

# BITUMEN

From the depth of oil wells in the middle east to the Industry world...





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## Who we are

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Patrona Group and its companies are active in 3 different sectors: Oil derivatives, Food industry and ICT. Our strong presence in Asia (office in Kuala Lumpur), Europe (office in Copenhagen) and the Middle East (office in Oman); with a professional team of technical and sales driven individuals have turned tempting opportunities into real success stories. Patronas' mission is to fulfill customer needs at the highest level by providing them flexibility in sourcing, competitive pricing, on-time deliveries and customizable solutions for their unique needs; effectively, sustaining our reputation as a reliable, customer-oriented, dynamic player in the market, specially in ASEAN and North Europe region.



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### **Kuala Lumpur Office**

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## What we offer

Penetration Grade Bitumen is a standard refinery bitumen mainly used as a Paving Grade Bitumen for road construction and for the production of asphalt pavements with superior properties.

### **Penetration Grade Bitumen**

The penetration grading system is 100 years old bitumen grading method and still widely used. Penetration Grade bitumens are specified by the penetration and softening point tests. Designation is by penetration range only. The bitumen has a thermoplastic property which causes the material to soften at high temperatures and to harden at lower temperatures. This unique temperature/viscosity relationship is important when determining the performance parameters such as the adhesion, rheology, durability and application temperatures of bitumen.





Our best selling product in this category is: Bitumen 60/70, a semi-hard bitumen. Highly demanded for hot mix asphalt for bases and pavements as well as for road construction and maintenance. This bitumen is processed and manufactured from vacuum bottom (the raw material left in vacuum distillation tower in oil refineries) in bitumen production units. Our machinery and modern factory equipment together with strict QC mechanisms, guarantees highest quality of popular Bitumen 60/70 coming in various packaging from drums to jumbo bags.

The Bitumen specifications are as following. However, our production analysis and test reports are relatively better than standard accepted ranges.

We supply and offer below grades of Penetration grade according to ASTM D946-09:

- Bitumen Penetration Grade 40-50
- Bitumen Penetration Grade 60-70
- Bitumen Penetration Grade 85-100
- Bitumen Penetration Grade 120-150



## Performance Grade Bitumen 30/40 specifications

	value	Test method
Specific Gravity @ 25/25 °C	1.01/1.06	ASTM D.70
Penetration @ 25 °C	30/40	ASTM D.5
Softening point °C	55/63	ASTM D.36
Ductility @ 25 °C.cms	100min.	ASTM D.113
Loss on heating PCT.WT.	0.2max.	ASTM D.6
Drop in penetration after heating PCT.	20max.	ASTM D.5
Flash point °C	250min	ASTM D.92
Solubility in CS <sub>2</sub> PCT.WT.	99.5max.	ASTM D.4
Organic matter in soluble in CS <sub>2</sub> PCT.WT.	0.2max.	ASTM D.4
Ductility at 25°C,5cm/min,cm after thin-film oven test	50min	ASTM D.946/D 946M-09a
SPOT TEST	Negative	AASHTO T 102-42

## Performance Grade Bitumen 40/50 specifications

	value	Test method
Specific Gravity @ 25/25 °C	1.01/1.05	ASTM D.70
Penetration @ 25 °C.	40/50	ASTM D.5
Softening point °C	52/60	ASTM D.36
Ductility @ 25 °C.cms	100min.	ASTM D.113
Loss on heating PCT.WT.	0.2max.	ASTM D.6
Drop in penetration after heating PCT.	20max.	ASTM D.5
Flash point °C	250min.	ASTM D.92
Solubility in CS <sub>2</sub> PCT.WT.	99.5max.	ASTM D.4
Organic matter in soluble in CS <sub>2</sub> PCT.WT.	0.2max.	ASTM D.4
Ductility at 25°C,5cm/min,cm after thin-film oven test	50min	ASTM D.946/D 946M-09a
SPOT TEST	Negative	AASHTO T 102-42



## Performance Grade Bitumen 60/70 specifications

	value	Test method
Specific Gravity @ 25/25 °C	1.01/1.06	ASTM D.70
Penetration @ 25 °C	60/70	ASTM D.5
Softening point °C	49/56	ASTM D.36
Ductility @ 25 °C.cms	100min.	ASTM D.113
Loss on heating PCT.WT.	0.2max.	ASTM D.6
Drop in penetration after heating PCT.	20max.	ASTM D.5
Flash point °C	250min	ASTM D.92
Solubility in CS <sub>2</sub> PCT.WT.	99.5max.	ASTM D.4
Organic matter in soluble in CS <sub>2</sub> PCT.WT.	0.2max.	ASTM D.4
Ductility at 25°C,5cm/min,cm after thin-film oven test	50min	ASTM D.946/D 946M-09a
SPOT TEST	Negative	AASHTO T 102-42

## Performance Grade Bitumen 80/100 specifications

	value	Test method
Specific Gravity @ 25/25 °C	1.01/1.05	ASTM D.70
Penetration @ 25 °C	80/100	ASTM D.5
Softening point °C	45/52	ASTM D.36
Ductility @ 25 °C.cms	100min.	ASTM D.113
Loss on heating PCT.WT.	0.2max.	ASTM D.6
Drop in penetration after heating PCT.	20max.	ASTM D.5
Flash point °C	250min	ASTM D.92
Solubility in CS2 PCT.WT.	99.5max.	ASTM D.4
Organic matter in soluble in CS2 PCT.WT.	0.2max.	ASTM D.4
Ductility at 25°C,5cm/min,cm after thin-film oven test	50min	ASTM D.946/D 946M-09a
SPOT TEST	Negative	AASHTO T 102-42



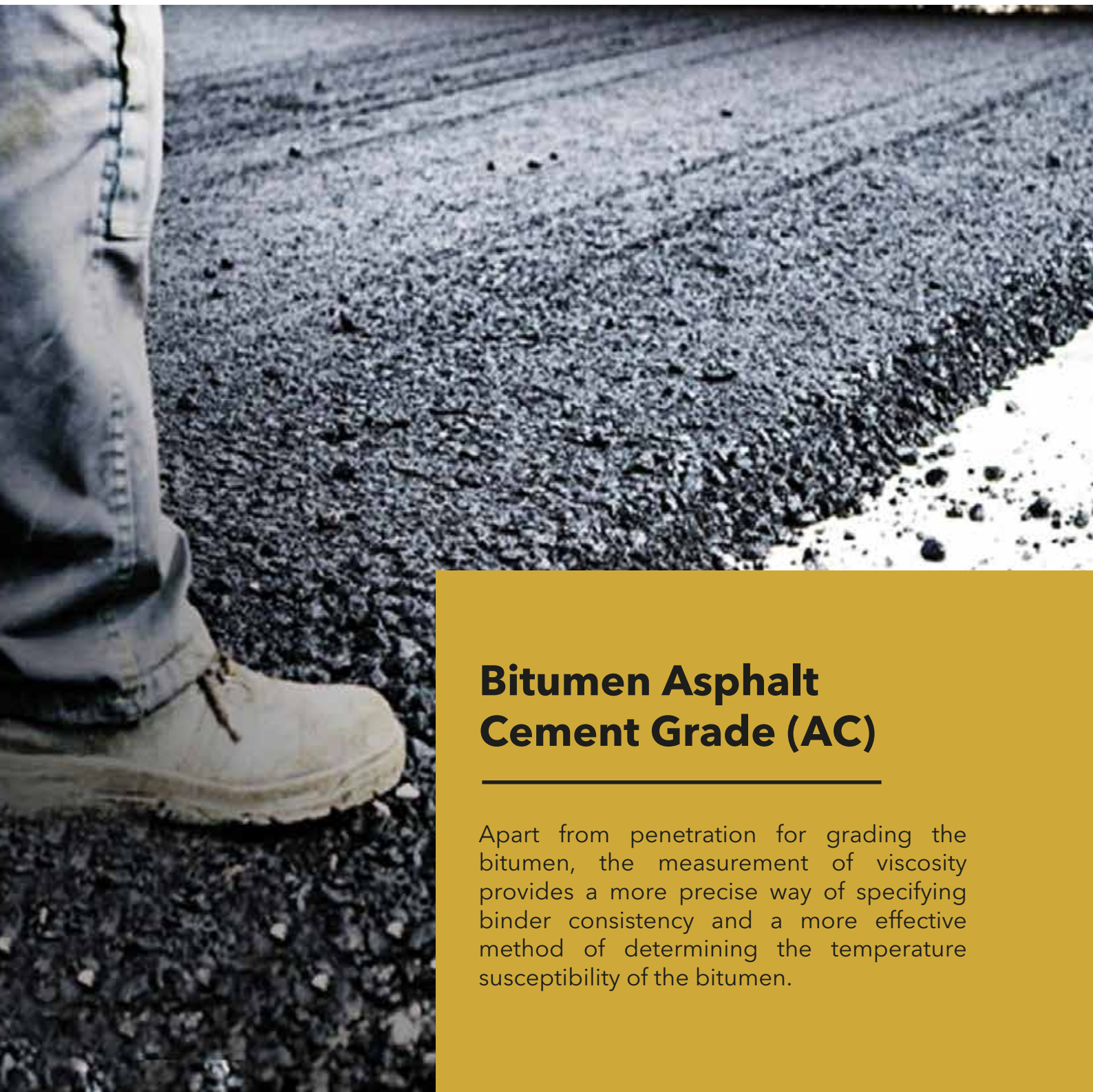
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## Performance Grade Bitumen 100/120 specifications

	value	Test method
Specific Gravity @ 25/25 °C	1.01/1.04	ASTM D.70
Penetration @ 25 °C	100/120	ASTM D.5
Softening point °C	42/49	ASTM D.36
Ductility @ 25 °C.cms	100min.	ASTM D.113
Loss on heating PCT.WT.	0.2max.	ASTM D.6
Drop in penetration after heating PCT.	20max.	ASTM D.5
Flash point °C	250min	ASTM D.92
Solubility in CS <sub>2</sub> PCT.WT.	99.5max.	ASTM D.4
Organic matter in soluble in CS <sub>2</sub> PCT.WT.	0.2max.	ASTM D.4
SPOT TEST	Negative	AASHTO T 102-42







## **Bitumen Asphalt Cement Grade (AC)**

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Apart from penetration for grading the bitumen, the measurement of viscosity provides a more precise way of specifying binder consistency and a more effective method of determining the temperature susceptibility of the bitumen.



Viscosity grading can be done on original (as-supplied) asphalt binder samples (called AC grading) or aged residue samples (called AR grading). The AC grading is based on absolute viscosity at 60 °C in units of 100 poises. Six asphalt cement viscosity grades were established as AC-2.5 (softest), AC-5, AC-10, AC-20, AC-30, AC-40 (hardest). We in Patrona, supply 4 most demanded AC bitumen. AC10, AC20, AC30 and AC40.





## **What makes our bitumen different**

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Our Bitumen is produced from the world highest quality vacuum bottom and is carefully engineered in state-of-the-art refineries based in Middle East. The meticulous accuracy and strict QC and QA procedures, is the key to distinct our Bitumen in terms of consistent quality compared to conventional bitumen.








## Why Grade A Bitumen?



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Wax content affects the performance and rheological behavior of bitumen. Bituminous mixtures with bitumen of high wax content tend to become very soft at high temperatures leading to rutting problem on pavement. Also the rheological behavior of bitumen has a great influence on the behavior of bituminous mixtures. To address the potential adverse effect of wax on bitumen, countries in Europe limit the wax content to 2.2% (BS EN 12606-1). In Mainland China, the standard (JTG F40-2004) classifies bitumen into three grades (Grades A, B and C). Grade A, with wax content below 2.2%, is used for highway pavement construction. Grades B and C, with wax content limits of 3.0% and 4.5% respectively, can only be used on roads with relatively lower traffic. We in Patrona are sensitive to deliver Wax Content below 2.0. That is why our customers classify our bitumen products as Grade A.



## Laboratory and inspection

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Our well-equipped laboratories mandate continuous sampling and testing of the below parameters:

1. Penetration
2. Density
3. Softening Point
4. Flash Point
5. Ductility
6. Solubility
7. Viscosity
8. TFOT Test
9. Spot Test

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While the whole manufacturing process has been standardized by certificate such as ISO 9001:2015 and 1922 - CPR - 1043, All parties are inspected by well-known inspection and testing authorities like SGS and GEO-CHEM.





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## Packaging

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Patrona supplies Bitumen different packages including:

- Bulk
- Poly Bags
- Jumbo Bags
- Drums (Embossed and Non-Embossed Drums).

Drums are offered in various sizes of ranging from 150 Kg to 240 Kg and any other size specific to your needs. While the best-selling is 180Kg.

In addition, embossing customer's Logo on drums is negotiable according to the order quantity

late Thickness (Body)	.6±0.02 MM
Plate Thickness (Top & Bottom)	0.6±0.02 MM
Height	100 CM
Diameter	50 ± 2 CM
Lid Hole Position	Center
Lid Hole Diameter	10±1 CM
Net Filling Capacity	182±2.5 KG
Drum Tare Weight	9.5±0.1 KG
Color	Glossy Black







Our logistics experts and well qualified forwarders, take care of accurate container loading, stuffing, stacking and lashing to assure the cargo is delivered at best form to the end user. We take advantage of drum filling and jumbo bag filling systems direct in the factory. The best quality jumbo bags are selected to ensure form and protection. Our 1250 Kg jumbo bags and special method of stuffing, offers high degree of efficiency and cost effectiveness for today tight competitive market.

Number of Drums		
Transportation method	With Pallet	Without Pallet
Loading in 20ft Container	80	110
Loading in 40ft Container	137	150
Loading in Flatbed	90	115

Transportation method	Number of 1250 Kg Jumbo bags
Loading in 20ft Container	10
Loading in 40ft Container	20

**Note:** Not recommended for 20ft container.





## Logistics

Coming into logistics and shipment, Patrona has always been punctual to deliver the cargo based on the committed delivery time and terms using best international shipping lines. In addition, our warehouse of Bitumen in Malaysia (Port Klang) and selected ASEAN countries, guarantees always available product for tight project schedules and consistent distribution. Our flexible methods of delivery FOB, CIF and EXW, have answers for all delivery requirements.





