ALTech
Redefining ALPHA

CARBON PRODUCTS

For Steel, Metals and Cement Industries

CARBON PRODUCTS

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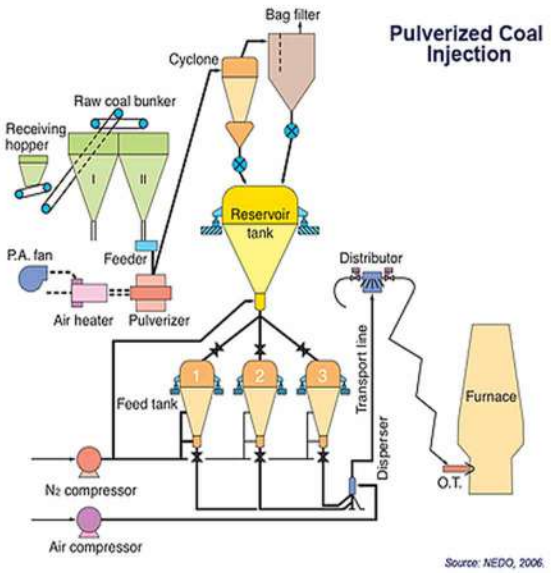
ALTech is your best partner for seamless supply of your carbon product

- **Charge Coke**
- **Injection Coke**
- **CPC**
- **Anthracite**
- **Thermal Coal**
- **PCI**



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Charge Coke technical specification

Size (s)	20-70mm 25-100mm	10-50mm	3-13mm
Moisture, % max	5 - 7	6 - 9	7 - 8
Ash, % max	7 - 9	9 - 11	9 - 12
Volatiles, % max	2	2	2
Sulphur, % max	1.5	1.5	1.5
FC, % min	87 - 90	85 - 88	84 - 88

Metallurgical Coke

Quality indexes	COKE BREEZE	COKE NUT	FOUNDRY COKE	METALLURGICAL COKE
Size, mm	0-10	10-25	25 – 70	60-130
Ash on as received basis, %	10-13	10-13	10-11.5	10-11.5
Moisture, %	18-20	18-20	5-6	5-6
Volatile matter on as received basis, %	2.5-3	1-1.5	0.8-1	0.8-1
Sulphur on as received basis, %	0.9-1	0.9-1	0.9-1	0.9-1
Mass fraction of size, %:				
+ 25 mm	-	8-10	-	-
- 10 mm	-	7-10	-	-
+ 10 mm	5-8	-	-	-
- 60 mm	-	-	-	10-12
- 40 mm	-	-	10-12	-
+ 80 mm	-	-	6-8	50-60
+ 130 mm	-	-	-	4-5
Strength factors:				
M40	-	-	80 % min	86 % min
M10	-	-	8 % max	7.5 % max
CSR	-	-	60 min	35 min
CRI	-	-	28 max	47 max

Injection Coke

Injection Coke is product derived from Metallurgical Coke. The technique of Foaming Slag using Carbon in the EAF is used to increase productivity, lower operating costs and increase the quality of steel produced. It is also used as deoxidizing agent.

We have facilities which include blending, drying, screening & packing.
The above product is manufactured according to individual customer requirement and special care is taken with regard to sizing & product specification.

Injection Coke

Physical Characteristic	**Guaranteed Value**	**Max or Min**
Fixed Carbon	90%	Min
Ash	7%	Max
Moisture	2%	Max
P	0.2%	Max
S	1%	Max
Volatile Matter (VM)	3%	Max
Particules Size	**Guaranteed Value**	**Max or Min**
1-3mm	95%	Min
0-1mm	5%	Max

Petroleum Coke

There are at least four basic types of petroleum coke, namely, needle coke, honeycomb coke, sponge coke and shot coke. Different types of petroleum coke have different microstructures due to differences in operating variables and nature of feedstock. Significant differences are also to be observed in the properties of the different types of coke, particularly ash and volatile matter contents. Needle coke, also called acicular coke, is a highly crystalline petroleum coke used in the production of electrodes for the steel and aluminium industries and is particularly valuable because the electrodes must be replaced regularly.Needle coke is produced exclusively from either FCC decant oil or coal tar pitch. Honeycomb coke is an intermediate coke, with ellipsoidal pores that are uniformly distributed. Compared to needle coke, honeycomb coke has a lower coefficient of thermal expansion and a lower electrical conductivity.

Calcined Petroleum Coke

Calcined petroleum coke is a high purity carbon material produced by heating green petroleum coke to drive off moisture, volatile matter, and impurities and to increase its electrical conductivity. The aluminum industry is the biggest consumer of calcined petroleum coke,with 80% of the demand for this carbon material. The balance of 20% of calcined coke demand originates from the steel and chemical industries, mostly as recarburizer and the manufacture of titanium dioxide pigment.

Physical Characteristic	Guaranteed Value
Fixed Carbon	97.0% Min
Ash	0.8% Max
Moisture	0.2% Max
P	0.2% Max
S	0.7% Max
Volatile Matter (VM)	0.5% Max

Particles Size	Guaranteed Value
0-1mm	95% Min

Anthracite

Anthracite is a unique high-tech raw material. This coal is special because of its maximum carbon content – 92-99%. Anthracite is a metamorphic mineral, which does not contain bitumen and other hydrogen-carbon compounds. Anthracite is outmatching all coals types by its calorific value – 8200 kcal/kg (for example, natural gas is 7000 kcal/kg). Anthracite is also one of the hardest coals and it indicates only up to 5% of volatiles during the combustion. It is a good fuel and has high heat emission.

Size	0-6 mm	6-13 mm	13-25 mm	25-50 mm	50-75 mm
Fixed Carbon	86% min	90% min	92% min	92% min	92% min
Total Moisture	9% max	8% max	6% max	6% max	6% max
Ash	20% max	11% max	10% max	8% max	6% max
Volatiles	5.2% max	3.5% max	3.8% max	3% max	3% max
Sulfur	1% max	1% max	1% max	1% max	1% max
Hydrogen	1.62 % max	1.62% max	1.62% max	1.62% max	1.62% max
Nitrogen	0.64% max	0.64% max	0.64% max	0.64% max	0.64% max
Chlorine	0.041% max	0.041% max	0.041% max	0.041% max	0.041% max
Arsenic	0.02% max	0.02% max	0.02% max	0.02% max	0.02% max
Higher Calorific Value	25.1 MJ/kg	29.3 MJ/kg	30.1 MJ/kg	30.5 MJ/kg	30.5 MJ/kg
Lower Calorific Value	24.7 MJ/kg	28.9 MJ/kg	29.3 MJ/kg	29.3 MJ/kg	29.3 MJ/kg

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Thermal Coal

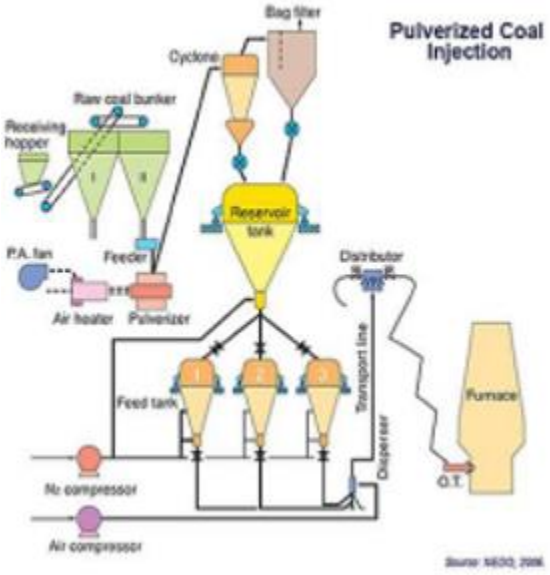
Thermal Coal technical specification		
Size, mm	**0 - 25 & 0 - 100**	**0 - 25 & 0 - 50**
Moisture, %	8 - 12	10 - 12
Ash on dry basis, %	10 - 18	10 - 18
Volatile matter dry basis, %	7 - 12	18 - 25
Sulphur on dry basis, kcal/kg	09 - 1,5	0.9 - 1,5

Thermal coal, also known as steam coal, is used for power and heat generation. In electricity generation, thermal cola is ground to a power and fired into a boiler to produce, heat, which in turn converts water into steam. The steam powers a turbine coupled to an alternation which generates electricity for the power grid. The steam cools down as it turns in modern coal plants the steam is kept at extreme temperatures and pressures at all times to increase the efficiency of the power plant.

Our coal trading business is spearheaded by a team of experienced personnel owning strong local expertise and well-developed relations across the coal value chain from the ground up to the end-buyer. We serve coal users in Europe, Middle East and Asia operating across various industries, with a primary focus on GCC countries which is of the world's largest coal user of thermal coal area.

Pulverized Coal Injection (PCI)

Pulverized Coal Injection (PCI) is a process that involves blowing large volumes of fine coal granules in the BF. This provides a supplemental carbon source to speed up the production of metallic iron, reducing the need for coke production.
As a result, energy use and emissions can be reduced.
Thanks to our close ties with the main Producers, we are able to provide seamless solutions for supplying and accessing coal products.



Physical Characteristic

Size(s)	0-3mm	0.3-3mm	1-3mm	1-4mm	3-8mm
Moisture, % max	1/2/3	1/2/3	1/2/3	1/2/3	1/2/3
Ash, % max	5/7/10/12/15/20	5/7/10/12/15/20	5/7/10/12/15/20	5/7/10/12/15/20	5/7/10/12/15/20
Volatiles, % max	3.0	3.0	3.0	3.0	3.0
Sulphur, % max	1.0	1.0	1.0	1.0	1.0
FC, % min	From 77 up to 92	From 77 up to 92	From 77 up to 92	From 77 up to 92	From 77 up to 92

GLOSSARY

ADB - Air-Dried Basis. In coal sample analysis, ADB neglects the presence of moistures other than inherent moisture while DB (dry-basis) leaves out all moistures, including surface moisture, inherent moisture, and other moistures.
ARB - As-Received Basis. In coal sample analysis, ARB puts all variables into consideration and uses the total weight as the basis of measurement. ARB is the most widely used basis in industrial applications.
Ash content - Ash content is the non-combustible residue that remains after coal is burnt. Ash reduces handling and burning capacity, affects combustion efficiency and boiler efficiency and therefore increases handling costs.
ASTM - American Society for Testing and Materials
GAR - Gross As Received. Thermal coal is quoted on a GAR basis, except for Europe/ARA, Richards Bay 6,000 kcal/kg, and Japan and Korea West CIF, which are quoted on a NAR (Net As Received) basis.
Fixed carbon - Fixed carbon is the solid combustible residue that remains in the furnace after volatile matter is distilled off, comprised mostly of carbon but also containing some hydrogen, oxygen, sulphur and nitrogen not driven off with the gases. It provides a rough estimate of the heating value of coal.
HGI - The relative ease with which coal can be pulverised depends on the strength of the coal and is measured by the Hardgrove Grindability Index (HGI). This empirical test indicates how difficult it would be to grind a specific coal to the particle size necessary for effective combustion in a pulverized coal fired boiler.
Inherent moisture - Inherent moisture (or bed moisture) means moisture that exists as an integral part of the coal seam in its natural state, including water in pores, but excluding that present in macroscopically visible fractures.
Sulphur - Sulphur content in coal presents problems with utilization and resultant pollution, as it causes corrosion and fouling of boiler tubes, and atmospheric pollution when released in flue gases.
Total moisture - Total moisture in coal is represented by measuring weight loss from aggressive drying in an air atmosphere under rigidly controlled conditions of temperature, time and air flow. The presence of moisture is an important factor in both the storage and the utilization of coal, as it adds unnecessary weight during transportation, reduces the calorific value, and poses some handling problems.
Volatile matter - Volatile matter is the material that is driven off when coal is |heated to 950 °C in the absence of air under specified conditions. It consists of a mixture of gases, low-boiling-point organic compounds that condense into oils upon cooling, and tars. In general, coals with high volatile-matter content ignite easily and are highly reactive in combustion applications.

CARBON PRODUCTS

ALTech GROUP have a global footprint

Sales Office and Registered Entity

Sales Representation

Manufacturing Plant

Warehouse

Warehouse

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CERTIFIED
ISO 9001 - 2015
ISO 14001 - 2015
ISO 45001 - 2018
ISO 28000 - 2010
ISO 28000 - 2007
INTEGRATED MANAGEMENT SYSTEM