petraoil BITUMEN

https://www.petraoilbitumen.com

ABOUT US

Petra Oil Bitumen is a part of the Buhari Holding Group of companies. Established in the 1920's by Buhari Alim the company is now in its 4th generation of operation. The global turnover of the organization is over USD two billion. The group has offices in over 80 countries and a combined work force of 20,000.Petra Oil Bitumen is the bitumen trading wing of the Group.

The Buhari Group itself has been in the UAE since the 1970s' and have been one of the earliest contributors to the growth of UAE.
Petra Oil started their journey by supplying Bitumen to the In-house companies, going forward it emerged and developed to distributing Bitumen to the Exterior companies as well.

Due to its competitive pricing and high standard of quality manufacturing, Petra Oil Bitumen has evolved to become one of the renowned company names in the field of road construction.

Application

Roadways

Petra Oil Bitumen is associated with many prestigious road projects. Some of the applications of Petra Oil Bitumen have been in the use with state highways, national highways, urban and rural roads, Department of works, testing tracks. Petra Oil has vast in-house experience of 50 years in the field of civil construction and engineering. Our technical department ensures that our products strictly adhere to the testing standards of the various departments and Ministries in the many markets that we operate in.

Airport Runways

Petra Oil Bitumen and Emulsion products have been applied intensively in the use of airport runways. Taking into consideration the conditions of the international civil aviation organization for both wide-body and standards aircraft landings and pavements. Our technical engineers are available for advice round the clock.

Proving Ground & Testing Tracks

Petra Oil Bitumen has been used in various proving ground testing tracks for vehicle manufactures. Some of the notable names we have worked with-are for Suzuki and Renault. Given the detailed sensitivity of the testing requirements and adherence to the safety factors for civil use Petra Oil Bitumen has been a proven choice with vehicle manufacturers.

Waterproofing

Petra Oil waterproofing bitumen has been used in the field of civil construction for buildings and for dam projects. The main application of this type of bitumen is for prime coating, roofing, insulation, and also through the laying of bitumen sheets in toilet, walls, roofs and garden areas.
Grades Available are: 85/25 , Type 1, Type 2, Type 3, Oxidized Bitumen.

petrabel BITUMEN

Packing

Drums

Our drums come in net weight sizes of 145 kgs, 180 kgs and 200 kgs manufactured from European standard new steel sheets. Thickness can also be customized from the standard 0.6 mm thickness to 1.0 mm thickness.

Drums are transported in 20 ft container with a net weight of 20 mt and 40 ft containers with 26 mts.

Jumbo Bags

Bitumen in jumbo bags come in 750 kg- 1 mt size. The jumbo bags come in 3 layers of polyethylene sheets which is fully submersible in bitumen. The plastic also provides re-strengthening properties to the asphalt cement.

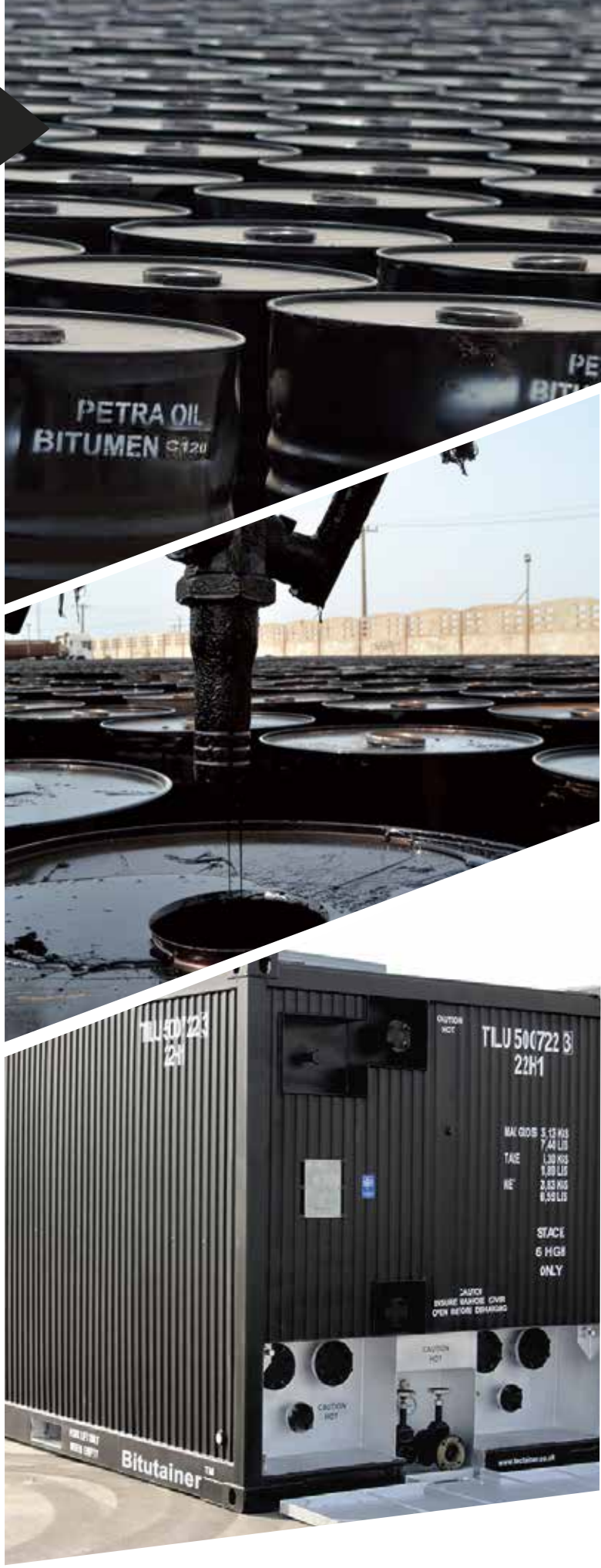
For transportation of the jumbo bags there is a single layer of ldpe material with handles which can be moved with regular forklift. The bags are slit on the bottom to allow the bitumen to flow into the tanks through gravity.

ISO Tanks- Bitutainers

Petra Oil delivers bitumen in remote locations through iso tank containers also known as bitutainers. These bitutainers are certified by classification societies for road, rail and sea transportation. The bitumen is transferred in cold form and is heated at site by attaching diesel burners.

General Specifications

- Construction: Standard 20ft bulk liquid container
- Max. Gr. Weight: 23-31 mt
- Temperature Range: up to 180°c
- Controllable direct flame heating options: Diesel or LPG
- Discharge: Bottom ball valve
- Suitable for full intermodal transportation ocean, land, & railway
- Ideal for temporary storage
- Fully insulated with robust outer skin



Trade Finance

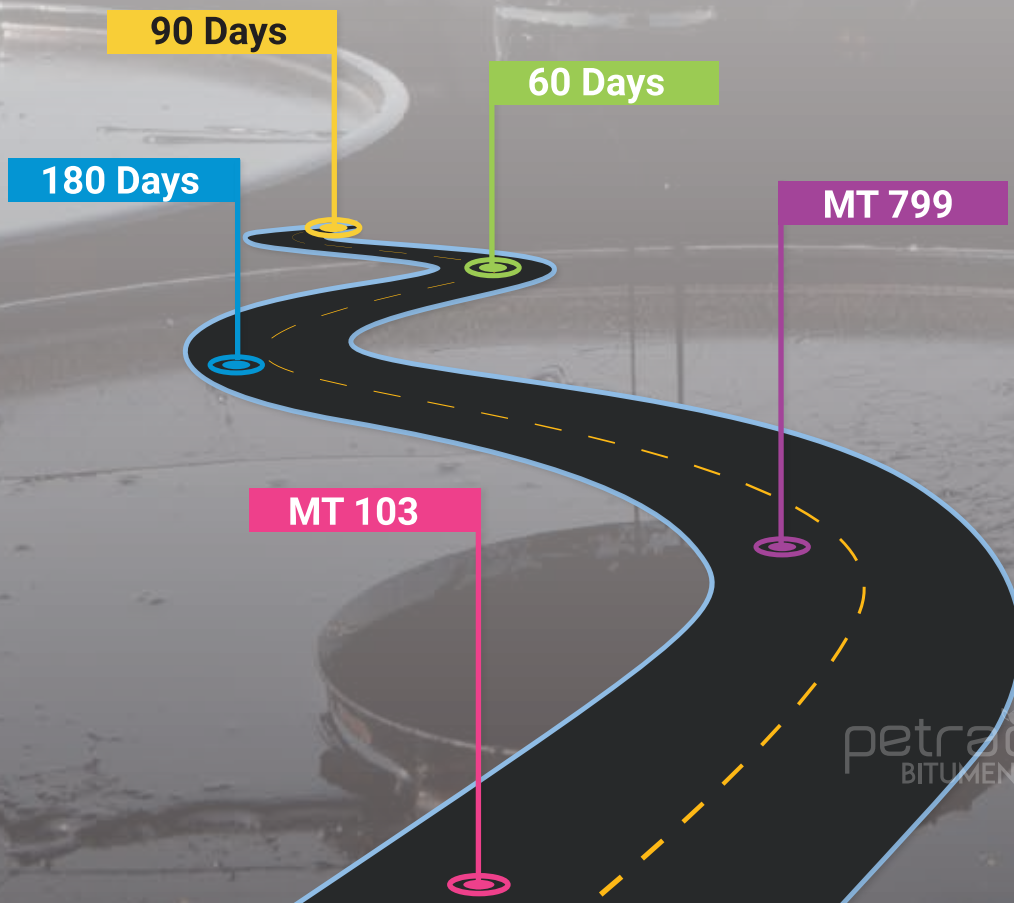
Trade Finance is an integral part in Petra Oil's service to the construction industry. Taking into consideration the requirements of the road contractor and delayed payment patterns within the construction cycle Petra Oil bitumen values its role as not only a bitumen trader but also a provider of trade finance services.

Petra Oil, in colloboration with repuatable logistics providers, will deliver bitumen upto the doorstep of the road contractor. The total value of the cargo with delivery and local charges will be covered at low international letter of credit rates.

Deferred payment periods between 30 to 180 days from delivery date. The rate is at a slight premium from libor (london interbank offered rate)

This facility ensures that the contractor does not block their working capital on the purcahse of bitumen for their projects.

The Finance Department now can deploy their cash to other departments in their projects such as labor and equipment.
Deffered payments are also suitable for road projects where the payback period can stretch from 90 days to 180 days.



Type Of Bitumen

Penetration Grade

In 1918, the bureau of public roads (now the Federal Highway administration), introduced the penetration grading system by developing various penetration grades suited to different climatic conditions and applications. Penetration grading was developed to characterize the consistency of bitumen. Petra Oil bitumen is available in the following penetration grades 40/50, 50/70, 60/70, 80/100

Viscosity Grade

The variability in performance at high temperatures can be addressed by adopting a viscosity-graded bitumen specification. Visocisty graded bitumen is available in the following grades;
VG20, VG 30, VG40, C170, C320

Emulsions & PMB

Petra Oil Bitumen Emulsions are primarily classified into the following two types depending on the surface charge.

- Anionic bitumen emulsion
- Cationic bitumen emulsion

The choice of bitumen emulsion (i.e. Whether anionic or cationic) to be used depends upon the mineral composition of aggregate used for construction. In case of silica rich aggregates, the surface of the aggregates are electro-negatively charged. Therefore a cationic emulsion should be used. This will help better spreading and binding of bitumen with aggregates..

- Rapid setting emulsion (rs)
- Medium setting emulsion (ms)
- Slow setting emulsion (ss)

Petra Oil bitumen emulsions are available in the following grades:
K1-40, K1-60, Mc 250, Mc 30, Mc 3000, Css-1, Crs-1, PMB 30 PMB 40, 82-10

Technical Specification

Bitumen Penetration Grade

Bitumen-10-20

Properties	Unit	Range		Method
		Min	Max	
Penetration @ 25°C	MM/10	10	20	ASTM D5
Specific Gravity @ 25°C	Kg/Cm3	1.01	1.06	ASTM D70
Softening Point °C	°C	58	66	ASTM D36
Ductility @ 25°C	CM	100	-	ASTM D113
Loss on Heating (wt) %	WT %	-	0.2	ASTM D6
Drop in Penetration After Heating	%	-	20	ASTM D5-D6
Flash Point °C	°C	250	-	ASTM D92
Solubility is CS2 (wt) %	WT %	99	-	ASTM D2042
Spot Test	@	Negative	-	AASHTO 102

Bitumen-20-30

Properties	Unit	Range		Method
		Min	Max	
Penetration @ 25°C	MM/10	20	30	ASTM D5
Specific Gravity @ 25°C	Kg/Cm3	1.01	1.06	ASTM D70
Softening Point °C	°C	55	63	ASTM D36
Ductility @ 25°C	CM	100	-	ASTM D113
Loss on Heating (wt) %	WT %	-	0.2	ASTM D6
Drop in Penetration After Heating	%	-	20	ASTM D5-D6
Flash Point °C	°C	250	-	ASTM D92
Solubility is CS2 (wt) %	WT %	99	-	ASTM D2042
Spot Test	@	Negative	-	AASHTO 102

Bitumen-30-40

Properties	Unit	Range		Method
		Min	Max	
Penetration @ 25°C	MM/10	30	40	ASTM D5
Specific Gravity @ 25°C	Kg/Cm3	1.01	1.06	ASTM D70
Softening Point °C	°C	54	62	ASTM D36
Ductility @ 25°C	CM	100	-	ASTM D113
Loss on Heating (wt) %	WT %	-	0.2	ASTM D6
Drop in Penetration After Heating	%	-	20	ASTM D5-D6
Flash Point °C	°C	250	-	ASTM D92
Solubility is CS2 (wt) %	WT %	99	-	ASTM D2042
Spot Test	@	Negative	-	AASHTO 102

Bitumen-40-50

Properties	Unit	Range		Method
		Min	Max	
Penetration @ 25°C	MM/10	40	50	ASTM D5
Specific Gravity @ 25°C	Kg/Cm3	1.01	1.06	ASTM D70
Softening Point °C	°C	52	60	ASTM D36
Ductility @ 25°C	CM	100	-	ASTM D113
Loss on Heating (wt) %	WT %	-	0.2	ASTM D6
Drop in Penetration After Heating	%	-	20	ASTM D5-D6
Flash Point °C	°C	250	-	ASTM D92
Solubility is CS2 (wt) %	WT %	99	-	ASTM D2042
Spot Test	@	Negative	-	AASHTO 102

Bitumen-60-70

Properties	Unit	Range		Method
		Min	Max	
Penetration @ 25°C	MM/10	60	70	ASTM D5
Specific Gravity @ 25°C	Kg/Cm3	1.01	1.06	ASTM D70
Softening Point °C	°C	48	56	ASTM D36
Ductility @ 25°C	CM	100	-	ASTM D113
Loss on Heating (wt) %	WT %	-	0.2	ASTM D6
Drop in Penetration After Heating	%	-	20	ASTM D5-D6
Flash Point °C	°C	232	-	ASTM D92
Solubility is CS2 (wt) %	WT %	99	-	ASTM D2042
Spot Test	@	Negative	-	AASHTO 102

Bitumen-70-100

Properties	Unit	Range		Method
		Min	Max	
Penetration @ 25°C	MM/10	70	100	ASTM D5
Specific Gravity @ 25°C	Kg/Cm3	1.01	1.06	ASTM D70
Softening Point °C	°C	43	51	ASTM D36
Ductility @ 25°C	CM	100	-	ASTM D113
Loss on Heating (wt) %	WT %	-	0.2	ASTM D6
Drop in Penetration After Heating	%	-	20	ASTM D5-D6
Flash Point °C	°C	232	-	ASTM D92
Solubility is CS2 (wt) %	WT %	99	-	ASTM D2042
Spot Test	@	Negative	-	AASHTO 102

Bitumen- 80-100

Properties	Unit	Range		Method
		Min	Max	
Penetration @ 25°C	MM/10	70	100	ASTM D5
Specific Gravity @ 25°C	Kg/Cm3	1.01	1.06	ASTM D70
Softening Point °C	°C	42	50	ASTM D36
Ductility @ 25°C	CM	100	-	ASTM D113
Loss on Heating (wt) %	WT %	-	0.5	ASTM D6
Drop in Penetration After Heating	%	-	20	ASTM D5-D6
Flash Point °C	°C	232	-	ASTM D92
Solubility is CS2 (wt) %	WT %	99	-	ASTM D2042
Spot Test	@	Negative	-	AASHTO 102

Bitumen-120-150

Properties	Unit	Range		Method
		Min	Max	
Penetration @ 25°C	MM/10	120	150	ASTM D5
Specific Gravity @ 25°C	Kg/Cm3	1.01	1.06	ASTM D70
Softening Point °C	°C	38	44	ASTM D36
Ductility @ 25°C	CM	100	-	ASTM D113
Loss on Heating (wt) %	WT %	-	0.5	ASTM D6
Drop in Penetration After Heating	%	-	20	ASTM D5-D6
Flash Point °C	°C	220	-	ASTM D92
Solubility is CS2 (wt) %	WT %	99	-	ASTM D2042
Spot Test	@	Negative	-	AASHTO 102

Cutback Bitumen

MC 30

	Min	Max Limit	Test Method
Kinematic Viscosity at 60°C mm2/S	30	60	ASTM/BS EN
Flash Point (Tag Open-Cup) , °C	70	100	ASTM/BS EN
Distillate test: Distillate Volume, percent of total distillate to 360°C	43	51	ASTM/BS EN
To: 225°C	–	35	ASTM/BS EN
To: 260°C	40	70	ASTM/BS EN
To: 316 °C	75	93	ASTM/BS EN
Residue from distillation to 360°C	50	–	ASTM/BS EN
Test on Residue from Distillation			
Viscosity at 60°c	30	140	ASTM/BS EN
Penetration at 25°c	120	300	ASTM/BS EN
Ductility at 25°c	100		ASTM/BS EN
Solubility in trichloroethylene, %	99		ASTM/BS EN
Water %	_	0.2	ASTM/BS EN

MC 70

	Min	Max Limit	Test Method
Kinematic Viscosity at 60°C mm2/S	70	140	ASTM/BS EN
Flash Point (Tag Open-Cup) , °C	38	–	ASTM/BS EN
Distillate test: Distillate Volume, percent of total distillate to 360°C			
To: 225°C	–	25	ASTM/BS EN
To: 260°C	10	70	ASTM/BS EN
To: 316 °C	65	93	ASTM/BS EN
Residue from distillation to 360°C	55	–	ASTM/BS EN
Test on Residue from Distillation			
Viscosity at 60°c	30	120	ASTM/BS EN
Penetration at 25°c	120	300	ASTM/BS EN
Ductility at 25°c	100		ASTM/BS EN
Solubility in trichloroethylene, %	99		ASTM/BS EN
Water %	_	0.2	ASTM/BS EN

Emulsion

CRS 60

Properties	Method	Specification		Unit
		Min	Max	
Binder Content	ASTM/BS EN	60	63	mm/10
Viscocity at 50 deg °C	ASTM/BS EN	15	50	
Residue on Sieving G	ASTM/BS EN		0.1	%
Particle Charge Test	ASTM/BS EN	Positive	-	-
Viscocity at 50 deg °C	ASTM/BS EN			
Solubility in Trichloroethylene	ASTM/BS EN	97.5		% Mass
Penetration @ 25C, 100g, 5sec	ASTM/BS EN	100	250	
Oil Distillate	ASTM/BS EN		3	
Residue from distillation	ASTM/BS EN	60	-	cSt
Penetration @ 25 deg °C 100g, 5sec	ASTM/BS EN	60	60	mm/10

CSS1

Properties	Method	Specification		Unit
		Min	Max	
Saybolt fural viscosity @ 25?C sec	ASTM/BS EN	20	100	mm/10
Storage Stability (24 hours) %	ASTM/BS EN	-	1	%
Sieve Test	ASTM/BS EN		0.1	%
Particle Charge Test	ASTM/BS EN	Positive	-	-
Solubility in Trichloroethylene	ASTM/BS EN	97.5		% Mass
Residue from distillation	ASTM/BS EN	60	-	cSt
Penetration @ 25C, 100g, 5sec	ASTM/BS EN	60	200	mm/10

CRS 70

Properties	Method			Unit
		Min	Max	
Residue by Evaporation		20	63	mm/10
Sieve	ASTM/BS EN	-	50	%
Storage Stability at 1 day	ASTM/BS EN		0.1	%
Particle Charge Test	ASTM/BS EN	Positive	-	-
Viscocity at 25 deg °C	ASTM/BS EN			
Viscocity at 50 deg °C	ASTM/BS EN			
Solubility in Trichloroethylene	ASTM/BS EN	97.5		% Mass
Penetration @ 25C, 100g, 5sec	ASTM/BS EN	100	250	
Oil Distillate	ASTM/BS EN		3	
Residue from distillation	ASTM/BS EN	60	-	cSt
Penetration @ 25 deg °C 100g, 5sec		60	60	mm/10

K-160

Properties	Test Method	Min	Max
Viscosity Deg (Engler) at 20°C	ASTM/BS EN	-	-
Binder Content	ASTM/BS EN	57	
Sieve Test (%)	ASTM/BS EN	-	0.05
Particle Charge Test	ASTM/BS EN	Positive	-
Storage Stability (long period)	ASTM/BS EN		60
Residue from distillation	ASTM/BS EN	57	-
Coagulation at low temperature	ASTM/BS EN	NIL	-

SYSTEMS CERTIFICATION INTERNATIONAL

Leaders in ISO Management System Certification

CERTIFICATE

This is to Certify that the

Quality Management System

of

Petra Oil DMCC

P.O. Box 340505, Unit No. 2H-08-16, Floor No. 08, Bldg. No. 2,
Plot No. 550-554 J&G, DMCC, Dubai, U.A.E

Has been independently assessed and is
compliant with the requirements of:

ISO 9001:2015

For the following scope of activities:

Manufacturing & Trading of Petroleum and Bitumen Products, Importing & Exporting of Bituminous Membrane Sheets, Sulphur, Solvent, Wax & Oil Products

Certificate Number: AE-6700 QC

Date of Initial Registration	06/07/2022
Date of this Certificate	06/07/2022
Certificate Validity	06/07/2023
Recertification Date	06/07/2025

Jennifer Dean
On Behalf of Certification Approval Panel
System Certification International

GEO-CHEM MIDDLE EAST

GEO CHEM

جيو – كيم ميدل ايست

International Independent Inspection & Testing Company

ORIGINAL

Certificate of Quality and Quantity

Total Number Of Drums	:	2,860 DRUMS OF BITUMEN 60/70
Number of Containers	:	26 X 20' GP CONTAINERS
Total Gross Weight	:	547.404 MTS
Total Net Weight	:	520.520 MTS
Shipper	:	PETRA OIL DMCC UNIT NO.2104-08-16 FLOOR NO. 8, BUILDING NO. 3 ,PLOT 550-554 J AND G , DUBAI ,UNITED ARAB EMIRATES, TEL +97143918873,FAX:+97143729275 E-MAIL ADDRESS:ACCOUNTS@PETRAOIL.COM

Quality

We hereby certify that based on analysis result of samples drawn during the entire loading period and tested the results found (Lab report No: AIS/LAB/BAB/018-03-40) as follows:

Test Items	Methods	UNIT	Range	Result
Specific Gravity @ 25°C	ASTM D 70	-	1.01/1.06	1.0304
Penetration (25°C)	ASTM D 5	0.1mm	60-70	62
Softening Point	ASTM D 36	°C	49-56	50.1
Ductility@ 25°C	ASTM D 113	Cm	100 Min	>100
Flash Point	ASTM D 92	°C	232 Min	322
Solubility in TCE	ASTM D 2042	%Wt	99.0 Min	99.9
Spot Test	A.A.S.H.T.O.T 102	-	NEG	NEG
Kinematic Viscosity @ 135 °C	ASTM D 2170	cSt	300 Min	328.1
Absolute Viscosity @ 60 °C	ASTM D 2171	Poise	2000±400	1626
Wax Content	UOP 46	%	2 Max	1.6
Thin film oven test	ASTM D-1754			
Loss on Heating	ASTM D 6	%Wt	0.2 Max	0.06
Drop In Penetration After Heating	ASTM D 5	%	20 Max	9.6

.../2

No. 184244

SGS Oil, Gas & Chemicals

ENAS

SGS Gulf Ltd.
OGC Laboratory
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Jebal Ali Free Zone- Dubai, UAE
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f +971 4 883 13 18
ME.OGCLab.Dubai@sgs.com

CERTIFICATE OF QUALITY JO13-00464.001

PRODUCT DESCRIPTION:	Bitumen 60/70
SAMPLE SOURCE:	Drums
SOURCE ID:	Not specified
LOCATION:	Hamriyah, Sharjah, UAE
SAMPLE TYPE:	Not Indicated

PROPERTY	Units	MIN	MAX	METHOD	RESULT
Penetration at 25°C *	0.1 mm	60	70	ASTM D5	64
Softening Point *	°C	48	52	ASTM D36	49.0
Cleveland Flash Point (Open cup) *	°C	232		ASTM D92	332
Solubility in Trichloro Ethylene *	% (m/m)	99		ASTM D2042	99.80

* Consignee : ATTM SA, BP 42 - NOUADHIBOU 23, MAURITANIE

* Reference S/L No: MSCUDI003809

This laboratory is accredited under ISO/IEC 17025. The results reported herein have been performed in accordance with the laboratory's term of accreditation except calibrations/tests marked with an asterisk (*) in this report which are not within the scope of accreditation for our laboratory.

This report relates specifically to the sample tested as received. All tests have been performed using the latest revision of the methods indicated, unless specifically marked otherwise on the report. Precision parameters apply in the determination of the above results. Users of the data shown on this report should refer to the latest published revisions of ASTM D-3244, IP 367, ISO 4259 and Appendix E of IP Standard Methods for Analysis and Testing when utilizing the test data to determine conformance with any specification or process requirement. This report shall not be reproduced except in full, without the written approval of the laboratory.

Authorised Signatory

Edison Caluma-OG&C Chemist

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SGS Gulf Ltd. SGS Building, Street No. 1243, P.O.Box: 18506, Jebal Ali Free zone, Dubai, UAE. t +971 4 883 22 22, f +971 4 883 24 24, me.gcc@sgs.com, www.sgs.com

Member of the SGS Group (Société Générale de Surveillance)

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SGS

Test Observation Report

Client : PETRA OIL DMCC
Cargo : BITUMEN C320
Date : 19/08/2016
Report No. : PG0102B (0099/2016)

Analysis on the sample as below, conducted at Supplier's Laboratory and witnessed by SGS and obtained the following results.

Product : BITUMEN C320

Test	Method	Specification	Results
Penetration @ 25°C, dmm	AS 2341.12	Min 40	44
Toluene Insoluble, %	AS 2341.8	Max 1	0.2
Flash Point, °C	AS 2341.14	Min 250	295
Viscosity @ 60°C, Pa.s	AS 2341.2	260 - 380	350
Viscosity @ 135°C, Pa.s	AS 2341.2	0.40 – 0.65	0.55

Disclaimer:

1. Precision parameters applied in determination of above results. Also refer to ASTM D3244-07a, IP 367-07 and Appendix E of test data to determine conformance with specifications.
2. This report shall not be reproduced except in full, without the written approval of the laboratory.
3. The results reported relates only to the samples tested.
4. In accordance with Client's instruction, the Company's intervention has been limited to witnessing the intervention(s) of a third party. The Company's sole responsibility was to be present at the time of the third party's intervention(s) and to forward the results, or confirm the occurrence, of the intervention(s). The Company is not responsible for the condition or calibration of apparatus, instruments and measuring devices used, the analysis methods applied, the qualifications, actions or omissions of third party personnel or the analysis results.

ATLAS INSPECTION SERVICES Ltd

Test Report

Report No.	:	LC-15/C103/AIS
Lab Ref No.	:	AIS/LAB/BAB-016-01-157
Client	:	Petra Oil Dmcc
Description of goods	:	Bitumen Grade 80/100
Booking	:	2304
Batch No	:	78615

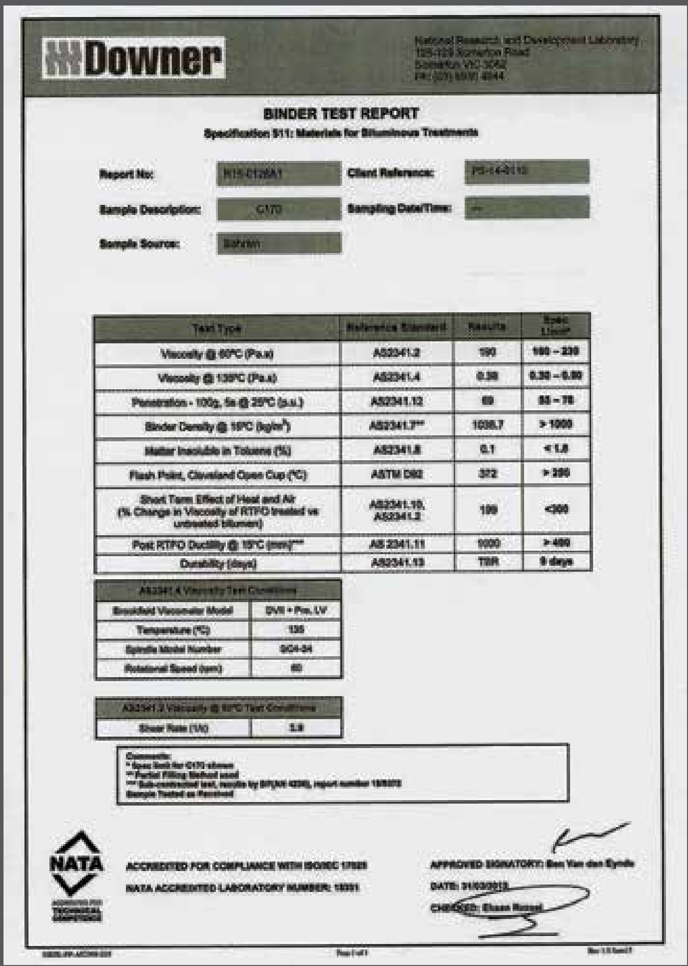
Test Items	Methods	UNIT	Result
Penetration (25°C)	ASTM D 5	0.1mm	98
Flash Point	ASTM D 92	°C	300
Solubility in TCE	ASTM D 4	%Wt	99.8
Specific Gravity @ 25°C	ASTM D 70	-	1.0159
Ductility@ 25°C	ASTM D 113	Cm	>100
Spot Test	A.A.S.H.T.O 102	-	NEG
Softening Point	ASTM D 36	°C	45.5
Thin film oven test	ASTM D-1754		
Loss on Heating	ASTM D 6	%Wt	0.03
Drop In Penetration After Heating	ASTM D 5	%	13.8

Test analysed on : 30.01.2016

The above test results are only applicable to the sample referred above.

Issued On. 3rd February 2016

Atlas Inspection Services, Ltd.



Downer

National Research and Development Laboratory
125-129 Somerton Road
Somerton VIC 3062
PH (03) 9930 4944

BINDER TEST REPORT

Specification 511: Materials for Bituminous Treatments

Report No:	R15-0126A1	**Client Reference:**	PS-14-0110
Sample Description:	C170	**Sampling Date/Time:**	--
Sample Source:	Bahrain		

Test Type	Reference Standard	Results	Spec Limit*
Viscosity @ 60°C (Pa.s)	AS2341.2	190	140 – 200
Viscosity @ 135°C (Pa.s)	AS2341.4	0.38	0.30 – 0.60
Penetration - 100g, 5s @ 25°C (p.u.)	AS2341.12	69	55 – 78
Binder Density @ 15°C (kg/m³)	AS2341.7**	1030.7	> 1000
Matter Insoluble in Toluene (%)	AS2341.8	0.1	< 1.0
Flash Point, Cleveland Open Cup (°C)	ASTM D92	372	> 250
Short Term Effect of Heat and Air (% Change in Viscosity of RTFO treated vs untreated bitumen)	AS2341.10, AS2341.2	199	<300
Post RTFO Ductility @ 15°C (mm)***	AS 2341.11	1000	> 400
Durability (days)	AS2341.13	TBR	9 days

AS2341.4 Viscosity Test Conditions	
Brookfield Viscometer Model	DVII + Pro, LV
Temperature (°C)	135
Spindle Model Number	SC4-34
Rotational Speed (rpm)	60

AS2341.2 Viscosity @ 60°C Test Conditions	
Shear Rate (1/s)	3.8

Comments:
* Spec limit for C170 shown
** Partial Filling Method used
*** Sub-contracted test, results by [illegible], report number [illegible]
Sample Tested as Received

NATA

ACCREDITED FOR COMPLIANCE WITH ISO/IEC 17025

NATA ACCREDITED LABORATORY NUMBER: [illegible]

APPROVED SIGNATORY: Ben Van den Eynde

DATE: 31/03/2015

CHECKED: Ehsan Rezazi

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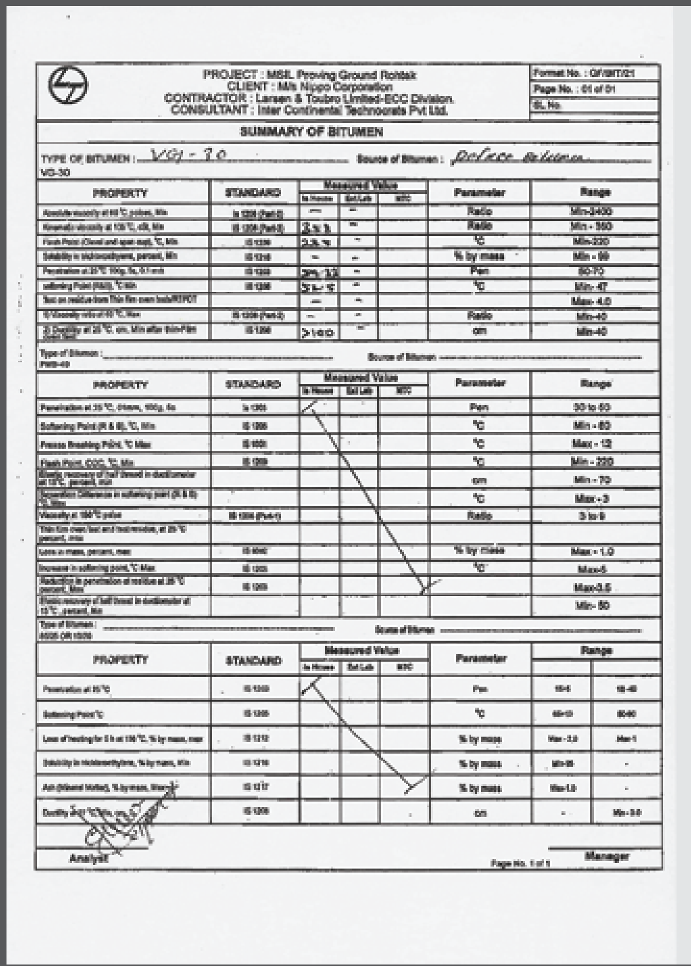

PROJECT : MSIL Proving Ground Rohtak
CLIENT : M/s Nippo Corporation
CONTRACTOR : Larsen & Toubro Limited-ECC Division.
CONSULTANT : Inter Continental Technocrats Pvt Ltd.

Format No. : QF/BIT/21
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SL No.

SUMMARY OF BITUMEN

TYPE OF BITUMEN : VG - 30 Source of Bitumen : [illegible]
VG-30

PROPERTY	STANDARD	Measured Value: In House	Measured Value: Ext Lab	Measured Value: ITC	Parameter	Range
Absolute viscosity at 60 °C, poises, Min	IS 1206 (Part 2)	—	–		Ratio	Min-2400
Kinematic viscosity at 135 °C, cSt, Min	IS 1206 (Part 3)	[illegible]	–		Ratio	Min - 350
Flash Point (Cleveland open cup), °C, Min	IS 1209	[illegible]	–		°C	Min-220
Solubility in trichloroethylene, percent, Min	IS 1216	–	–		% by mass	Min - 99
Penetration at 25 °C 100g, 5s, 0.1 mm	IS 1203	[illegible]	–		Pen	50-70
Softening Point (R&B), °C Min	IS 1205	[illegible]	–		°C	Min- 47
Test on residue from Thin film oven test/RTFOT		—	–			Max- 4.0
i) Viscosity ratio at 60 °C, Max	IS 1206 (Part 2)	–	–		Ratio	Min-40
ii) Ductility at 25 °C, cm, Min after thin-Film oven test	IS 1208	>100	–		cm	Min-40

Type of Bitumen :
PMB-40

Source of Bitumen

PROPERTY	STANDARD	Measured Value: In House	Measured Value: Ext Lab	Measured Value: ITC	Parameter	Range
Penetration at 25 °C, 0.1mm, 100g, 5s	IS 1203				Pen	30 to 50
Softening Point (R & B), °C, Min	IS 1205				°C	Min - 60
Fraass Breaking Point, °C Max	IS 9381				°C	Max - 12
Flash Point, COC, °C, Min	IS 1209				°C	Min - 220
Elastic recovery of half thread in ductilometer at 15°C, percent, min					cm	Min - 70
Separation Difference in softening point (R & B) °C, Max					°C	Max - 3
Viscosity at 150°C poise	IS 1206 (Part-1)				Ratio	3 to 9
Thin film oven test and tests on residue, at 25 °C percent, max						
Loss in mass, percent, max	IS 9382				% by mass	Max - 1.0
Increase in softening point, °C Max	IS 1205				°C	Max-5
Reduction in penetration of residue at 25 °C percent, Max	IS 1203					Max-3.5
Elastic recovery of half thread in ductilometer at 15 °C, percent, Min						Min- 50

Type of Bitumen :
SS20 OR 1S20

Source of Bitumen

PROPERTY	STANDARD	Measured Value: In House	Measured Value: Ext Lab	Measured Value: ITC	Parameter	Range	
Penetration at 25 °C	IS 1203				Pen	[illegible]	[illegible]
Softening Point °C	IS 1205				°C	[illegible]	[illegible]
Loss of heating for 5 h at 163 °C, % by mass, max	IS 1212				% by mass	Max - 2.0	Max-1
Solubility in trichloroethylene, % by mass, Min	IS 1216				% by mass	Min-99	-
Ash (Mineral Matter), % by mass, Max	IS 1217				% by mass	Max-1.0	-
Ductility at 27 °C, Min, cm	IS 1208				cm	-	Min-3.0

Analyst

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Manager

Petra Oil Bitumen

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