

Products

- ✓ Air Blowing Bitumen
 - Penetration Grade
 - Performance Grade (PG)
 - Viscosity Grade (VG)
- ✓ Australian Standard
- ✓ Cutback Bitumen - Medium Curing
- ✓ Bitumen Emulsion
- ✓ Modified Bitumen
- ✓ Customized Bitumen

محصولات تولیدی

- ✓ انواع قیرهای دمیده بر اساس استانداردهای
 - نفوذی
 - عملکردی
 - گرانی
- ✓ تولید انواع قیر مطابق با استاندارد کشور استرالیا
- ✓ تولید انواع قیرهای محلول (کند گیر)
- ✓ تولید انواع قیرهای امولسیون
- ✓ تولید انواع قیرهای اصلاح شده
- ✓ تولید انواع قیر مطابق با نیاز مشتری

Performance Grade (PG)

PG 52 – 28
PG 52 – 22
PG 52 – 16
PG 52 – 10
PG 58 – 22
PG 58 – 16
PG 58 – 10
PG 64 – 22
PG 64 – 16
PG 64 – 10
PG 70 – 22
PG 70 – 16
PG 70 – 10
PG 76 – 10

Australian Standard

170 WA
C 170
C 240
C 330
C450
C600

Viscosity Grade (VG)

VG 10
VG 20
VG 30
VG 40

Bitumen Emulsion

Cationic

Slow Set (SS)

Medium Set (MS)

Rapid Set (RS)

Quick Set (QS)

Anionic

Slow Set (SS)

Medium Set (MS)

Rapid Set (RS)

Quick Set (QS)

Air Blowing Bitumen

ASTM/ AASHTO

EN

40/50

30/45

60/70

35/50

85/100

40/60

120/150

50/70

200/300

70/100

100/150

160/220

Cutback Bitumen

MC – 30

MC – 70

MC – 250

MC – 800

MC – 3000

Product Specifications **Bitumen 40-50**

Analysis	Unit	Limit	Test Method
Density @ 25°C	kg/m ³	1010-1060	ASTM D70 or D3289
Penetration @ 25°C	mm/10	40-50	ASTM D5
Softening point	°C	49 min	ASTM D36
Ductility @ 25°C	cm	100 min	ASTM D113
Loss on heating	wt%	0.2 max	ASTM D6
Drop in penetration after heating	%	20 max	ASTM D5
Flash point	°C	230 min	ASTM D92
Solubility in Trichloroethylene	wt%	99.0 min	ASTM D2042
Spot test	----	Negative	AASHTO T102
Dynamic Viscosity @ 60°C	Pa.S	400±80	ASTM D2171
Kinematic Viscosity @ 135°C	cSt	400 min	ASTM D2170
Wax Content	%	2 max	DIN EN 12606-1

Tests on residue from thin film oven Test (ASTM D1754)

Retained Penetration after (T.F.O.T), %	%	55 min	ASTM D5
Viscosity @ 60°C	Pa.S	2000 max	ASTM D2171



Product Specifications **Bitumen 60-70**

Analysis	Unit	Limit	Test Method
Density @ 25°C	kg/m³	1010-1060	ASTM D70 or D3289
Penetration @ 25°C	mm/10	60-70	ASTM D5
Softening point	°C	46 min	ASTM D36
Ductility @ 25°C	cm	100 min	ASTM D113
Loss on heating	wt%	0.2 max	ASTM D6
Drop in penetration after heating	%	20 max	ASTM D5
Flash point	°C	230 min	ASTM D92
Solubility in Trichloroethylene	wt%	99.0 min	ASTM D2042
Spot test	----	Negative	AASHTO T102
Dynamic Viscosity @ 60°C	Pa.S	200±40	ASTM D2171
Kinematic Viscosity @ 135°C	cSt	300 min	ASTM D2170
Wax Content	%	2 max	DIN EN 12606-1
Tests on residue from thin film oven Test (ASTM D1754)			
Retained Penetration after (T.F.O.T), %	%	52 min	ASTM D5
Ductility, (25°C), 5cm/min, cm after TFOT	cm	50 min	ASTM D113
Viscosity @ 60°C	Pa.S	1000 max	ASTM D2171



Product Specifications **Bitumen 85-100**

Analysis	Unit	Limit	Test Method
Density @ 25°C	kg/m ³	1010-1050	ASTM D70 or D3289
Penetration @ 25°C	mm/10	85-100	ASTM D5
Softening point	°C	42 min	ASTM D36
Ductility @ 25°C	cm	100 min	ASTM D113
Loss on heating	wt%	0.5 max	ASTM D6
Drop in penetration after heating	%	20 max	ASTM D5
Flash point	°C	230 min	ASTM D92
Solubility in Trichloroethylene	wt%	99.0 min	ASTM D2042
Spot test	----	Negative	AASHTO T102
Dynamic Viscosity @ 60°C	Pa.S	100±20	ASTM D2171
Kinematic Viscosity @ 135°C	cSt	250 min	ASTM D2170
Wax Content	%	2 max	DIN EN 12606-1

Tests on residue from thin film oven Test (ASTM D1754)

Retained Penetration after (T.F.O.T), %	%	47 min	ASTM D5
Ductility, (25°C), 5cm/min, cm after TEOT	cm	75 min	ASTM D113
Viscosity @ 60°C	Pa.S	500 max	ASTM D2171

Product Specifications **Bitumen 120-150**

Analysis	Unit	Limit	Test Method
Density @ 25°C	kg/m ³	1000-1050	ASTM D70 or D3289
Penetration @ 25°C	mm/10	120-150	ASTM D5
Softening point	°C	37 min	ASTM D36
Ductility @ 25°C	cm	100 min	ASTM D113
Loss on heating	wt%	0.5 max	ASTM D6
Drop in penetration after heating	%	20 max	ASTM D5
Flash point	°C	220 min	ASTM D92
Solubility in Trichloroethylene	wt%	99.0 min	ASTM D2042
Spot test	----	Negative	AASHTO T102
Dynamic Viscosity @ 60°C	Pa.S	45±9	ASTM D2171
Kinematic Viscosity @ 135°C	cSt	170 min	ASTM D2170
Wax Content	%	2 max	DIN EN 12606-1

Tests on residue from thin film oven Test (ASTM D1754)

Retained Penetration after (T.F.O.T), %	%	42 min	ASTM D5
Ductility, (25°C), 5cm/min, cm after TFOT	cm	100 min	ASTM D113
Viscosity @ 60°C	Pa.S	225 max	ASTM D2171



Products Specifications

Characteristic	Unit	35-50	50-70	70-100	100-150	160-220	Test Method
Penetration @ 25°C	dmm	35-50	50-70	70 -100	100-150	160-220	EN 1426
Softening Point	°C	50-58	46-54	43-51	39-47	35-43	EN 1427
Resistance to Hardening @163°C:							
Retained Penetration	%	53 min	50 min	46 min	43 min	37 min	EN 12607-1
Change of Mass	%	0.5 max	0.5 max	0.8 max	0.8 max	1.0 max	
Flash Point	°C	240 min	230 min	230 min	230 min	220 min	EN ISO 2592
Solubility	%	99.0 min	99.0 min	99.0 min	99.0 min	99.0 min	EN 12592
Penetration Index	-	-1.5 to +0.7	-1.5 to +0.7	-1.5 to +0.7	-1.5 to +0.7	-1.5 to +0.7	EN 12591-Annex A
Dynamic Viscosity @ 60°C	Pa.S	225 min	145 min	90 min	55 min	30 min	EN 12596
Fraass Breaking Point	°C	-5 max	-8 max	-10 max	-12 max	-15 max	EN 12593
Kinematic Viscosity @ 135°C	cSt	370 min	295 min	230 min	175 min	135 min	EN 12595



Requirement for Asphalt cement SM GOST 22245-90
Product Specifications **Bitumen 60-90**

Specifications	60-90	Test Method
Specific Gravity	1.00-1.25	ASTM D3289
Penetration (25°C, 100g, 5s), 0.1mm	60-90	ASTM D5
Softening point,°C	40-60	ASTM D36
Flash point,°C	min 230	ASTM D92
Ductility (25°C, 5cm/min),cm	min 100	ASTM D113
Solubility in TCE, wt%	min 99.5	ASTM D4
Spot Test	negative	AASHTO T102
Loss on heating, wt%	max 0.03	ASTM D6



قیرهای طبقه بندی عملکردی (PG)

هدف از تولید قیرهای طبقه بندی عملکردی (PG) با در نظر گرفتن کاربرد آن بر اساس شرایط محیطی، اثرات آب و هوایی، ساخت و ساز، اعمال بار در دوران اجرا و بهره برداری و میزان ترافیک می باشد

Performance Grade (PG)

PG 52 - 28	PG 64 - 22
PG 52 - 22	PG 64 - 16
PG 52 - 16	PG 64 - 10
PG 52 - 10	PG 70 - 22
PG 58 - 22	PG 70 - 16
PG 58 - 16	PG 70 - 10
PG 58 - 10	PG 76 - 10

مزایای استفاده از قیرهای طبقه بندی عملکردی :

- کاهش حساسیت حرارتی
- افزایش خاصیت الاستیسیته
- افزایش مقاومت تنشی
- افزایش عمر کاربری
- افزایش دامنه سرویس دهی از نظر دما
- کاهش میزان خرابی جاده ای

تولید سایر قیرهای (PG) اصلاح شده بنا به درخواست مشتری

Performance Grade	PG52			PG58			PG64			PG70		PG76	Test Method
	10	16	22	10	16	22	10	16	22	10	16	10	
Average 7-day maximum Pavement Design Temperature, °C	.52			.58			.64			<70		<76	
minimum Pavement Design Temperature, °C	>10	>16	>22	>10	>16	>22	>10	>16	>22	>10	>16	>10	
Original Binder													
Flash Point Temperature Minimum °C	230												AASHTO T48
Viscosity maximum 3 Pa.s ,Test Temperature, °C	135												AASHTO T316
Dynamic Shear G*/sin σ minimum 1 KPa Test Temperature, °C	52			58			64			70		76	AASHTO T315
Rolling Thin Film Oven Test													AASHTO T240
Mass change maximum percent	1.00												
Dynamic Shear G*/sin σ minimum 2.2 KPa Test Temperature @ 10 rad/s °C	52			58			64			70		76	AASHTO T315
Pressure Aging Vessel													AASHTO R28
PAV aging Temperature, °C	90			100			100			100(110)		100(110)	
Dynamic Shear G*,sin σ maximum 5000 KPa Test Temperature @ 10 rad/s °C	25	22	19	28	25	22	31	28	25	34	31	37	AASHTO T315
Creep Stiffness S maximum 300 Mpa m-value minimum 0,300 Test Temperature @ 60s °C	0	-6	-12	0	-6	-12	0	-6	-12	0	-6	0	AASHTO T313
Direct Tension Failure strain minimum 1 % Test Temperature @ 1 mm/min °C	0	-6	-12	0	-6	-12	0	-6	-12	0	-6		AASHTO T314
Critical low cracking Temperature Critical cracking determined by PP42 Test Temperature	0	-6	-12	0	-6	-12	0	-6	-12	0	-6	0	AASHTO PP42



Product Specifications **Viscosity Grade Bitumen**

Conforms to BIS (IS 73:2006) Specifications

	Specification				Test Method
	VG 40	VG 30	VG 20	VG 10	
Absolute Viscosity at 60°C, Poises	Min. 3200	Min. 2400	Min. 1600	Min. 800	IS 1206 (Part 2)
Kinematic Viscosity at 135°C, cSt	Min. 400	Min. 350	Min. 300	Min. 250	IS 1206 (Part 3)
Flash Point (Cleveland Open Cup), °C	Min. 220	Min. 220	Min. 220	Min. 220	IS 1209
Solubility in trichloroethylene, %	Min. 99	Min. 99	Min. 99	Min. 99	IS 1206
Softening Point (R&B), °C	Min. 50	Min. 47	Min. 45	Min. 40	IS 1205
Penetration @ 25°C (100 g, 5 sec.), 0.1 mm	40 - 60	50 - 70	60 - 80	80 - 100	IS 1203

Testson residue from thin film oven Tests/RTFOT

i) Viscosity ratio at 60°C	Max. 4.0	Max. 4.0	Max. 4.0	Max. 4.0	IS 1206 (Part 2)
ii) Ductility at 25°C, cm, after thin film oven test	Min. 25	Min. 40	Min. 50	Min. 75	IS 1208
Specific Gravity @ 27/27 °C	Min. 0.99	Min. 0.99	Min. 0.99	Min. 0.99	IS 1202



Product Specifications Bitumen Emulsions

Specification of Cationic Bitumen Emulsions	Quick - Setting		Rapid - Setting				Medium - Setting				Slow - Setting			
	CQS_1h		CRS_1		CRS_2		CMS_2		CMS_2h		CSS_1		CSS_1h	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Test on emulsions :														
Viscosity, Saybolt Furol at 25°C SFs	20	100	—	—	—	—	—	—	—	—	20	100	20	100
Viscosity, Saybolt Furol at 50°C SFs	—	—	20	100	100	400	50	450	50	450	—	—	—	—
Storage stability test, 24 - h, %A	—	1	—	1	—	1	—	1	—	1	—	1	—	1
Demulsibility, 35 mL, 0.8 % dioctyl sodium	—	—	40	—	40	—	—	—	—	—	—	—	—	—
Particle charge test	positive		positive		positive		positive		positive		positive		positive	
Sieve test, %A	—	0.1	—	0.1	—	0.1	—	0.1	—	0.1	—	0.1	—	0.1
Cement mixing test, %	—	N/A	—	—	—	—	—	—	—	—	—	2	—	2
Coating ability and water resistance :														
Coating, dry aggregate	—	—	—	—	—	—	good	—	good	—	—	—	—	—
Coating, after spraying	—	—	—	—	—	—	fair	—	fair	—	—	—	—	—
Coating, wet aggregate	—	—	—	—	—	—	fair	—	fair	—	—	—	—	—
Coating, after spraying	—	—	—	—	—	—	fair	—	fair	—	—	—	—	—
Distillation:														
Oil distillate, by volume of emulsion, %	—	—	—	3	—	3	—	12	—	12	—	—	—	—
Residue, %	57	—	60	—	65	—	65	—	65	—	57	—	57	—
Tests on residue from distillation test:														
Penetration, 25°C, 100 g, 5 s	40	90	100	250	100	250	100	250	40	90	100	250	40	90
Ductility, 25°C, 5 cm/min, cm	40	—	40	—	40	—	40	—	40	—	40	—	40	—
Solubility in trichloroethylene, %	97.5	—	97.5	—	97.5	—	97.5	—	97.5	—	97.5	—	97.5	—



Requirement for Cutback Asphalt (Medium-Curing Type) ASTM D2027

Product Specifications **Cutback Bitumen MC**

Designation	MC-30		MC-70		MC-250		MC-800		MC-3000	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Kinematic viscosity at 60°C [140°F], mm²/s	30	60	70	140	250	500	800	1600	3000	6000
Flash point (Tag open-cup), °C [°F]	38 [100]	.....	38 [100]	.....	66[150]	.....	66[150]	.....	66[150]	.....
Distillate test:										
Distillate, volume percent of total distillate to 360°C [680°F]:										
to 225°C [437°F]	.....	35	.....	25	.....	20	.....	.....	.....	.....
to 260°C [500°F]	30	75	10	70	5	55	.....	40	.....	15
to 316°C [600°F]	75	95	65	93	60	90	45	85	15	75
Residue from distillation to 360°C [680°F], percent volume by difference	50	....	55	.....	67	.....	75	.....	80	.....
Tests on residue from distillation:										
Viscosity at 60°C [140°F], Pa · s ^A	30	120	30	120	30	120	30	120	30	120
Ductility at 25°C [77°F], cm	100	.....	100	.....	100	.....	100	.....	100	.....
Solubility in trichloroethylene,	99.0%	.....	99.0%	.....	99.0%	.....	99.0%	.....	99.0%	.....
Water, %	....	0.2	....	0.2	....	0.2	....	0.2	....	0.2

^A Instead of viscosity of the residue, the specifying agency, at its option, can specify penetration 100 g: 5 s at 25°C [77°F] of 120 to 300 for Grades MC-30, MC-70, and MC-250, and 120 to 250 for MC-800 and MC-3000. However, in no case will both be required.

NOTE 1- If the ductility at 25°C [77°F] is less than 100, the material will be acceptable if its ductility at 15°C [59°F] is more than 100.

