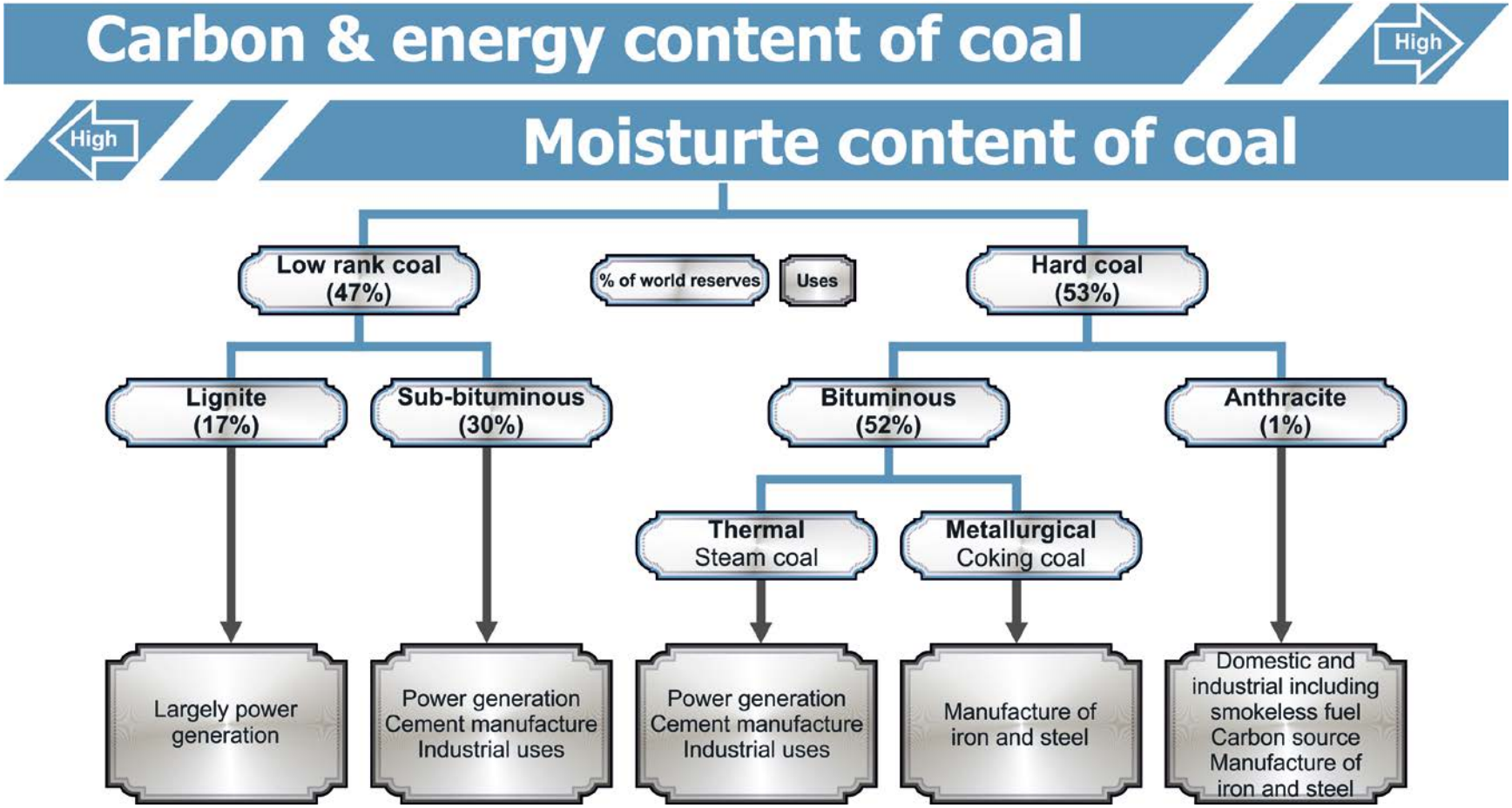
ANTHRACITE

ANTHRACITE – AN OVERVIEW

Anthracite is a high-rank coal, representing a coal that has been subjected to the highest grade of metamorphism. Anthracite is shiny black, hard and brittle and has the highest fixed-carbon content. Due to its low volatile matter, anthracite's combustion process is slow. Most anthracites have low-moisture content and their heating value is up to 8,200 kcal/kg. Anthracite combusts with hot, clean flame, containing low content of sulfur and volatiles. Due to these characteristics, anthracite is often used in specialized industrial uses that require smokeless fuels.

CLASSIFICATION OF COAL



ANTHRACITE – AN OVERVIEW

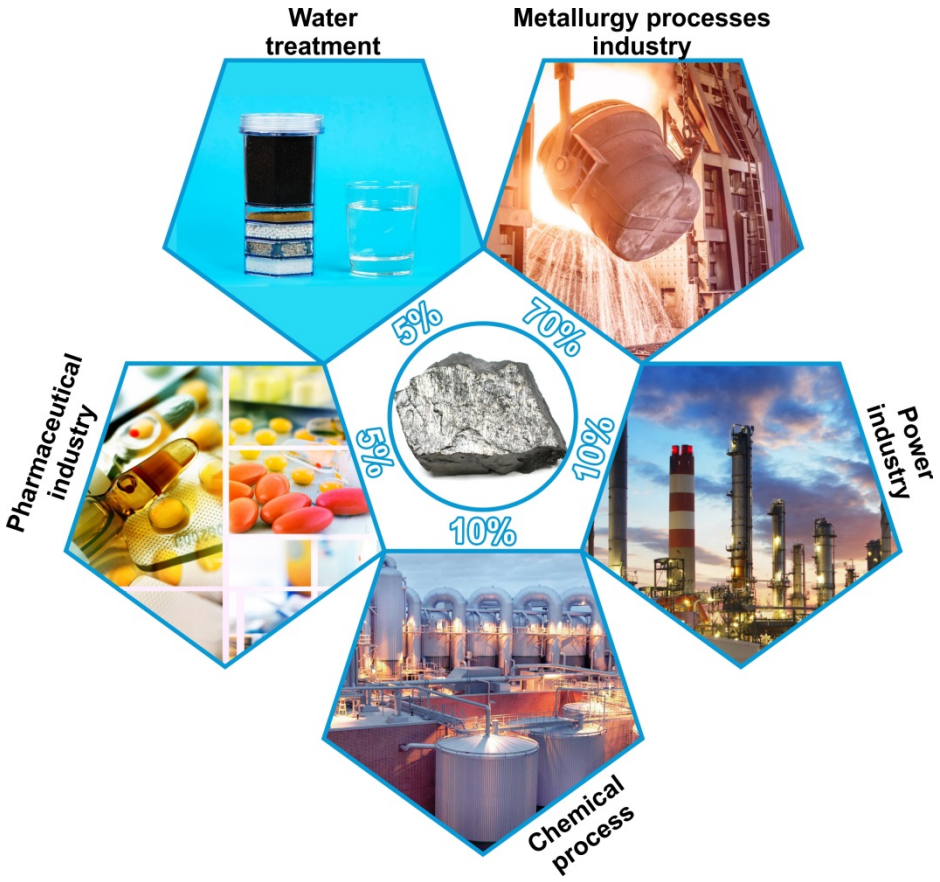
Anthracite has a history of use in blast furnaces for iron smelting; however, it lacks the pore space of metallurgical coke, which eventually replaced anthracite. Nonetheless, anthracite is a unique high-tech raw material characterized by the maximum carbon content. In various grades of coal, this parameter can range from 50 pct in brown coal (lignite), to 95 pct of ultra high quality anthracite coal (UHQ). The higher the carbon content in coal, the smaller the volume of various impurities, such as nitrogen, hydrogen, ash, and so on.

A small amount of impurities and a high percentage of carbon makes anthracite coal the most advantageous for combustion, as it gives the maximum amount of energy.

In its calorific value, UHQ anthracite surpasses all other grades of coal – 8,200 kcal/kg compared to 7,000 kcal/kg of natural gas. Coal Anthracite is the hardest of all coals and practically does not sinter.

USES OF UHQ ANTHRACITE

Anthracites can be used in various spheres of human activity, like industrial production (metal smelting, power generation, chemical – filtering sugar to make it white and as catalyst support, soda ash, and pharmaceutical industry as a material absorbents in the production of medicines, etc.). It is widely used in the public sector (home heating, water heating, etc.), as well as anthracite filters are used to purify water (water treatment), effluents, etc.



UHQ ANTHRACITE IN METALLURGY

At the moment, the metallurgical industry spends a great deal of the best grades of coal worldwide. Most steel is smelted with this raw material.

UHQ anthracite first allowed to replace natural gas and also to use non-coking coals instead of coke. Thus, the productivity of the blast furnace is improved and the cost of the final product as well as the environmental impact are reduced. Therefore, anthracite is a cost-efficient substitute for coke in processes such as sintering, pelletizing and pulverized coal injection.

Anthracite as Input / Replacement	Carbon Substituted	Potential Substitution (%)
Sinter plant	Coke breeze	70 (typically <50)
Pellet plant fuel	Coke breeze	100
Coking Coal	Suitable bituminous coals	10-20
ULV PCI	Other HV and LV coals	100
Direct Blast Furnace charge	Coke	10 - 20
Electric Arc Furnace carbon additive	Coke / Petroleum Coke	100
COREX	Coke	10-20

UHQ ANTHRACITE IN METALLURGY

UHQ Anthracite is often called “Green Carbon” and that is why:

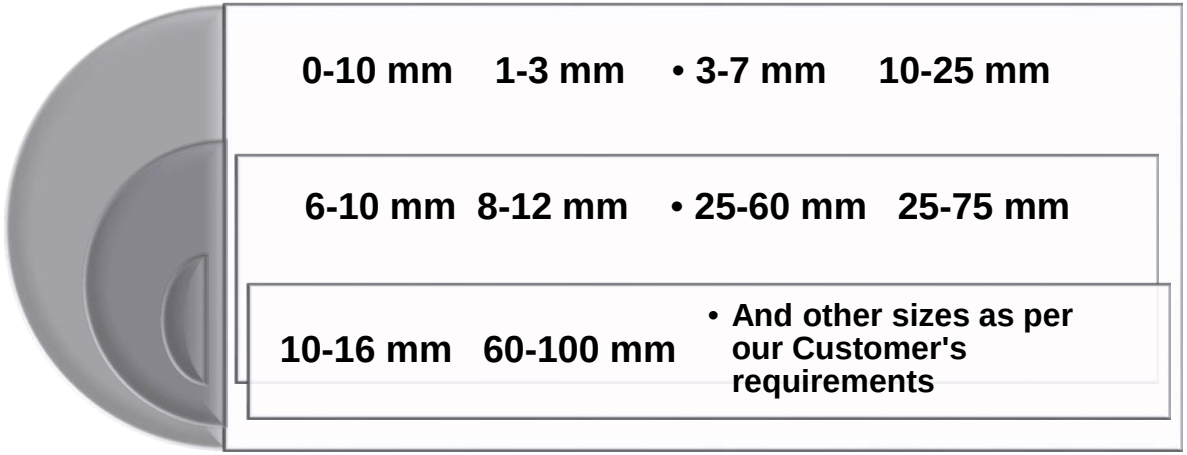
- Anthracite is significantly “cleaner” than coking coal in its natural state and burns ‘smokeless’
- No coke ovens are required if anthracite replaces coke in blast furnace which results in lower emissions
- Anthracite is lower in Nitrogen (NOx) and Sulphur (SOx) oxides than many Hard Coking Coals

COMPARATIVE SPECIFICATIONS

Parameters (ISO)	Standard Quality (SQ)	High Quality (HQ)	Ultra High Quality (UHQ)	Low Ash Met Coke
Ash (dry)	15 %	12 %	4 %	11,5 %
Volatile Matter (dry)	10 %	4 %	2 %	1.5 %
Sulphur (dry)	1 %	1 %	0.6-0.8 %	0.7 %
Fixed Carbon (dry)	75 %	84 %	94 %	87 %

Various fractions of anthracite are used for various applications: production of steel, cast iron, iron ore pellets, graphitized products, zinc and titanium etc. Chemical industry involves UHQ anthracites for the production of sugar and soda ash. Multi-layer filtration systems for water treatment and activated carbon in pharmacy are also significant areas of application of anthracite.

Steel Mont can offer the following size ranges available:



THANK YOU FOR YOUR ATTENTION

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