

**SHERKATE BEINALMELALI JAHAN ARTA  
IRANIAN  
(PVT. LTD. CO)**

Manufacturer of Micronized Natural Bitumen  
("Gilsonite-Like") Powder



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## Company History



Jahan Arta International Iranian- established in the year 2010 for the micronization and grinding of Natural Bitumen (“Gilsonite-Like”). Competitive and Managerial Advantages and core competency, are the technological advantages of it’s production line, and also mining machinery in comparison to it’s similar companies and it’s benefit from the Natural Bitumen (“Gilsonite-Like”) Mines, in accordance to the high quality and quantity, located in the geographical region of the province. The company employs a forceful and energetic group of professionals, engineers and expert staff.



The daily micronization production capacity of the company is 100 tons in different Mesh categories.



No	Size	No
1	Mesh +30-40	ceiling insulation
2	Mesh +40-70	Industrial Bitumen
3	Mesh -100	Industrial Bitumen
4	Mesh -200	Drilling mud
5	Mesh -300	Tire Manufacturing Ind. and Moulding Ind.
6	Mesh -400	Special Applications

Jahan Arta International Iranian due to acquiring the first modern and developed Laboratory, is able to have accurate testing on the production of the finished products and raw materials which the important and major tests are given as follows:

No	Test Title	Application Equipment
1	Density Evaluation	Pikno meter
	Ash Evaluation	Furnace and scale d=0.0001
3	Mesh	standard Shaker and sieve
	Determining Soft Point	Ring & ball
5	Flash Point	Flash Point

# Product Introduction



Jahan Arta Iranian

International

## Product Introduction

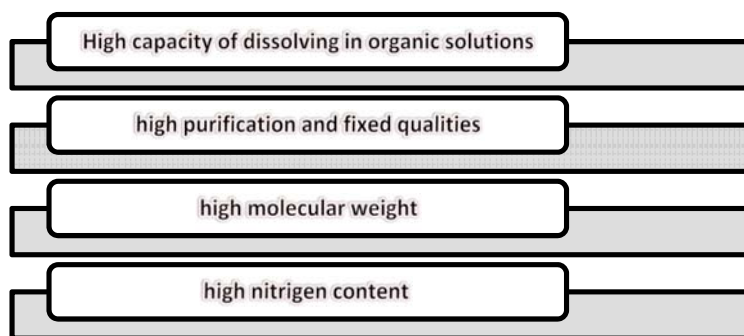
Natural Bitumen (“Gilsonite-Like”) is a natural hydro carbonate resin and it is founded in Lake Bonita, north east Utah USA. This natural Asphalt is similar to a hardened crude oil Asphalt. Usually the terms Asphalt, Utanite and Asphaltom are also used for this material. Natural Bitumen (“Gilsonite-Like”), similar to Asphalt, is naturally soluble in Aliphatic and Aromatic solvents. Due to it is high adaptability, it is usually used for hardening watery oil derivatives and formants. Natural Bitumen (“Gilsonite-Like”) in nodule form is a shiny black and very much like Ebsedine, a brittle material.

In micronized powder form, it is dark brown in color. Natural Bitumen (“Gilsonite-Like”) is found in vertical layers under the ground surface. Due to a narrow mining façade, Natural Bitumen (“Gilsonite-Like”) now a days is extracted by using bulldozers, loaders, excavators and mechanical hammers and other new mechanical tools.



## Natural Bitumen (“Gilsonite-Like”) specifications

Natural Bitumen (“Gilsonite-Like”) is categorized as solid Bitumens which are known as Asphaltenes and is different from other Asphaltenes due to the reasons below:



## Natural Bitumen (“Gilsonite-Like”) Applications

Natural Bitumen (“Gilsonite-Like”) is being used in Paint Manufacturing. It has been used for many prolonged continuous years.

1. This material is used in paints, in which Bitumen forms the basis of paint. The high amount of nitrogen in Natural Bitumen (“Gilsonite-Like”) increases the stickiness and resistance towards violet rays.

25%	Bitumen pen 80-100
25%	Natural Bitumen ( “Gilsonite-Like
50%	Other minerals

This product is used for external applications. Resistance towards Acids, automobile Shaci paints, metal structures and steel paints.

2. Natural Bitumen (“Gilsonite-Like”) Applications in Drilling and Cementing Oil wells.  
Natural Bitumen (“Gilsonite-Like”) is used in drilling conveyances for cementing oil wells. This mineral is substantial and stable, purity and criterion combination

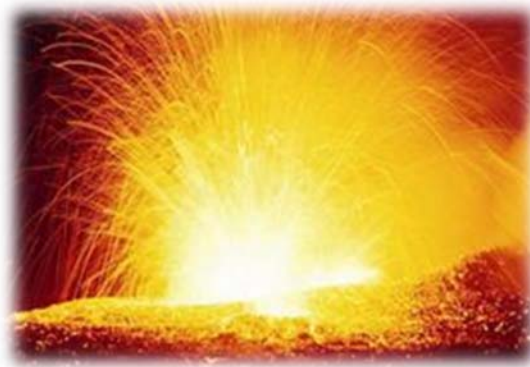
of Natural Bitumen (“Gilsonite-Like”) for ensuring performance efficiency. It is suitable in drilling mud to make the shale steady and firm.

### 3. Natural Bitumen (“Gilsonite-Like”) Applications in Chemical Products

For many continuous years, Natural Bitumen (“Gilsonite-Like”) is being used in producing seals for gaps successfully, and glue, with the new high tech products and the natural exclusive total quality control of this product as replacement for synthetic resin. It is noticed and observed in raw material fraction. Appropriate and effective utilization of this natural resin is suitable with the high quality performance of Natural Bitumen (“Gilsonite-Like”).

### 4. Natural Bitumen (“Gilsonite-Like”) Application in the Moulding Industry

Natural Bitumen (“Gilsonite-Like”) is used as a carbonate additive in moulding sands and reduces the defects in the finishing operations of the metal moulding, and also improves the release of dies.



### 5. Natural Bitumen (“Gilsonite-Like”) Application in producing Bitumen combinations

Producing mastic with Natural Bitumen (“Gilsonite-Like”) can be suitable replacement for mid block, pentaline H, End Block, resin, LX 509 in formulation with craton  $D_{1101}$  and is satisfactory replacement for resin block mid, and a suitable replacement for both two resins.

### 6. Natural Bitumen (“Gilsonite-Like”) Application in Asphalt and Surfacing of Roads

Natural Bitumen (“Gilsonite-Like”) is applied as a factor to increase efficiency and output in the Asphalt mixture. The Asphalt mixed with high purity Natural Bitumen (“Gilsonite-Like”) turns out in a complete combination and does not any

of the other improving materials in powder form that are added to asphalt. Natural Bitumen (“Gilsonite-Like”) totally or partially or as a supplement considering value and price can be replaced as SBS polymers in improving Asphalt. Asphalts improved with Natural Bitumen (“Gilsonite-Like”), have higher stability, lesser deformation, resistance ability over lower temperature and higher water resistance, in comparison to Asphalt not mixed with Natural Bitumen (“Gilsonite-Like”).

Natural Bitumen (“Gilsonite-Like”) is used as a preserving factor in hot surface mixtures. The improved mixtures increase the stability of the surface making; actually the main function of Natural Bitumen (“Gilsonite-Like”) in this application is the improvement of the surface stability and preservation towards deformation, which increases the tolerance ability of weight. It is used in parts that are under high pressure and tension.

Over 10% of the covering Asphalt of roads in the USA which have been studied, are surfaces under high pressure and to an extent of a percentage of these roads, improving materials like Natural Bitumen (“Gilsonite-Like”) have been used. Although the competitive materials in this application for Natural Bitumen (“Gilsonite-Like”) are hard Asphalt, blowed Asphalt, tiers, polymers, black carbon and fiber. There are about 35 different types of substitute products for Natural Bitumen (“Gilsonite-Like”), but due to the ratio benefits of Natural Bitumen (“Gilsonite-Like”) being less than theirs, it’s usage is beneficial. In other words, Natural Bitumen (“Gilsonite-Like”)’s benefits are more than its expense.





## **Process of producing improved Bitumen with Natural Bitumen (“Gilsonite-Like”)**

There are 2 stages:

- ✓ Grinding Natural Bitumen (“Gilsonite-Like”) into the suitable size
- ✓ Mixing Natural Bitumen (“Gilsonite-Like”) with the oil derivatives like Bitumen with high influencing degree, vacuum bottom

### **Grinding Natural Bitumen (“Gilsonite-Like”)**

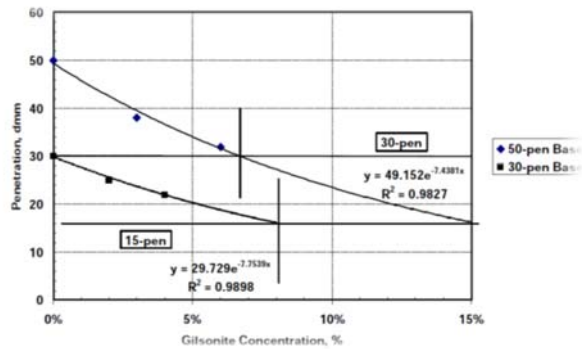
To grind Natural Bitumen (“Gilsonite-Like”) to the micronized extent, due to physical specifications, specific weight, brittleness, fragility and etc..., in 2 stages of stone crushing, takes place and after reaching the desirable limit by air cyclone is categorized.

### **Natural Bitumen (“Gilsonite-Like”) mixture with heavy oil derivatives**

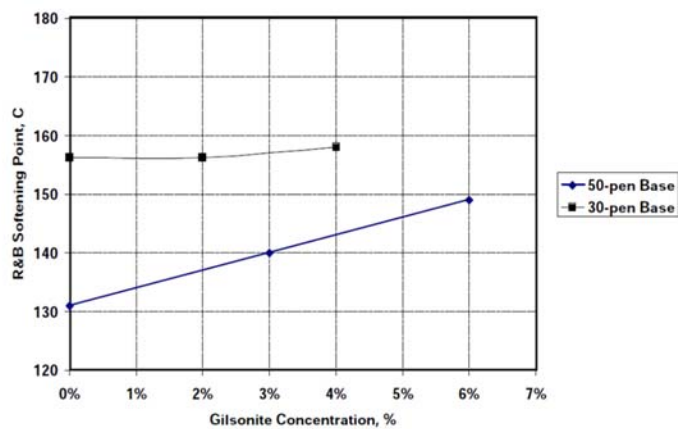
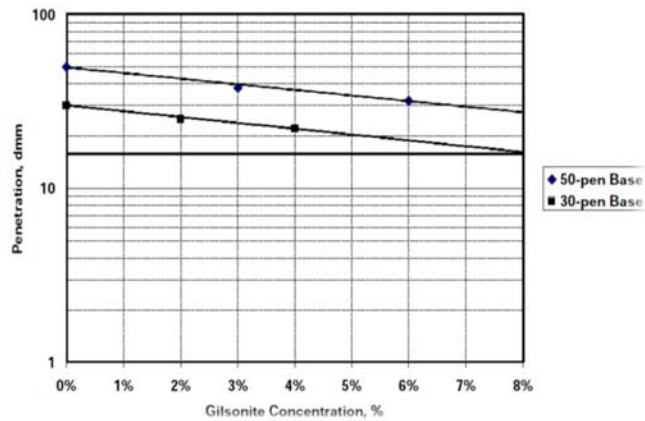
In this stage, produced Natural Bitumen (“Gilsonite-Like”) powder in the earlier procedures is stirred and mixed with heavy oil derivatives with high degree of infusion or V.B by mixers at high temperatures with specific and accurate timings. Systematic sampling program in the laboratory and testing on the production is done through out the different stages of production.

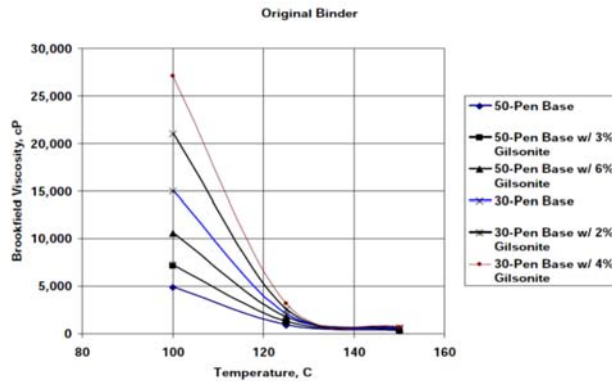
The final product is improved Bitumen and is used in the Asphalt factory.

Effects of Natural Bitumen (“Gilsonite-Like”) on Asphalt were studied by a research done in the USA. In this research 30 pen and 50 pen Asphalts were used with increasing temperature and also having low Bitumen softening point, the penetration further increases Bitumen. Natural Bitumen (“Gilsonite-Like”) decreases this penetration because it increases the softening point of Bitumen. In this research concentration of Natural Bitumen (“Gilsonite-Like”) with the quantity of 6.6% and 8% are used as follows in Bitumen 30 pen and 50 pens which reduce the infusion to 16 pen and 30 pen accordingly.



Adding Natural Bitumen (“Gilsonite-Like”) as a regulator to Asphalt increases its quality. For example according to the R & B (ball and ring) test and experiment, the soft point of Asphalt after adding Natural Bitumen (“Gilsonite-Like”) reaches 149<sup>0C</sup> from 139<sup>0C</sup> and this shows that Asphalt softens at a higher temperature and can be used in high temperature zones.





## Examples of using Natural Bitumen (“Gilsonite-Like”) in Asphalt in different part of the world

City of Oslo, Norway: in this city from the 70 B.C for areas and parts that are under high tension locations, the problem of destruction and damage from water, Natural Bitumen (“Gilsonite-Like”) has been used. The results indicate that adding Natural Bitumen (“Gilsonite-Like”) to Asphalt results in rise of profitable and useful life of Asphalt up to two times of the primary level and also has resulted in the improvement of the resistance and perseverance of the Asphalt and surface making against the causes and factors of destructive incidents and accidents.

The important point is that even with taking in consideration the very bad climate situation of the city of Oslo, using Natural Bitumen (“Gilsonite-Like”) improves the problem of the Asphalt cracking.



City of New salt, Wales, in Australia , in this city for reducing tension causing the deformation of the surface making of the roads in locations with the high tension and also heavy traffic, Natural Bitumen (“Gilsonite-Like”) has been used. The amount of Natural Bitumen (“Gilsonite-Like”) added is 25% of the total Asphalt mixture. Experience and tests and technical studies done after 6 months, 12 months and 24 months, show a clear and noticeable reduction of destruction due to heavy traffic passways.

The city of Seattle, USA. In the port of Seattle, North West of the USA, Natural Bitumen (“Gilsonite-Like”) has been used in one area with heavy traffic and high tension. In this port site, usage of Natural Bitumen (“Gilsonite-Like”) has had worthy attention and considerable results having improved the quality of Asphalt.

## **Benefits of using Natural Bitumen (“Gilsonite-Like”) in Asphalt**

- ✓ All of the improving polymer materials used for Bitumen improvement will not be required at all.
- ✓ High persistence and resistance, lesser deforming, higher water resistance, ability opposite low temperature are of the specifications of Asphalt made with Bitumens which are improved with Natural Bitumen (“Gilsonite-Like”).
- ✓ Increase in ability of tolerating load and wait
- ✓ Minimum  $\frac{\text{Expense}}{\text{Benefits}}$  ratio of Natural Bitumen (“Gilsonite-Like”) in comparison to other modifiers
- ✓ Reducing infused degree of temperatures of Bitumen
- ✓ Increase of softening temperatures of Bitumen
- ✓ Increase of viscosity broke field of Bitumen

