillation limits are MINIMUM PERCENTAGES RECOVERED at each temperature, not ranges, and the standard adds a 190 °C control point that does not exist in the MC grades. The minimum flash point is 27 °C (80 °F) in the Tag open cup, far below that of the MC grades, because of the greater volatility of the naphtha used as diluent. The absolute viscosity of the residue (600–2,400 P = 60–240 Pa·s) is four times that of the MC grades; at the purchaser's option it may be replaced by penetration of the residue at 25 °C, 100 g, 5 s, of 80 to 120 (0.1 mm). If ductility at 25 °C is less than 100 cm, the material is accepted if its ductility at 15 °C exceeds 100 cm. The spot test is not part of ASTM D2028 and is optional in AASHTO M 81. The RC family comprises only four grades: there are no standardised RC-30 or RC-5000. Equivalent ASTM methods: D2170, D1310, D95, D402, D2171, D113, D2042.

4. Storage and transport

Liquid asphalt shall be stored in tanks suitable for the purpose, fitted with vent openings that prevent them from operating under pressure, and with the necessary measuring and safety devices located at easily accessible points. They must also have a suitable valve for taking samples.

Where storage tanks have no loading means of their own, the tankers used for transport must be equipped with pneumatic or mechanical means appropriate for the rapid transfer of their contents. Where transfer pumps are used, rotary pumps are preferred to centrifugal pumps, and transfer from the tank truck to the tank must always be by direct piping. **FLAMMABILITY WARNING:** cutback asphalts are flammable liquids. Keep all ignition sources away, earth transfer equipment and do not carry out hot work on tanks that have contained the product. Consult the Safety Data Sheet before any operation.

5. Packaging and logistics

In bulk in tank trucks from 9 to 35 t · 200 kg steel drums · 1,000 L IBCs. All packages are labelled in accordance with GHS bearing the flammability pictogram. HS code: 2715.00.

6. Quality control

Every batch shipped is accompanied by a laboratory-issued quality certificate reporting the tests required by the applicable standard, with traceable batch identification. Additional testing or independent third-party inspection (SGS, Bureau Veritas, Intertek, Cotecna) at origin or destination can be arranged at the customer's request.

Consult the product Safety Data Sheet (SDS) before handling.

The information in this data sheet is offered in good faith, based on PRO-ROAD®'s technical knowledge of its products and on the requirements of the standards cited. It does not constitute a sales specification or a warranty of results. The customer is responsible for verifying the suitability of the product for its intended use, for its correct handling and for its application in accordance with project specifications. Values guaranteed per batch are certified in the corresponding quality certificate.

 **PRO-ROAD®**