

**Requirements according to PN-EN 12591:2010 for paving road bitumens  
for grades from 20x0,1mm to 220x0,1mm penetration**

Property	Unit	Test method	20/30	35/50	50/70	70/100	100/150	160/220
Penetration at 25°C	0,1 mm	PN-EN 1426	20÷30	35÷50	50÷70	70÷100	100÷150	160÷220
Softening point R&B	°C	PN-EN 1427	55÷63	50÷58	46÷54	43÷51	39÷47	35÷43
Flash point	°C	PN-EN ISO 2592	≥ 240	≥ 240	≥ 230	≥ 230	≥ 230	≥ 220
Retained penetration after hardening	%	PN-EN 1426	≥ 55	≥ 53	≥ 50	≥ 46	≥ 43	≥ 37
Change of mass after hardening <sup>b</sup>	% m/m	PN-EN 12607-1	≤ 0,5	≤ 0,5	≤ 0,5	≤ 0,8	≤ 0,8	≤ 1,0
Increase of softening point R&B after hardening- Severity 1 or Increase of softening point R&B after hardening- Severity 2 <sup>a</sup>	°C	PN-EN 1427	≤ 8 or ≤ 10	≤ 8 or ≤ 11	≤ 9 or ≤ 11	≤ 9 or ≤ 11	≤ 10 or ≤ 12	≤ 11 or ≤ 12
Solubility	% m/m	PN-EN 12592	≥ 99,0	≥ 99,0	≥ 99,0	≥ 99,0	≥ 99,0	≥ 99,0
Dynamic viscosity at 60 °C	Pa*s	PN-EN 12596	≥ 440 or NR <sup>c</sup>	≥ 225 or NR <sup>c</sup>	≥ 145 or NR <sup>c</sup>	≥ 90 or NR <sup>c</sup>	≥ 55 or NR <sup>c</sup>	≥ 30 or NR <sup>c</sup>
Fraass Breaking point	°C	PN-EN 12593	NR <sup>c</sup>	≤ -5 or NR <sup>c</sup>	≤ -8 or NR <sup>c</sup>	≤ -10 or NR <sup>c</sup>	≤ -12 or NR <sup>c</sup>	≤ -15 or NR <sup>c</sup>
Penetration index	-	Annex A	-1,5 ÷ +0,7 lub NR <sup>c</sup>	-1,5 ÷ +0,7 lub NR <sup>c</sup>	-1,5 ÷ +0,7 lub NR <sup>c</sup>	-1,5 ÷ +0,7 lub NR <sup>c</sup>	-1,5 ÷ +0,7 lub NR <sup>c</sup>	-1,5 ÷ +0,7 lub NR <sup>c</sup>
Kinematic viscosity 135 °C	mm <sup>2</sup> /s	PN-EN 12595	≥ 530 lub NR <sup>c</sup>	≥ 370 lub NR <sup>c</sup>	≥ 295 lub NR <sup>c</sup>	≥ 230 lub NR <sup>c</sup>	≥ 175 lub NR <sup>c</sup>	≥ 135 lub NR <sup>c</sup>

<sup>a</sup> When Severity 2 is selected it shall be associated with the requirement for Fraass breaking point or penetration index or both measured on the unaged binder

<sup>b</sup> Change in mass can be either positive or negative

<sup>c</sup> NR - No Requirement may be used when there are no regulations or Rother regional requirements for the property in the territory of intended use