

Tests	Standards	Units	EN 12591 (European specifications)	Asphalt A	Asphalt B	Rock 3 + AP/E Core 150	Rock 1 + AP/E Core 600	Rock 2 + AP/E Core 2500
Penetration at 25°C	EN 1426	mm/10	35 / 50	47	47	47	47	46
Softening point	EN 1427	°C	50 / 58	50.8	49.2	50.2	49.6	51.0
IP	EN 12591	-	-1.5 / 07	-1.1	-1.5	-1.3	-1.4	-1.1
Mass change after RTFOT	EN 12607	%	+/- 0.5	-	-	-0.07	0.14	0.05
Retained penetration at 25°C after RTFOT	EN 12607	%	≥ 53	60	70	68	62	61
Increase in softening point after RTFOT	EN 12607	°C	≤ 8	6.6	5.1	4.8	5.4	4.2
Kinematic viscosity at 100°C	EN 12595	cSt	-	6767	4110	4654	3676	4450
Kinematic viscosity at 135°C	EN 12595	cSt	≥ 370	693	472	439	452	465
Dynamic viscosity at 60°C	EN 12596	Pa.s	≥ 225	449	276	292	286	338
Asphaltenes <i>n</i> -heptane	NF T 60-115	%		14.1	8.9	8.4	7.2	7.2
Fraass breaking point	EN 12593	°C	≤ -5	-13	-10	-6	-5	-7
Rutting depth	EN 12697-22	%		-	-	4.2	3.3	3.5
DSR on original binder	AASHTO T315	°C		71.5	67.4	68.1	67.7	68.9
DSR on binder after RTFOT	AASHTO T315	°C		70.7	66.9	67.5	68.5	67.9
DSR on binder after RTFOT and PAV	AASHTO T315	°C		21.1	26.8	26.8	28.8	28.5
BBR S-value	AASHTO T313	°C		-17.0	-9.7	-11.8	-9.6	-9.5
BBR m-value	AASHTO T313	°C		-14.4	-10.1	-13.8	-11.2	-11.0
Delta TC	-	°C		-2.6	0.4	2.0	1.6	1.5
PG T maximum	AASHTO M320	°C		70.1	66.9	67.5	67.7	67.9
PG T minimum	AASHTO M320	°C		-24.4	-19.7	-21.8	-19.6	-19.5
PG	AASHTO M320	°C		70-22	64-16	64-16	64-16	64-16

FIG. 1.

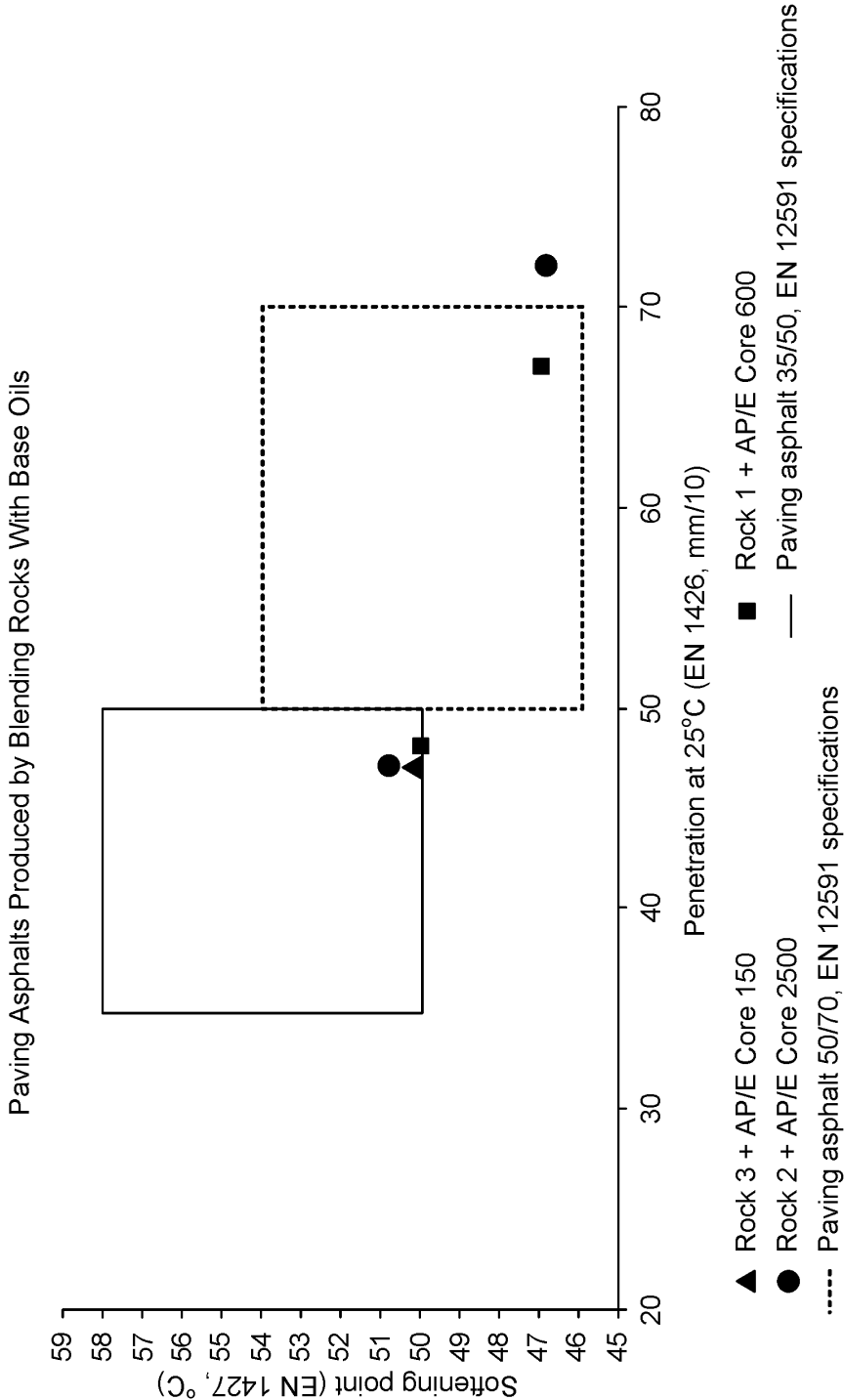


FIG. 2.

Tests	Standards	Units	JTG F40-2004 (China specifications)	Asphalt C	Asphalt D	Rock 5 + AP/E Core 150	Rock 4 + AP/E Core 600
Penetration at 25° C	ASTM D5	mm/10	60 / 80	66	63	74	62
Softening point	ASTM D36	° C	47 / 54	49	50	48.4	48.0
Ductility at 15° C	ASTM D113	cm	> 100	150	150	> 150	> 150
Ductility at 10° C	ASTM D113	cm	> 20	28	15	> 150	> 150
Dynamic viscosity at 60° C	ASTM D2171	Pa.s	> 180	208	249	197	223
Specific gravity at 25° C	ASTM D70	-	1.01 / 1.05	1.04	1.04	1.035	1.038
Mass change after TFOT	ASTM D1754	%	< 0.2	0.0	-0.3	-0.079	0.063
Retained penetration at 25° C after TFOT	ASTM D1754	%	> 61	66	63	66	71
Ductility at 10° C after TFOT	ASTM D1754	cm	> 6	6	5	10.1	8.3
DSR on original binder	ASTM D7175	° C	-	65.5	68.7	65.6	66.1
DSR on binder after RTFOT	ASTM D7175	° C	-	66.3	70.1	64.3	64.6

FIG. 3.

	Blend Ratio wt%	Rock + VTB + C600			Rock + C600		
		DR4	VTB	C600	DR5	C600	
Pen	dmm	0.485	0.485	0.03	0.915	0.085	
SP	°C	63			62		
DV60	Pas	48.8			48		
Duct@15	cm	217			223		
Duct@10	cm	150+			150+		
Wax	%	38.9			150+		
SG	-	1.7			1.7		
TCE Sol	%	1.039			1.038		
Flash point	°C	99.96			99.99		
TFOT Δ Mass	%	374			350		
TFOT % Pen	%	0.084			0.063		
TFOT Duct@10	cm	72			71		
KV100	cSt	7.1			8.3		
DSRo	°C	3667			3686		
DSRr	°C	65.9			66.1		
		64.4			64.6		

FIG. 4.