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## 石油焦- Petroleum Coke



### Product Description 商品簡介

Petroleum Coke is a by-product of the petroleum refining process, and it is a black solid or powder produced by a delayed coking device (Delayed coker). According to the structure and appearance of petroleum coke, it is divided into needle coke, sponge coke and shot coke.

Petroleum coke has the characteristics of low ash content and high calorific value. Contains a certain amount of sulfur, nitrogen, hydrogen and oxygen elements, as well as some metal elements, among which the content of vanadium is relatively high, As crude oil becomes heavier, the market for heavy fuel oil shrinks, and the environmental protection requirements for gasoline and diesel quality had been raised up, coking has become an important means



of processing residual oil, followed by more and more petroleum coke being put into the market.

By 2002, China had 31 sets of delayed coking units with a total processing capacity of more than 23 million tons per year and an annual production of 5 million tons of delayed petroleum coke.

石油焦 ( Petroleum Coke ) 是石油煉製過程中的副產品，是由延遲結焦裝置 ( Delayed coker ) 生產的黑色固體或粉末。根據石油焦的結構和外觀，又分為針狀焦、海綿焦和彈丸焦。

石油焦具有灰分低，熱值高的特點。含有一定量的硫、氮、氫和氧元素，以及一些金屬元素，其中鈮含量較高，隨著原油變重、重質燃油市場縮小以及環保對汽油、柴油質量要求的提高，焦化已經成為重要的渣油加工手段，隨之而來的是越來越多的石油焦投入市場。

到 2002 年，中國有 31 套延遲焦化裝置，總加工能力超過 2300 萬噸每年，年生產延遲石油焦 500 萬噸。

## Commodity usage 商品用途

Depending on its quality, petroleum coke can be used in graphite, smelting and chemical industries.

Low-sulfur, high-quality cooked coke, such as needle coke, is mainly used to manufacture ultra-high power graphite electrodes and some special carbon products; in the chain steel



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industry, needle coke is an important material for the development of new technologies for electric furnace chain steel.

Medium sulfur, ordinary cooked coke, used in large quantities for chain aluminum.

High-sulfur, ordinary raw coke is used in chemical production, such as the manufacture of calcium carbide, silicon carbide, etc., and also as a fuel for metal casting.

Most of the petroleum coke produced in China is low-sulfur coke, which is mainly used to chain aluminum and make graphite. In addition, it is mainly used to produce carbon products, such as graphite electrodes, anode arcs, and to provide chain steel, non-ferrous metals, and chain aluminum; to produce silicon carbide products, such as various grinding wheels, sand skins, sandpaper, etc.; to produce commercial calcium carbide for production Synthetic fiber, acetylene and other products; can also be used as fuel, but when used as fuel, it needs to be ultrafinely pulverized by a graded impact mill, and it can be burned after being made into coke powder by JZC-1250 equipment, and coke powder is used as fuel Mainly glass factories, coal-water slurry factories, etc.

石油焦可視其質量而用於制石墨、冶煉和化工等工業。

低硫、優質的熟焦例如針狀焦，主要用於製造超高功率石墨電極和某些特種炭素製品；在鍊鋼工業中

針狀焦是發展電爐鍊鋼新技術的重要材料。

中硫、普通的熟焦，大量用於鍊鋁。



高硫、普通的生焦，則用於化工生產，如製造電石、碳化硅等，也有作為金屬鑄造等用的燃料。

中國生產的石油焦，大部分屬於低硫焦，主要用於鍊鋁和製造石墨。另主要用於製取炭素製品，如石墨電極、陽極弧，提供鍊鋼、有色金屬、鍊鋁之用；製取碳化硅製品，如各種砂輪、砂皮、砂紙等；製取商品電石供製作合成纖維、乙炔等產品；也可做為燃料，但做燃料用時需用分級式衝擊磨來進行超微粉碎，通過 JZC-1250 設備製成焦粉後才能進行燃燒，用焦粉做燃料的主要是些玻璃廠、水煤漿廠等。

## Product Specification as below 產品相關規格如下

### Type 1:

#### LOW SULPHUR VALUE PETROLEUM COKE

No.	Parameter/Composition	Min Value	Max Value
1	Fixed Carbon	90%	-
2	Moisture		5.0%
3	Volatle Matter(VM)		1.0%
4	Ash	0.3%	1.0%
5	Sulphur	0.5%	1.0%
6	Vanadium		150ppm
7	Ni(ppm)	10	40
8	Wt% Si		0.04
9	Wt% Fe(iron)		0.08
10	Resistivity, Micromega-m		1100
11	Real density /cu-cm	2.12	2.15
12	Bulk density g/cu-cm	0.88	
13	Coefficient of thermal expansion per deg C	0.3x10 to -6(0.2-0.4x10 to -6)	
14	Size	1-50mm 80%	



Type 2:

**PETROLEUMCOKE SPECIFICATION – Low Sulphur**

No	Characteristics	Value	Reject
1	Moisture	Less than or equals to 8%	More than(>)8%
2	Ash Content	Less than(<)0.3%	More than(>)0.35%
3	Volatile Matter (on a dry basis)	Min(>)8%, Max(<=)12%	More than(>)12%
4	Sulphur Content (on a dry basis)	0.5%; less than 0.8%	More than(>)1.0%
5	Vanadium/ppm	Less than(<)300	More than(>)350ppm
6	Nitrogen(Ni) /ppm	Less than(<)200	
7	Silicon (Si) /ppm	Less than(<)200	
8	Fa (Iron) /ppm	Less than(<)50	
9	Calcium(Ca) /ppm	Less than(<)300	
10	Real density /cu-cm	2.12	
11	Calorific Value. Kcal/kg	8200 Kcal	
12	Coefficient of thermal Expansion per deg C	0.3x10 to -6(0.2-0.4x10 to -6)	
13	Size	1-50mm 80%; <1mm shall be<5%	
14	Fixed Carbon %	85-90	
15	HGI	75-80	