

SPECIFICATIONS FOR ASPHALT CEMENTS

June 2010

Asphalt cements shall conform to the requirements specified in the following table:

TEST CHARACTERISTICS	A.S.T.M. TEST METHODS	PREMIUM GRADE OF ASPHALT CEMENTS				REGULAR GRADES OF ASPHALT CEMENTS																																																																																																																									
		120-150(A)	150-200(A)	200-300(A)	300-400(A)	200-300(B)	300-400(B)																																																																																																																								
Absolute Viscosity, 60°, Pa-s Penetration, 25°C, 100 g. 5 s in dmm	D2171 D5	The viscosity and penetration values must fall within the area bounded by M to N to B to A to M, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>M</td><td>230</td><td>(2300)</td><td>120</td></tr><tr><td>N</td><td>109</td><td>(1090)</td><td>120</td></tr><tr><td>B</td><td>78</td><td>(780)</td><td>150</td></tr><tr><td>A</td><td>155</td><td>(1550)</td><td>150</td></tr></table>	Point	Abs.	Visc.	Pen.	M	230	(2300)	120	N	109	(1090)	120	B	78	(780)	150	A	155	(1550)	150	The viscosity and penetration values must fall within the area bounded by A to B to C to D to A, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>A</td><td>155</td><td>(1550)</td><td>150</td></tr><tr><td>B</td><td>78</td><td>(780)</td><td>150</td></tr><tr><td>C</td><td>50</td><td>(500)</td><td>200</td></tr><tr><td>D</td><td>92</td><td>(920)</td><td>200</td></tr></table>	Point	Abs.	Visc.	Pen.	A	155	(1550)	150	B	78	(780)	150	C	50	(500)	200	D	92	(920)	200	The viscosity and penetration values must fall within the area bounded by M to N to B to A to M, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>C</td><td>50</td><td>(500)</td><td>200</td></tr><tr><td>D</td><td>92</td><td>(920)</td><td>200</td></tr><tr><td>E</td><td>45</td><td>(450)</td><td>300</td></tr><tr><td>F</td><td>26.5</td><td>(265)</td><td>300</td></tr></table>	Point	Abs.	Visc.	Pen.	C	50	(500)	200	D	92	(920)	200	E	45	(450)	300	F	26.5	(265)	300	The viscosity and penetration values must fall within the area bounded by M to N to B to A to M, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>E</td><td>45</td><td>(450)</td><td>300</td></tr><tr><td>F</td><td>26.5</td><td>(265)</td><td>300</td></tr><tr><td>G</td><td>17</td><td>(170)</td><td>400</td></tr><tr><td>H</td><td>27</td><td>(270)</td><td>400</td></tr></table>	Point	Abs.	Visc.	Pen.	E	45	(450)	300	F	26.5	(265)	300	G	17	(170)	400	H	27	(270)	400	The viscosity and penetration values must fall within the area bounded by M to N to B to A to M, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>C</td><td>50</td><td>(500)</td><td>200</td></tr><tr><td>J</td><td>30</td><td>(300)</td><td>200</td></tr><tr><td>K</td><td>17.5</td><td>(175)</td><td>300</td></tr><tr><td>F</td><td>27</td><td>(270)</td><td>300</td></tr></table>	Point	Abs.	Visc.	Pen.	C	50	(500)	200	J	30	(300)	200	K	17.5	(175)	300	F	27	(270)	300	The viscosity and penetration values must fall within the area bounded by A to B to C to D to A, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>F</td><td>26.5</td><td>(265)</td><td>300</td></tr><tr><td>K</td><td>17.5</td><td>(175)</td><td>300</td></tr><tr><td>L</td><td>12</td><td>(120)</td><td>400</td></tr><tr><td>G</td><td>17</td><td>(170)</td><td>400</td></tr></table>	Point	Abs.	Visc.	Pen.	F	26.5	(265)	300	K	17.5	(175)	300	L	12	(120)	400	G	17	(170)	400
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Kinematic Viscosity, 135°C, mm ² /s Penetration, 25°C, 100g. 5 s in dmm	D2170 D5	The viscosity and penetration values must fall within the area bounded by M to N to B to A to M, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>M</td><td>435</td><td>(435)</td><td>120</td></tr><tr><td>N</td><td>305</td><td>(305)</td><td>120</td></tr><tr><td>B</td><td>255</td><td>(255)</td><td>150</td></tr><tr><td>A</td><td>360</td><td>(360)</td><td>150</td></tr></table>	Point	Abs.	Visc.	Pen.	M	435	(435)	120	N	305	(305)	120	B	255	(255)	150	A	360	(360)	150	The viscosity and penetration values must fall within the area bounded by A to B to C to D to A, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>A</td><td>360</td><td>(360)</td><td>150</td></tr><tr><td>B</td><td>55</td><td>(255)</td><td>150</td></tr><tr><td>C</td><td>205</td><td>(205)</td><td>200</td></tr><tr><td>D</td><td>285</td><td>(285)</td><td>200</td></tr></table>	Point	Abs.	Visc.	Pen.	A	360	(360)	150	B	55	(255)	150	C	205	(205)	200	D	285	(285)	200	The viscosity and penetration values must fall within the area bounded by M to N to B to A to M, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>C</td><td>205</td><td>(205)</td><td>260</td></tr><tr><td>D</td><td>285</td><td>(285)</td><td>200</td></tr><tr><td>E</td><td>205</td><td>(205)</td><td>300</td></tr><tr><td>F</td><td>150</td><td>(150)</td><td>300</td></tr></table>	Point	Abs.	Visc.	Pen.	C	205	(205)	260	D	285	(285)	200	E	205	(205)	300	F	150	(150)	300	The viscosity and penetration values must fall within the area bounded by M to N to B to A to M, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>E</td><td>205</td><td>(205)</td><td>300</td></tr><tr><td>F</td><td>150</td><td>(150)</td><td>300</td></tr><tr><td>G</td><td>120</td><td>(120)</td><td>400</td></tr><tr><td>H</td><td>165</td><td>(165)</td><td>400</td></tr></table>	Point	Abs.	Visc.	Pen.	E	205	(205)	300	F	150	(150)	300	G	120	(120)	400	H	165	(165)	400	The viscosity and penetration values must fall within the area bounded by M to N to B to A to M, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>C</td><td>205</td><td>(205)</td><td>200</td></tr><tr><td>J</td><td>165</td><td>(165)</td><td>200</td></tr><tr><td>K</td><td>125</td><td>(125)</td><td>300</td></tr><tr><td>F</td><td>150</td><td>(150)</td><td>300</td></tr></table>	Point	Abs.	Visc.	Pen.	C	205	(205)	200	J	165	(165)	200	K	125	(125)	300	F	150	(150)	300	The viscosity and penetration values must fall within the area bounded by A to B to C to D to A, plotted as straight lines on a full logarithmic plot (log-log), with the co-ordinates of the points as follows: <table border="1" style="font-size: small; width: 100%;"><tr><th>Point</th><th>Abs.</th><th>Visc.</th><th>Pen.</th></tr><tr><td>F</td><td>150</td><td>(150)</td><td>300</td></tr><tr><td>K</td><td>125</td><td>(125)</td><td>300</td></tr><tr><td>L</td><td>102.5</td><td>(102.5)</td><td>400</td></tr><tr><td>G</td><td>120</td><td>(120)</td><td>400</td></tr></table>	Point	Abs.	Visc.	Pen.	F	150	(150)	300	K	125	(125)	300	L	102.5	(102.5)	400	G	120	(120)	400
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Flash Point, Cleveland Open Cup, min. °C	D92	205	205	175	175	175	175																																																																																																																								
Solubility, min. % Tests on Residue from Rolling Thin-Film Oven Test:	D2042 D2872		99.5	99.5	99.5	99.5	99.5																																																																																																																								
Ratio of Absolute Viscosity of Residue from Rolling Thin-Film Oven Test to Original Absolute Viscosity, Max		4.0	4.0	4.0	4.0	5.0	5.0																																																																																																																								
Ductility, 25°C, 5 cm/min., cm 15.56°C, 5 cm/min., cm	D113	100 --	100 --	-- 100	-- 100	-- 100	-- 100																																																																																																																								
General Requirements	- The asphalt shall be prepared by the refining of petroleum, it shall be uniform in character and shall not foam when heated to 175°C. - The temperature at delivery to the site shall be between 135°C and 175°C.																																																																																																																														