

Requirements according to PN-EN 14023:2011/Ap1:2014 for the highly modified bitumens (HiMA) for application in Poland in road construction

| Property | | Test method | Unit | the lower limit of penetration at 25°C / the upper limit of penetration at 25°C – the lower limit of softening point | | | | | |
|-------------------------|--------------------------------------|----------------------|-------------------|--|-------|-----------------------------|-------|-----------------------------|-------|
| | | | | 25/55-80 | | 45/80-80 | | 65/105-80 | |
| | | | | requirement | class | requirement | class | requirement | class |
| Penetration at 25°C | | EN 1426 | 0,1 mm | 25÷55 | 3 | 45÷80 | 4 | 65÷105 | 6 |
| Softening point R&B | | EN 1427 | °C | ≥ 80 | 2 | ≥ 80 | 2 | ≥ 80 | 2 |
| Cohesion | Force ductility (50 mm/min traction) | EN 13589 EN 13703 | J/cm ² | TBR ^b at 15°C | - | TBR ^b at 10°C | - | TBR ^b at 10°C | - |
| Resistance to hardening | Change of mass | EN 1427 | % | ≤ 0,5 | 3 | ≤ 0,5 | 3 | ≤ 0,5 | 3 |
| | Retained Penetration | | % | ≥ 60 | 7 | ≥ 60 | 7 | ≥ 60 | 7 |
| | Increase in Softening point R&B | | °C | ≤ 8 | 2 | ≤ 8 | 2 | ≤ 8 | 2 |
| Flash point | | EN ISO 12592 | °C | ≥ 235 | 3 | ≥ 235 | 3 | ≥ 235 | 3 |

cont. of the table in the next page

| Property | | Test method | Unit | the lower limit of penetration at 25°C / the upper limit of penetration at 25°C – the lower limit of softening point | | | | | |
|--|---------|------------------------|-----------------|--|-------|------------------|-------|------------------|-------|
| | | | | 25/55-80 | | 45/80-80 | | 65/105-80 | |
| | | | | requirement | class | requirement | class | requirement | class |
| Frass Breaking Point | | EN 12593 | °C | ≤ -15 | 7 | ≤ -18 | 8 | ≤ -18 | 8 |
| Elastic recovery | at 25°C | EN 13398 | % | ≥ 80 | 2 | ≥ 80 | 2 | ≥ 80 | 2 |
| | at 10°C | EN 13398 | NR ^a | TBR ^b | 1 | TBR ^b | 1 | TBR ^b | 1 |
| Plasticity range | | Podpunkt 5.1.9 | °C | NR ^a | 0 | NR ^a | 0 | NR ^a | 0 |
| Drop in softening point R&B after EN 12607-1 | | EN 12607-1 EN 1427 | °C | TBR ^b | 1 | TBR ^b | 1 | TBR ^b | 1 |
| Elastic recovery at 25°C after EN 12607-1 | | EN 12607-1 EN 13398 | % | ≥ 50 | 4 | ≥ 60 | 3 | ≥ 70 | 2 |
| Elastic recovery at 10°C after EN 12607-1 | | EN 12607-1 EN 13398 | % | NR ^a | 0 | TBR ^b | 1 | TBR ^b | 1 |
| Storage stability Difference in softening point R&B | | EN 13399 EN 1427 | °C | ≤ 5 | 2 | ≤ 5 | 2 | ≤ 5 | 2 |
| Storage stability Difference in penetration | | EN 13399 EN 1426 | 0,1 mm | NR ^a | 0 | NR ^a | 0 | NR ^a | 0 |

^a NR – No Requirement

^b TBR – To Be Reported