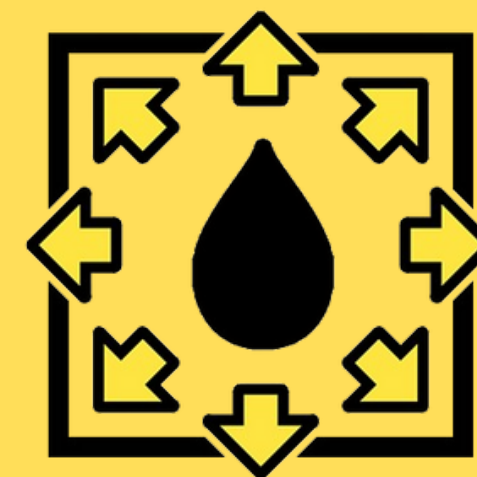


PRODUCTS CATALOG

-BITUMEN ASPHALT
-GILSONITE NATURAL ASPHALT
-PARAFFIN AND WAX
-DRILLING PRODUCTS

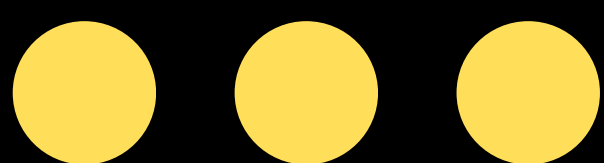


PETRONAFT
PETROLEUM MANUFACTURER



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**MEETING GLOBAL DEMANDS WITH EXPERTISE
AND EFFICIENCY**

PETRONAFT PETROLEUM PRODUCTS

Petroleum products play an essential role in our daily lives, powering transportation, heating homes, fueling industries, construction and many other projects. From bitumen and Gilsonite to chemical and petrochemical products, the demand for these resources continues to grow globally. As the world population expands and economies develop, the need for petroleum products is only set to increase. To meet these growing demands, it is crucial to prioritize quality and efficiency in production. High-quality products ensure the safe and reliable performance of infrastructure and machinery. Quick supply is also vital to support ongoing projects and initiatives around the world.

Global distribution of petroleum resources also plays a critical role in meeting demand. With resources spread across various regions, it is essential to work collaboratively to ensure fair distribution and access for all. Effective logistics and transportation networks are key to delivering petroleum products where they are needed most. Petro Naft acknowledges the significance of meeting worldwide demands for petroleum products. Emphasizing quality in production, the company endeavors to efficiently deliver products to clients across the globe. With a strong commitment to sustainability and environmental responsibility, Petro Naft aims to be at the forefront of the industry as a leader.



PETRONAFT
PETROLEUM MANUFACTURER

DISCOVER A RANGE OF EXCEPTIONAL OFFERINGS

"AT OUR FACTORIES, THE PRIMARY FOCUS IS ON THE MANUFACTURING OF BITUMEN (ASPHALT) AND GILSONITE (NATURAL ASPHALT). IN ADDITION TO THESE PRODUCTS, A DIVERSE RANGE OF CHEMICAL AND PETROCHEMICAL PRODUCTS IS OFFERED, INCLUDING PARAFFIN, WAX, AND DRILLING PRODUCTS. THIS IS DONE THROUGH PARTNERSHIPS WITH MAJOR PARAFFIN AND WAX MANUFACTURERS, AS WELL AS COOPERATION AGREEMENTS WITH PETROCHEMICAL REFINERIES. THE COMMITMENT REMAINS TO DELIVER TOP-QUALITY PRODUCTS TO CUSTOMERS WORLDWIDE."

UTILIZING WELL-EQUIPPED LABORATORIES, ALL MANUFACTURED PRODUCTS UNDERGO TESTING DURING AND AFTER PRODUCTION TO ENSURE THEY MEET THE RELEVANT QUALITY STANDARDS. ADDITIONALLY, UPON CUSTOMER REQUEST, SGS OR GEO-CHEM TESTS ARE PROVIDED ON PRODUCTS PRIOR TO LOADING.

SOME OF THE QUALITY STANDARDS USED, DEPENDING ON THE CUSTOMER'S ORDER, INCLUDE:

- AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
- AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
- EUROPEAN COMMITTEE FOR STANDARDIZATION (CEN)
- DEUTSCHES INSTITUT FÜR NORMUNG (DIN)
- ASSOCIATION FRANÇAISE DE NORMALISATION (AFNOR)
- BRITISH STANDARDS INSTITUTION (BSI)
- SOUTH AFRICAN BUREAU OF STANDARDS (SABS)
- STANDARDS AUSTRALIA (AS)
- AMERICAN PETROLEUM INSTITUTE (API)

BITUMEN ASPHALT



PETRONAFT
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BITUMEN ASPHALT

Bitumen and asphalt are materials that many people sometimes use the names of these two materials interchangeably, but in fact, bitumen is a material that is used in the manufacture of asphalt and plays the role of adhesion between asphalt granules and has many other useful properties that add to this composition. In the following, explanations about bitumen and asphalt are provided so that the difference between these two compounds can be easily recognized. PetroNaft Co. is a specialized manufacturer of all types of bitumen.

BITUMEN HISTORY

We start the history of bitumen with the definition of bitumen. Bitumen is a dark, gummy, non-crystalline material that dissolves in carbon disulfide. It has a characteristic smell of tar (CS₂). This understanding of what bitumen is may be found in a variety of different sources. The ancient Sumerian civilization was the first known society to become familiar with bitumen. Around 4000 BC, the members of this culture began using this substance to seal the towers in their civilization. The usage of bitumen continued after them with the Egyptians and Babylonians. Bitumen was used to a variety of uses by the ancient Egyptians, including embalming and sealing the bodies of deceased people.

The term “mummy” originates from the Persian word “mum,” which has been anglicized to “mummy” in English. Mummy refers to a mummified body. The ancient Egyptians were big fans of this technique, which is being used today in order to make people live forever. Through a variety of techniques including a material that was mostly composed of bitumen, the ancient Egyptians preserved the dead using embalming. They used time-honored techniques to extract the bitumen necessary for embalming from the natural bitumen mines that were located in those regions.

Recent archaeological research on the bitumen found in Egyptian mummies has shown that the ancient Egyptians received the bitumen they need either from the natural bitumen mines located on the mountain (Zit) that surrounds the Suez Canal or from the mines that are located nearby (Dead Sea).

BITUMEN APPLICATIONS

It is believed that the current annual use of bitumen around the globe is something in the neighborhood of 102 million tons. About 85 percent of all of the bitumen that is produced is utilized as a binder in asphalt for the construction of roadways.

When building or maintaining the following, bitumen is often used:

- Highways
- Airport taxiways
- Footpaths / Pedestrian Routes
- Parking lots and racetracks
- Tennis courts and roofs
- Damp proofing
- Dams Reservoir and pool linings
- Sound insulation
- Pipe linings
- Cable Insulation
- Building Waterproofing Paints
- Waterproofing beneath the tile



BITUMEN ASPHALT



PETRONAFT CO. PROVIDES A WIDE RANGE OF HIGH-QUALITY GRADES IN THIS CATEGORY, WHICH HAS BEEN LISTED BELOW.

- **OXIDIZED BITUMEN**
- **PENETRATION BITUMEN**
- **VISCOSITY BITUMEN**
- **CUTBACK BITUMEN**
- **EMULSION BITUMEN**
- **PERFORMANCE GRADE BITUMEN**
- **POLYMER MODIFIED BITUMEN**
- **CRUMB RUBBER MODIFIED BITUMEN**

Asphalt is a composite substance that is produced by combining gravel, sand, and bitumen together. The name “asphalt” comes from the French and refers to this material. The building of roads and streets is by far the most common use of asphalt. In accordance with the temperature at which it is combined, asphalt might be one of three distinct varieties: hot asphalt, cold asphalt, or protective asphalt. In the following, after providing a concise review of the evolution of asphalt, we will discuss its many varieties as well as the applications for each.

ASPHALT HISTORY

A lot of years have passed since asphalt mixture was used, and it is important to point out that the history of asphalt and the building of the very first asphalt road dates back to 604-625 BC. John Metcalfe was the first person to successfully apply asphalt to a road surface and is credited with inventing the material. The development and improvement of asphalt proceeded, and in the early 1820s, two Scottish engineers named John Loudon McAdam and Thomas Telford were the ones who came up with the idea of contemporary asphalt roads consisting of a single layer. In point of fact, these two Scottish engineers are generally acknowledged as the people who first developed modern asphalt. After the year 1900 and throughout the 20th century, there was a greater focus placed on laboratory controls, and more tests were conducted on asphalt. As a result of the rise in the volume of traffic on the roads, there was a demand for asphalt with a higher resistance level, as well as the investigation of methods that could prevent it from cracking.

It has been shown through years of research that the modification of asphalt with sulfur compounds is one of the most effective ways to strengthen the resilience of asphalt. It is also highly beneficial to employ more adhesive elements that are stronger, such as asphalt modifiers like Gilsonite and synthetic compounds, in order to stop the asphalt pavement from cracking.

One of the reasons for the widespread usage of asphalt is the fact that it is completely recyclable and is thus regarded as the most recycled building material.



OXIDIZED BITUMEN

WHAT IS OXIDIZED BITUMEN?

Continuous or staggered blowing processes are used to create Oxidized Bitumen, blown asphalt, and blown bitumen. Air is blown over heated penetration grade bitumen in a controlled setting to regulate the oil content of the bitumen as it oxidizes. The middle points of the softening point and penetration ranges for each grade made for a certain application are shown by two numbers.

LIST OF PRODUCTS

- OXIDIZED BITUMEN 75-25 (BLOWN ASPHALT 75/25)
- OXIDIZED BITUMEN 75-30 (BLOWN ASPHALT 75/30)
- OXIDIZED BITUMEN 75-35 (BLOWN ASPHALT 75/35)
- OXIDIZED BITUMEN 85-25 (BLOWN ASPHALT 85/25)
- OXIDIZED BITUMEN 85-30 (BLOWN ASPHALT 85/30)
- OXIDIZED BITUMEN 85-35 (BLOWN ASPHALT 85/35)
- OXIDIZED BITUMEN 85-40 (BLOWN ASPHALT 85/40)
- OXIDIZED BITUMEN 90-10 (BLOWN ASPHALT 90/10)
- OXIDIZED BITUMEN 90-15 (BLOWN ASPHALT 90/15)
- OXIDIZED BITUMEN 90-40 (BLOWN ASPHALT 90/40)
- OXIDIZED BITUMEN 95-25 (BLOWN ASPHALT 95/25)
- OXIDIZED BITUMEN 150-5 (BLOWN ASPHALT 150/5)
- OXIDIZED BITUMEN 105-15 (BLOWN ASPHALT 105/15)
- OXIDIZED BITUMEN 105-35 (BLOWN ASPHALT 105/35)
- OXIDIZED BITUMEN 110-30 (BLOWN ASPHALT 110/30)
- OXIDIZED BITUMEN 115-15 (BLOWN ASPHALT 115/15)

OXIDIZED BITUMEN USES

- As a bitumen adhesive for roofing membrane sheets.
- As a hot-applied layer of waterproofing.
- Manufacturing of carpet tiles.
- As a raw ingredient for bituminous liquid coatings.
- Bituminous paint.
- For rust-resistant pipe coatings.
- Used in the piling industry as a slip-resistant layer compound.
- Used in the production of roofing and sound-dampening felts, as an under-carriage sealant in the automotive industry, electric cable joint protection, joint filling compound, sealant compound, and in a variety of other applications in our daily lives.



OXIDIZED BITUMEN

OXIDIZED BITUMEN ADVANTAGES

The fact that it is impervious to water, very flexible, and long-lasting are a few of primary oxidized bitumen advantages. Additionally, it is chemically rather stable. blown asphat is a highly malleable, chemically stable, very durable, and totally water-resistant substance. Finally, blown bitumen has a number of significant technological benefits that make it a highly sought-after product for a variety of applications.

Oxidized Bitumen Benefits:

- *Include high production capacity and quality assurance, as well as weatherproof packaging that allows for more flexibility in terms of storage.*
- *Meets the requirements established by the ASTM for both the softening point and the penetration.*
- *The wrapping does not need to be removed in order for standard boilers to be able to melt it.*



PENETRATION BITUMEN

WHAT IS PENETRATION BITUMEN?

The bitumen used in the various penetration grades is refined bitumen of different viscosity. Penetration bitumen, sometimes known as petroleum grade bitumen, is a black, semi-hard material. The hardness of the bitumen is determined by conducting a penetration test. Thus, the name “penetration bitumen” describes its purpose well. The Degree of Penetration Bitumen is often used as a Paving Grade bitumen. Since it binds the particles and gives the bituminous mixture its distinctive cohesiveness and durability, bitumen is essential for road building and the manufacturing of asphalt pavements with outstanding qualities.

LIST OF PRODUCTS

- **BITUMEN 10-20**
- **BITUMEN 20-30**
- **BITUMEN 30-40**
- **BITUMEN 30-45**
- **BITUMEN 35-50**
- **BITUMEN 40-50**
- **BITUMEN 40-60**
- **BITUMEN 50-70**
- **BITUMEN 60-70**
- **BITUMEN 70-100**
- **BITUMEN 80-100**
- **BITUMEN 85-100**
- **BITUMEN 100-150**
- **BITUMEN 120-150**
- **BITUMEN 160-220**
- **BITUMEN 200-300**



PetroNaft Co. provides a wide range of high-quality grades of this product.

PENETRATION BITUMEN

Applications and Uses of Penetration Bitumen

Penetration bitumen, also known as paving grade bitumen, is a highly viscous material derived from crude oil that is used in a variety of construction applications. It is most commonly used in the production of asphalt for road and runway surfaces, but it also has other important applications. Here are some of the main uses of penetration bitumen:

- 1. Road construction: Penetration bitumen is a key ingredient in the production of asphalt concrete, which is used to pave roads, highways, and other surfaces. The durability, flexibility, and water resistance of penetration bitumen make it an ideal material for this application.***
- 2. Airport runways: Penetration bitumen is also used in the construction of airport runways, where it can withstand the heavy loads of aircraft and provide a smooth surface for takeoff and landing.***
- 3. Roofing: Penetration bitumen is used in the production of roofing materials such as roofing felt and shingles. Its excellent water resistance properties and durability make it an ideal material for protecting buildings from the elements.***
- 4. Waterproofing: Penetration bitumen is also used in the waterproofing of buildings and structures, where it can provide an effective barrier against water and prevent the formation of leaks and moisture damage.***
- 5. Bridge decks: Penetration bitumen can be used to protect concrete bridge decks from water and other environmental factors, extending the life of the bridge and reducing the need for repairs and maintenance.***
- 6. Soundproofing: Penetration bitumen can be used as a soundproofing material in walls, floors, and ceilings, helping to reduce noise pollution and improve the acoustics of a space.***
- 7. Pipe coating: Penetration bitumen can be applied to the exterior of pipes to provide corrosion protection and prevent leaks.***

Overall, penetration bitumen is a versatile material with a wide range of applications in the construction industry. Its unique properties make it an ideal choice for many different types of projects, from road paving to building waterproofing.



PENETRATION BITUMEN

PENETRATION BITUMEN 60/70

Bitumen 60/70 is a type of asphalt commonly used in road construction and maintenance. It is a by product of the petroleum refining process and has a penetration grade of 60-70 tenths of a millimeter, indicating its medium-hard consistency. This type of bitumen is suitable for use in hot climates and has applications in waterproofing and roofing as well.

To provide a description of penetration Bitumen 60/70, we must pay close attention to how various sorts of Bitumens are tested after manufacture. This grade of Bitumen is called after the Bitumen penetration test. In this test procedure, a standard needle is inserted into a sample of Bitumen to determine the rate of penetration and estimate the Bitumen's hardness.

Typically, Bitumen 60/70 is derived from crude oil. Similar to other grades of penetration, this grade is manufactured at a refinery by the blowing process. Due to its blowing and moderate air penetration, this type of Bitumen is neither too soft nor very hard. Bitumen 60.70, unlike other grades of Bitumen, requires no further processing. This sort of Bitumen is also known as direct run in the industry, indicating that it is generated straight from the vacuum distillation process. Bitumen 60-70 is less expensive than other asphalts (Bitumens) due to the fact that it does not need modification.



PetroNaft Co. provides a wide range of high-quality grades of this product.

VISCOSITY BITUMEN

WHAT IS VISCOSITY GRADE BITUMEN?

In the production of hot asphalt for road building, viscosity bitumen is a form of bitumen that is often utilized. This form of bitumen has a thermoplastic feature that makes it bendable in warm weather and brittle and rigid in cold weather. It has a thick, gooey consistency and is quite viscous, which allows it to combine with other materials to form a durable road surface. At a refinery's distillation tower, viscosity bitumen is created using vacuum baton aeration.

VISCOSITY GRADE BITUMEN APPLICATIONS

Viscosity Bitumen is a grade of bitumen that is most often used as a paving grade. It is appropriate for the building of roads and is effective in providing prime qualities in asphalt pavements. petro naft provides a wide range of high-quality grades in this category, which has been listed below.

BITUMEN VG 10

BITUMEN VG 20

BITUMEN VG 30

BITUMEN VG 40



CUTBACK BITUMEN

WHAT IS CUTBACK BITUMEN?

Cutback bitumen is a form of bitumen created by combining bitumen with a solvent to make it less viscous and more fluid. The “cutting back” procedure makes it possible to utilize bitumen for a larger variety of purposes, such as the production of bituminous paints, varnishes, and sealants. Depending on the intended use of the cutback bitumen, the cutting-back solvent may either be a petroleum distillate or a vegetable oil. After the cutback bitumen is applied, the solvent evaporates, leaving the bitumen left to bond with the surface.



PetroNaft Co. provides a wide range of high-quality grades of this product.

CUTBACK BITUMEN

CUTBACK BITUMEN TYPES

Petronaft provides a wide range of high-quality grades in this category, which has been listed below.

- *Cutback bitumen MC-30 (Cutback bitumen MC30)*
- *Cutback bitumen MC-70 (Cutback bitumen MC70)*
- *Cutback bitumen MC-250 (Cutback bitumen MC250)*
- *Cutback bitumen MC-800 (Cutback bitumen MC800)*
- *Cutback bitumen MC-3000 (Cutback bitumen MC3000)*
- *Cutback bitumen RC-30 (Cutback bitumen RC30)*
- *Cutback bitumen RC-70 (Cutback bitumen RC70)*
- *Cutback bitumen RC-250 (Cutback bitumen RC250)*
- *Cutback bitumen RC-800 (Cutback bitumen RC800)*
- *Cutback bitumen RC-3000 (Cutback bitumen RC3000)*
- *Cutback bitumen SC-70 (Cutback bitumen SC70)*
- *Cutback bitumen SC-250 (Cutback bitumen SC250)*
- *Cutback bitumen SC-800 (Cutback bitumen SC800)*
- *Cutback bitumen SC-3000 (Cutback bitumen SC3000)*



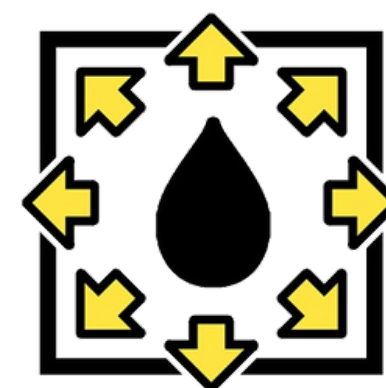
PetroNaft Co. provides a wide range of high-quality grades of this product.

EMULSION BITUMEN

WHAT IS EMULSION BITUMEN?

Emulsion Bitumen, commonly referred to as bitumen emulsion, is a combination of bitumen (a gooey, black, very viscous liquid or semi-solid form of petroleum) and water. An emulsifying agent is used to blend the two ingredients and produce a stable, homogeneous mixture. Emulsions may be anionic (negatively charged), cationic (positively charged), or nonionic (neutral).

Road building, paving upkeep, and waterproofing are just a few of the many uses for emulsion bitumen. Depending on the individual application and the intended result, it may be applied by spraying, brushing, or pouring. Emulsion bitumen has the advantage of being applied at lower temperatures than hot-mix asphalt, which makes it a more energy- and environmentally-friendly choice. Emulsion bitumen is often used for smaller-scale building projects since it is simpler to handle and transport than other types of bitumen.



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PetroNaft Co. provides a wide range of high-quality grades of this product.

EMULSION BITUMEN

EMULSION BITUMEN GRADES

Petro naft Co. provides a wide range of high-quality grades in this category, which has been listed below.

- 1. Bitumen emulsion CSS-1 (Emulsion Bitumen CSS1)***
- 2. Bitumen emulsion CSS-1h (Emulsion Bitumen CSS1h)***
- 3. Bitumen emulsion CMS-2 (Emulsion Bitumen CMS2)***
- 4. Bitumen emulsion CMS-2h (Emulsion Bitumen CMS2h)***
- 5. Bitumen emulsion CRS-1 (Emulsion Bitumen CRS1)***
- 6. Bitumen emulsion CRS-2 (Emulsion Bitumen CRS2)***
- 7. Anionic emulsion SS-1h (Emulsion Bitumen SS1h)***
- 8. Anionic emulsion SS-1 (Emulsion Bitumen SS1)***
- 9. Anionic emulsion RS-2 (Emulsion Bitumen RS2)***
- 10. Anionic emulsion RS-1 (Emulsion Bitumen RS1)***
- 11. Anionic emulsion QS-1h (Emulsion Bitumen QS1h)***
- 12. Anionic emulsion MS-2h (Emulsion Bitumen MS2h)***
- 13. Anionic emulsion MS-2 (Emulsion Bitumen MS2)***
- 14. Anionic emulsion HFRS-2 (Emulsion Bitumen HFRS2)***
- 15. Anionic emulsion HFMS-2s (Emulsion Bitumen HFMS2s)***
- 16. Anionic emulsion HFMS-2h (Emulsion Bitumen HFMS2h)***
- 17. Anionic emulsion HFMS-2 (Emulsion Bitumen HFMS2)***
- 18. Anionic emulsion HFMS-1 (Emulsion Bitumen HFMS1)***



PetroNaft Co. provides a wide range of high-quality grades of this product.

PERFORMANCE GRADE BITUMEN

WHAT IS PERFORMANCE GRADE BITUMEN?

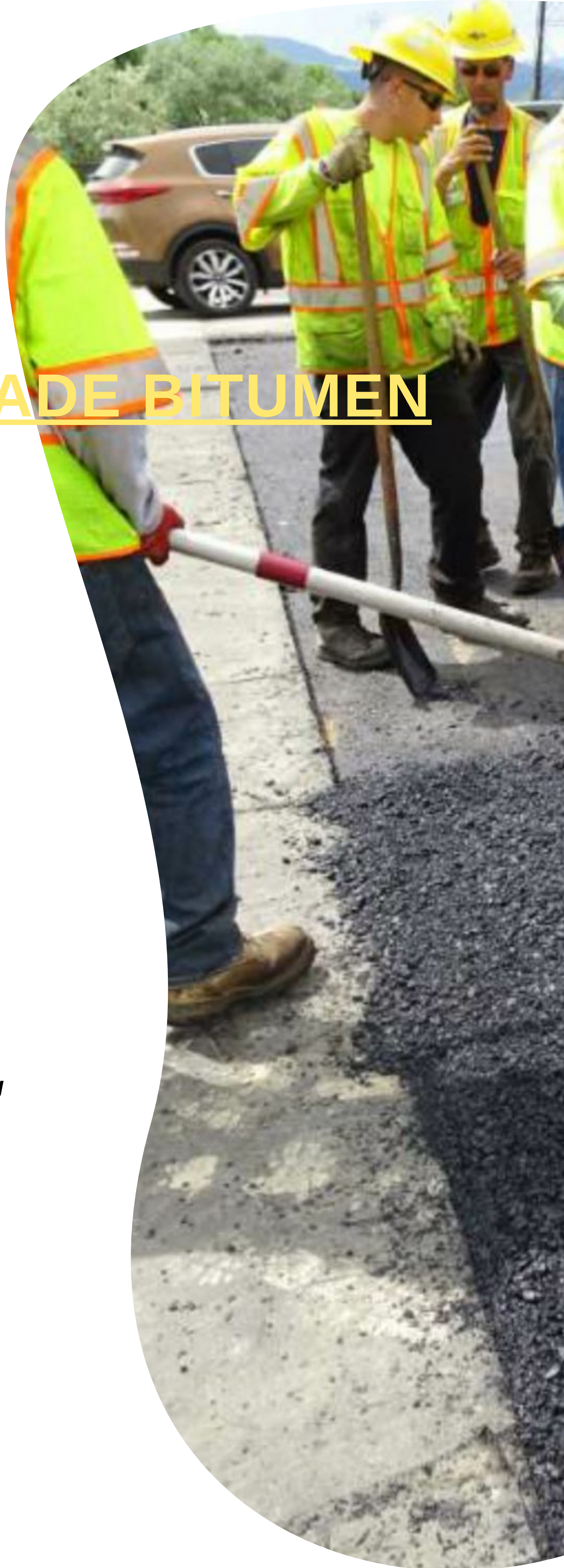
Performance Grade (PG) bitumen is categorized based on its high-temperature performance. It resists deformation under high traffic, especially in hot areas.

The high-temperature grade of PG bitumen assesses its resistance to rutting and deformation at high temperatures, whereas the low-temperature grade measures its cracking and stiffness at low temperatures.

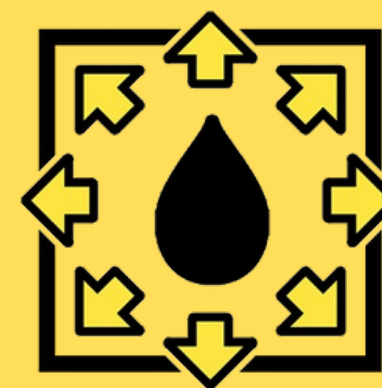
A sample of PG bitumen is rheologically tested at different temperatures and shear rates to establish its high-temperature grade. These experiments replicate bitumen stresses and strains under varying traffic and temperature conditions. The results of these tests establish the high-temperature grade, which is a number between 16 and 46, with higher values indicating greater performance at high temperatures.

The low-temperature grade of PG bitumen is established by testing a sample at low temperatures to detect stiffness and cracking resistance. The results of these tests establish the low-temperature grade, which is a number between -22°C and -76°C, with lower values indicating greater performance at low temperatures.

PG bitumen gives a more accurate and dependable technique to create asphalt pavements that can handle high traffic and harsh temperatures.



PetroNaft Co. provides a wide range of high-quality grades of this product.



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PERFORMANCE GRADE BITUMEN APPLICATIONS

- ***PG 52-28 is often used in new construction and road maintenance paving, as well as dense-graded and open-graded Hot Mix Asphalt (HMA). This solution might also be used to seal cracks in paving as well as the margins of the paving. Membrane spraying in areas like bridge decks and pavement protecting membranes is another use.***
- ***PG 58-22 is utilized in dense-graded and open-graded Hot Mix Asphalt (HMA) paving, as well as road construction, spraying, and crack sealing applications.***
- ***PG58-28 is utilized in dense-graded and open-graded Hot Mix Asphalt (HMA) paving, as well as road construction, spraying, and crack sealing applications. This grade is often used in very cold climates.***
- ***PG 58-34 is often utilized on higher elevation roads. This grade is a paving asphalt cement that is primarily utilized in the manufacture of Hot Mix Asphalt (HMA). It might also be used to seal the margins of new to old paving and to fill cracks.***
- ***PG58-40 is generally employed in high elevation areas. This grade is paving asphalt used in the manufacture of Hot Mix Asphalt (HMA). It is simply utilized for crack treatment as well as sealing.***
- ***PG 64-22 is primarily utilized in paving for new construction and pavement treatment projects, as well as in dense-graded and open-graded Hot Mix Asphalt (HMA) and other applications. It is suitable for sealing as well as crack treatment. Spray treatments for bridge decks and pavement protection layers with textiles and other changes are also possible. It has been observed that, with suitable aggregate selection and asphalt composition, HMA using PG 64-22 as the binder may exhibit less tenderness than a comparable combination with a lower viscosity/softer asphalt. This will result in a large decrease in the normal soreness issues of mixture pushing and checking during pavement surface scuffing and rolling, as well as traffic markings soon after paving.***
- ***PG64-28 is largely utilized in road construction and paving for new and pave maintenance projects, as well as in dense-graded and open-graded HMA. Spray treatments for bridge decks and pavement protecting layers with textiles are two further applications. PG64-28 is often employed in low-elevation environments.***
- ***PG70-22 is generally employed in high-traffic areas and is also the paving asphalt cement used in the manufacture of Hot Mix Asphalt (HMA). This grade is also suitable for pavement edge sealing and crack sealing.***
- ***The greatest PG grades for thermal cracking resistance: PG 64-22, PG 76-22, PG 64-28, PG 58-34***
- ***PG Grades with the best rutting resistance: PG 82-22, PG 76-28, PG 70-28, PG 76-22***
- ***This is common on toll roads (high Volume): PG 64-22***
- ***Typical in toll booths (high volume and slow traffic): PG 70-22***
- ***Typical in rest areas (high volume and standing traffic): PG 76-22***



PetroNaft Co. provides a wide range of high-quality grades of this product.

POLYMER MODIFIED BITUMEN

WHAT IS POLYMER MODIFIED BITUMEN?

Polymer Modified Bitumen (PMB) has polymer additions to improve its characteristics. Bitumen, a thick, black, sticky substance produced from crude oil distillation, is used to bond roads.

The addition of polymers to bitumen modifies its physical and chemical characteristics, making it more robust, resilient, and resistant to temperature fluctuations, rutting, cracking, and aging. PMB is utilized in road building, roofing, waterproofing, and other civil engineering applications.

Styrene-butadiene-styrene (SBS), styrene-butadiene rubber (SBR), ethylene-vinyl acetate (EVA), and polyethylene may change bitumen (PE). Polymer choice relies on PMB characteristics and application.

Polymers increase performance and endurance to bitumen, making it a desirable building material.

POLYMER MODIFIED BITUMEN APPLICATIONS

- Construction of roads
- Applications in industries
- Insulation and bituminous waterproofing
- Insulation of electrical wiring

POLYMER MODIFIED BITUMEN (PMB) GRADES MOST COMMONLY USED

1. **PMB 40/60:** This grade of PMB is a polymer modified bitumen with a penetration grade of 40/60. It is typically used for paving applications in areas with moderate traffic.
2. **PMB 70/10:** This grade of PMB has a penetration grade of 70/10 and is typically used for paving applications in areas with heavy traffic.
3. **PMB 120/30:** This grade of PMB has a penetration grade of 120/30 and is typically used for roofing applications and other areas where high flexibility and durability are required.
4. **PMB 160/40:** This grade of PMB has a penetration grade of 160/40 and is typically used for heavy-duty applications, such as airport runways and industrial flooring.
5. **PMB 200/60:** This grade of PMB has a penetration grade of 200/60 and is typically used for very heavy-duty applications, such as bridge decks and high-speed motorways.

It's important to note that the specific grades of PMB used in road construction can vary depending on factors such as climate conditions, traffic volumes, and the specific requirements of a given project. The selection of the appropriate PMB grade is based on the expected temperature extremes that the pavement will experience over its design life.



CRUMB RUBBER MODIFIED BITUMEN

WHAT IS CRUMB RUBBER MODIFIED BITUMEN (CRMB)?

CRMB is a modified bitumen material that combines the benefits of bitumen and rubber to produce a durable and flexible road construction material. It is a sustainable solution that recycles waste tires and reduces the environmental impact of road construction activities. CRMB can be used as a binder in asphalt concrete, which is the most common type of pavement used on roads and highways worldwide. It improves the performance of asphalt concrete by increasing its resistance to deformation, cracking, and aging.

CRUMB RUBBER MODIFIED BITUMEN APPLICATIONS AND USES

CRMB has a wide range of applications in the road construction industry, including:

- Asphalt mixtures: CRMB can be used as a binder modifier in asphalt mixtures to improve the pavement's performance, reduce rutting and cracking, and extend its service life. CRMB can also enhance the resistance of the asphalt mixture to aging, oxidation, and moisture damage.*
- Surface treatments: CRMB can be used as a surface treatment on existing pavements to enhance their skid resistance, prevent raveling, and seal surface cracks. Surface treatments with CRMB can also provide a cost-effective alternative to pavement rehabilitation and reconstruction.*
- Asphalt emulsions: CRMB can be used as an emulsifier in asphalt emulsions to improve their stability and performance. Asphalt emulsions with CRMB can be used as tack coats, fog seals, and chip seals to enhance the bond between asphalt layers and improve the pavement's durability and resistance to water damage.*
- Warm mix asphalt: CRMB can be used as a warm mix asphalt additive to reduce the mixing and compaction temperatures of asphalt mixtures, which can save energy, reduce emissions, and improve the workability and durability of the pavement.*
- Polymer modified asphalt: CRMB can be combined with polymer modifiers to create polymer modified asphalt (PMA), which can improve the pavement's performance and resistance to deformation, cracking, and aging.*



PetroNaft Co. provides a wide range of high-quality grades of this product.

GILSONITE



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GILSONITE

WHAT IS GILSONITE?

Gilsonite is generated from crude oil that hardens and oxidizes underground over time. The surface of Gilsonite is smooth and shining, and owing to the pressure of the earth's strata, the oil transforms into a brownish black solid.

Due to heat, this substance becomes soft and fluid. Natural bitumen is essentially the remnant of oil evaporation. In ponds surrounded by impermeable materials such as plaster, stone, etc., oil has accumulated over many years after migrating through the earth's fissures and strata. By evaporating oil volatiles under pressure, Gilsonite precipitates and forms. Upon evaporation of oil from an oil pond or lake, a natural bitumen or asphalt lake is generated.

Gilsonite is also known by the terms

- Mineral Bitumen
- Asphaltum
- Natural Asphalt
- Natural Bitumen

The simplest description of natural bitumen is that Gilsonite (mineral bitumen) is a very pure natural hydrocarbon substance that is rich in asphaltene and nitrogen compounds. In addition to being black, glossy, and brittle, it includes sulfur and a small amount of ash. Although natural bitumen resembles hard coal or asphalt in appearance, its chemical characteristics are notably different. Gilsonite is soluble in aromatic, aliphatic, and petroleum bitumen solvents.

Currently, we provide Gilsonite in three types according to the customer's desired application:

1- Lump Gilsonite

2- Granulated Gilsonite

3- Micronized Gilsonite Powder

HOW IS GILSONITE EXTRACTED?

The mines of western Iran (Ilam, Gilangharb, Eyvangharb, and Lorestan) are where the Petronaft Gilsonite Lump is mined, and then it is brought to the plant site to be stored there. Gilsonite lumps are poured into the hopper by the digger loader as they are broken up. After that, they are brought to the hammer mill by means of a strip conveyor. In this way, Gilsonite is divided into different grades based on the percentage of ash present and the desired size. The required tests are then completed, quality control is performed, and the product is packaged and ready to be exported in different types and grades from Iran, Turkey, and the UAE to other countries around the world.

LIST OF PRODUCTS

- GILSONITE FOR OIL AND GAS DRILLING (GILSONITE IN DRILLING OIL & GAS)
- GILSONITE FOR INDUSTRIAL USE (GILSONITE IN INDUSTRIAL)



GILSONITE FOR OIL AND GAS DRILLING

Gilsonite for oil and gas drilling has been shown to be effective under pressure and provides advantages not found in cementing or drilling fluids. Gilsonite improves the performance of cementing and drilling fluids in ways that no other single additive can match. This is made possible by its exceptional combination of strength, flexibility, bonding, and high-temperature capabilities. This additive is a naturally occurring hydrocarbon resin. It is quite versatile and can be used for a variety of purposes. In comparison to synthetic materials, gilsonite has significant advantages in terms of health, safety, and the environment (HSE). Gilsonite is classified as non-toxic, non-carcinogenic, and non-mutagenic by the OSHA Material Safety Data Sheets.

LIST OF PRODUCTS

- **GILSONITE FOR CEMENTING (GILSONITE IN CEMENTING)**
- **GILSONITE AS DRILLING FLUID ADDITIVE (GILSONITE IN DRILLING FLUID)**

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At this time, PETRO NAFT is manufacturing a variety of grades of gilsonite, including the following:

- **Lump Gilsonite**
- **Granulated Gilsonite**
- **Micronized Gilsonite Powder**

- 1- **Gilsonite with ash content up to 5%, moisture up to 1% and meshes 30, 40, 100 to 300.**
- 2- **Gilsonite with ash content up to 10%, moisture up to 1% and meshes 30, 40, 100 to 300.**
- 3- **Gilsonite with ash content up to 15%, moisture up to 1% and meshes 30, 40, 100 to 300.**
- 4- **Gilsonite with ash content up to 20%, moisture up to 1% and meshes 30, 40, 100 to 300.**
- 5- **Gilsonite with ash content up to 25%, moisture up to 1% and meshes 30, 40, 100 to 300.**



GILSONITE FOR INDUSTRIAL USE

There are numerous different uses for Gilsonite for industrial use (Gilsonite industrial grade); some of them will be addressed briefly, and a description of each will be provided below. The professionals at Petronaft Company will give the essential help for selecting the appropriate product in accordance with the application that you need.

- **GILSONITE IN FOUNDRY INDUSTRY**
- **GILSONITE IN BITUMEN AND ASPHALT AND ROAD PAVING INDUSTRY**
- **GILSONITE IN THE BITUMINOUS WATERPROOFING INDUSTRY**
- **GILSONITE IN PIPE COATING INDUSTRY**
- **GILSONITE IN CHEMICAL PRODUCTS INDUSTRY**
- **GILSONITE IN INK, PAINT, AND STAIN INDUSTRY**
- **GILSONITE IN ISOLATION INDUSTRY**
- **GILSONITE IN COKE PRODUCTION INDUSTRY**
- **GILSONITE IN RUBBER INDUSTRY**
- **GILSONITE IN STEEL-MAKING INDUSTRY**
- **GILSONITE IN FUEL INDUSTRY**

LIST OF PRODUCTS

- **GILSONITE FOR ASPHALT (GILSONITE IN ASPHALT)**
- **GILSONITE FOR FOUNDRY (GILSONITE IN FOUNDRY INDUSTRY)**
- **GILSONITE FOR INK / PAINT / STAIN (GILSONITE IN INK, PAINT AND STAIN INDUSTRY)**



PetroNaft Co. provides a wide range of high-quality grades of this product.

PARAFFIN AND WAX



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PARAFFIN AND WAX

Paraffins and waxes are a type of hydrocarbon produced during the refining of crude oil. They are used in a wide range of industrial and commercial applications, including candles, coatings, and packaging materials. In this article, we will provide a summary of paraffins and waxes produced in oil, including their properties, production methods, and applications.

Properties of Paraffins and Waxes

Paraffins and waxes are made up of long-chain hydrocarbons, which can vary in length from 20 to over 100 carbon atoms. They are characterized by their high melting points, which range from 40°C to over 80°C, depending on their chain length and molecular structure. Paraffins and waxes are also relatively inert and have low reactivity with other chemicals.

Production Methods

Paraffins and waxes are produced during the refining of crude oil. The first step in the production process is to separate the crude oil into its various components, such as gasoline, diesel, and jet fuel. The remaining heavy fractions, known as residual oils, are then further processed to produce paraffins and waxes.

The production of paraffins and waxes involves a complex series of processes, including solvent extraction, dewaxing, and hydrotreating. Solvent extraction is used to remove impurities from the crude oil, while dewaxing is used to remove any wax present in the crude oil. Hydrotreating is used to further refine the crude oil, removing any remaining impurities and improving the quality of the final product.

Applications

Paraffins and waxes have a wide range of applications in various industries. One of the most common applications is in the production of candles. Paraffin wax is a popular choice for candle makers because it is relatively inexpensive, easy to work with, and has a low melting point. Waxes are also used in the production of coatings, such as those used in food packaging, as well as in the production of lubricants, polishes, and other industrial products.

In the pharmaceutical industry, waxes are used as excipients, which are inactive ingredients that are added to medications to improve their physical properties. For example, waxes can be used to improve the stability and consistency of ointments, creams, and suppositories.

Paraffins and waxes are important industrial materials that are produced from crude oil. They have a wide range of applications in various industries, including candles, coatings, and pharmaceuticals. The production of paraffins and waxes involves a complex series of processes, including solvent extraction, dewaxing, and hydrotreating. As such, the production of paraffins and waxes requires a high level of expertise and technology, making it an important industry in the global economy.



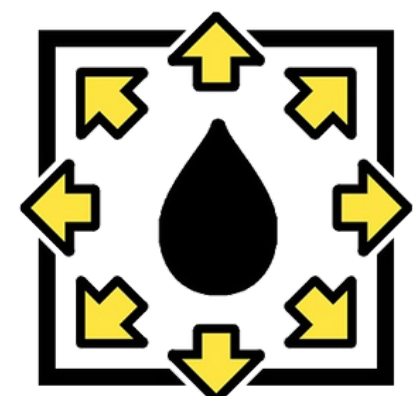
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PARAFFIN AND WAX



PETRONAFT CO. PROVIDES A WIDE RANGE OF HIGH-QUALITY GRADES IN THIS CATEGORY, WHICH HAS BEEN LISTED BELOW. FOR MORE INFORMATION, PLEASE CLICK ON EACH PRODUCT.

- [LIQUID PARAFFIN](#)
- [NORMAL PARAFFIN](#)
- [EMULSION PARAFFIN](#)
- [PETROLEUM JELLY](#)
- [MICROCRYSTALLINE WAX](#)
- [RESIDUE WAX](#)
- [SLACK WAX](#)
- [PARAFFIN WAX](#)
- [GRANULATED PARAFFIN WAX](#)
- [POLYETHYLENE WAX](#)



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DRILLING PRODUCTS



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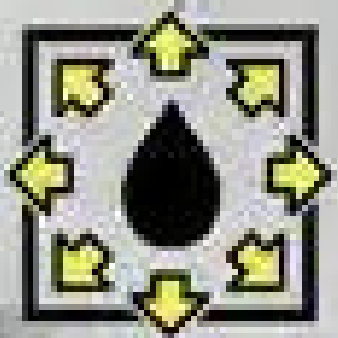
DRILLING PRODUCTS



The manufacturing operations that are carried out by PetroNaft Co. place a primary emphasis on the creation of drilling products that are capable of offering characteristics that are unable to be found anywhere else and that are able to successfully meet the challenging scenarios that are present in the field today. These goods are able to effectively satisfy the stringent specifications that are now widespread in the industry at this time.

- GILSONITE
- BENTONITE
- CALCIUM CARBONATE
- SULPHONATED ASPHALT
- WALNUT SHELL
- CALCIUM CHLORIDE
- CAUSTIC SODA
- SODA ASH





DRILLING PRODUCTS

These high-performance additives are meant to be able to provide drilling solutions that are made up of water and oil and have the requisite rheology, suspension, fluids loss control, and hole cleaning properties. These solutions should also be able to be offered. These treatments have a mixture of water and oil as their primary components. These additives, in addition to executing a broad range of other critical duties, are also liable for a number of other key activities that are done by the system. The manufacturing operations of PetroNaft are centered on the production of drilling items that have characteristics that cannot be acquired anywhere else and that are capable of effectively meeting the demanding circumstances that are now present in the field. Products such as this may simply adjust to the many requirements of the contemporary market.



**FULLY
EQUIPPED**

"With A Solid Foundation And A Clearly Defined Mission, We Are Fully Prepared To Deliver Exceptional Service And Support. "

The company excels in the production and exportation of petroleum products, leveraging extensive experience of over a decade. Equipped with two state-of-the-art factories in IRN, the focus is on the production of bitumen and gilsonite. In addition, partnerships with major paraffin and wax producers, along with collaboration agreements with prominent petrochemical refineries in the Middle East, are a testament to industry reach. As one of the region's leading exporters, operations are widespread, featuring several subsidiary companies, offices, and warehouses in various countries, including Turkey and the UAE. The commitment to expanding operations is paralleled by dedication to deliver unrivaled products and services to clients. This is achieved by promoting transparency, integrity, and mutual trust in all dealings.



PETRONAFT
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**Long-term business will happen by
maintaining quality, professional
principles of business and time
management.**

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