

ADGEX



COAL WASTE AND ALL TYPES OF COAL TO BOILER FUEL

GREENBLAZE COAL PROCESSING SYSTEM takes low grade COAL WASTE and transforms it into high grade BOILER FUEL!

- Environmental safety & Zero harmful emissions.
- Option of mobile (outdoors) installation on the site.
- Versatility by the type of processed coal and coal waste.

TURN COAL TRASH INTO CASH!

GUARANTEED SOLUTION FOR THE COAL INDUSTRY TO INCREASE BUSINESS EFFICIENCY BY PRODUCING BOILER FUEL FROM ALL TYPES OF COAL AND COAL WASTE

The greenBLAZE Coal Processing System is designed for obtaining of high-quality boiler fuel by processing and disposal of the following types of coal and coal waste, but are not limited to:

- Low-grade and sub-standard coal;
- Moisture coal & Coal with high ash content;
- Low-grade coal waste, including coal dust;
- Waste from coal processing plants (processing tailings).

PRINCIPLE OF OPERATION OF THE GREENBLAZE COAL PROCESSING SYSTEM

GreenBLAZE Coal Processing System is a set of equipment, the basis of which is a greenBLAZE processor.

The greenBLAZE processor works on the principle of high-temperature vacuum decomposition of any carbon-containing materials with obtaining synthesis gas at the output. The greenBLAZE processor operates in a closed cycle without open combustion, without harmful emissions.



UNIQUENESS OF THE GREENBLAZE COAL PROCESSING SYSTEM:

- 🌱 Wide range of processed types of coal and coal waste;
- 🏠 Small and compact dimensions and modularity of equipment;
- 🚚 All equipment is placed in 2 20-foot containers, due to which it is easily delivered to the required site.
- 🏠 Option of mobile (outdoors) and stationary (indoors) installation;
- ⚡ Possibility of ensuring complete energy autonomy.



UNIQUENESS OF THE GREENBLAZE PROCESSOR IN RAW MATERIALS

1 COAL TYPE. The greenBLAZE processor is designed to process not a mass, but a certain volume of carbon-containing material.

The technical task of the processor is to process and completely decompose the carbon-containing raw materials entering into synthesis chamber of processor through a partial oxidation reaction and obtain a certain amount of syngas at the output.

If the raw material is low-calorie (for example, low-grade brown coal), this means that the processor will automatically process 2 times the volume of coal compared to high-calorie coals (coking coal or anthracite). Structurally, the processor incorporates regulation of the feed rate of raw materials and its passage through the synthesis chamber, depending on the calorie content and type of coal.

2 COAL FRACTION. The finer the fraction of the raw material, the better the reaction of its partial oxidation and decomposition. Structurally, the processor has the ability to process crushed substandard fractions of coal, including coal dust.

3 ASH CONTENT OF COAL. Often coals have a high ash content (brown coal up to 40% and higher). Coal may also contain plant woody structure and earthy sediment. Structurally, the processor has the ability to work with raw materials with an ash content of up to 80% with the function of automatically removing ash from the degassing chamber area into the cinder collector.

4 MOISTURE COAL. Coal can also have high moisture content. Structurally, the processor has the function of drying the supplied raw materials due to additional energy, which in turn the processor takes by increasing the volume of processed raw materials at the input.

5 INORGANIC PRESENCES. Structurally, the processor has the operational ability to work non-stop when inorganic objects (stones, a piece of glass or iron) enter the raw material. In this case, these inorganic objects pass through the synthesis chamber along with the raw materials and exit with the cinder residue into the cinder collector.



SUSTAINABILITY & ECO-SAFETY OF THE GREENBLAZE COAL PROCESSING SYSTEM

GreenBLAZE Coal Processing System includes a special Environmental Pollutant Gases Purification Unit, which consists of 3 stages:



IMPELLER CLEANING

is designed to remove mechanical impurities from polluting gases.



STEAM-WATER CLEANING

is used to remove carbon oxides from polluting gases.



WET FILTER

is intended for final cleaning.

No pollutants are formed or released into the atmosphere during processing coal and disposing of coal waste in greenBLAZE Coal Processing System.

Therefore, there would not be generated the powerful pollutants of the planet such as sulfur dioxide (SO_2), nitrogen oxide (NO_x), heavy metals, fly ash and other toxic substances, which are inherent in the standard combustion of coal in traditional thermal power plants.

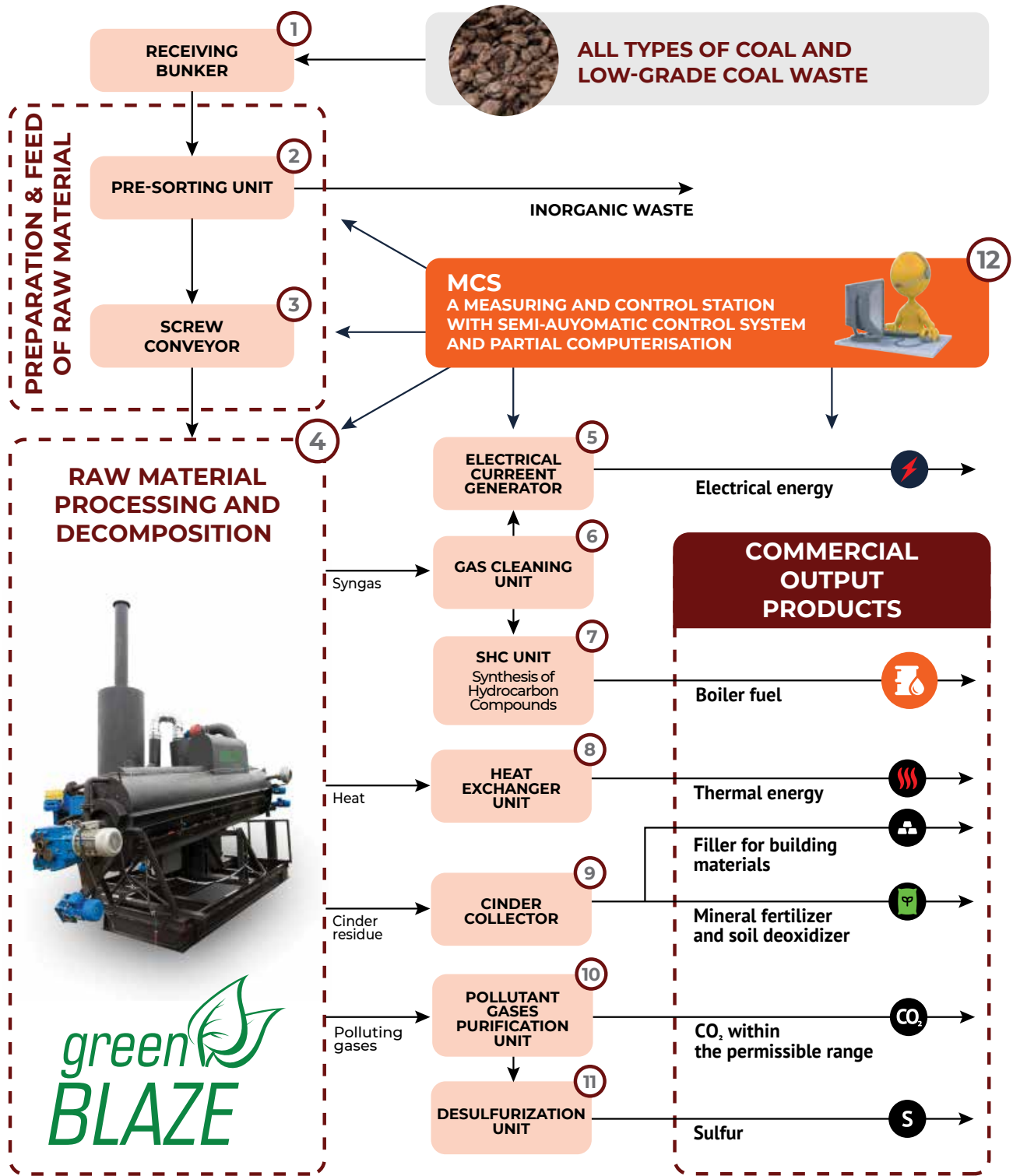
Only carbon dioxide (CO_2) remains within acceptable limits at the exit from the Ecological Pollutant Gases Purification Unit.



SPECIFICATION AND CHARACTERISTICS OF THE GREENBLAZE COAL PROCESSING SYSTEM

VOLUME OF COAL WASTE PROCESSING: (at bulk density 800 kg/m ³)	3.0 m ³ /h (≈2 400 kg/h)
COMMERCIAL OUTPUT PRODUCT <ul style="list-style-type: none"> Boiler fuel: 	from 1 000 l/h
PRODUCTS AFTER COAL WASTE PROCESSING <ul style="list-style-type: none"> Ash residue (up to 45.0% of the volume of processed Coal): Sulfur: 	based on their content in coal
REQUIREMENTS FOR THE SYSTEM INSTALLATION SITE (STATIONARY OPTION) <ul style="list-style-type: none"> Enclosed premises with an area of: The temperature in the room where the equipment is installed: 	at least 100 m ² +5°C ÷ +25°C
TOTAL PEAK POWER CONSUMPTION OF THE SYSTEM (380 V, 50 Hz, three-phase current):	no more than 30.0 kWh
ENERGY AUTONOMY OF THE SYSTEM <ul style="list-style-type: none"> The System can be additionally equipped with a electrical current generator and a gas synthesis unit. 	at the Customer request
OPERATING MODE OF THE SYSTEM:	24/7 within 8 500 operating hours
MAINTENANCE PERSONNEL PER SHIFT <ul style="list-style-type: none"> Operator (engineering education): Labourer (unskilled): (Training of the Customer's personnel is carried out during commissioning)	1 1-2 (depends on process automation)
SERVICE LIFE OF THE SYSTEM: (Subject to annual service)	10 years
GREENBLAZE PROCESSOR SERVICE: <ul style="list-style-type: none"> Frequency: Duration: (Service maintenance is performed under separate independent contracts)	once per annum up to 20 working days
WARRANTY FOR EQUIPMENT OF THE SYSTEM:	12 months

BLOCK SCHEME OF THE GREENBLAZE-COAL



BOILER FUEL CHARACTERISTICS:

- Boiler fuel does not contain foreign impurities (sulfur, paraffins and asphaltenes) and aggressive substances (heavy metals).
- Boiler fuel provides 25-30% more heat than heavy fuel oil.
- Boiler fuel has a higher vaporizability, and therefore has a higher rate of combustion, so you can get more power per unit of time per volume of furnace space.
- Boiler fuel has a lower viscosity than that of heavy fuel oil, so the fuel, even in the winter, it doesn't need to be heated up for good atomization by nozzles.
- Boiler fuel doesn't have a pungent unpleasant odor.

DESCRIPTION OF OPERATION OF THE GREENBLAZE COAL PROCESSING SYSTEM

COAL PREPARATION & FEED

Low-grade coal, including sub-standard coal and illiquid coal waste (hereinafter-“Coal”), are fed and loaded into the **Receiving Bunker (1)**, which acts as a storage tank, and is enough for 8 hours of continuous operation of the greenBLAZE Coal Processing System. After receiving bunker is filled, Coal is fed automatically to the **Pre-Sorting Unit (2)**, where Coal is checked for the presence of inorganic objects and their removal if necessary, as well as grinding of large fractions of Coal. Next, the prepared Coal is fed by a **Screw Conveyor (3)** to the feeder of **GreenBLAZE Processors (4)** for its further oxidation and processing.

COAL PROCESSING AND DECOMPOSITION

Inside the degassing chamber of the greenBLAZE processor, due to the partial oxidation reaction, the crushed Coal fractions are oxidized and decomposed into molecular synthesis gas.

OBTAINING BOILER FUEL

The resulting syngas is sent to the **Gas Cleaning Unit (6)**, where it undergoes purification, after which it is supplied to the **SHC (Synthesis of Hydrocarbon Compounds) Unit (7)**, in which its deep processing and precipitation occurs, resulting in high-quality boiler fuel.

ENSURING ENERGY AUTONOMY

Part of the purified syngas can be used as fuel for combustion in the **Electric Current Generator (5)** and obtaining the required amount of electrical energy for self-powering all components and assemblies of the System to ensure its complete energy autonomy if necessary.

HEAT PRODUCTION AND ITS DISPOSAL

As a result of the partial oxidation reaction in the greenBLAZE processor, a large amount of heat is generated, which with the help of the **Heat Exchanger Unit (8)** for the needs of the consumer. For unclaimed heat, a dropping into the atmosphere is technologically provided.

WASTE AFTER COAL PROCESSING

The waste after Coal processing and decomposition is finely dispersed cinder residue in the form of a lithified mass inert to secondary reactions. The volume of cinder residue formed in the **Cinder Collector (9)** directly depends on the ash content in the processed Coal (in nature, coals vary up to 40% and more).

The cinder residue is ideal for use for construction purposes: filling road surfaces, as a filler for construction and building materials, asphalt and concrete. In case the processed Coal was not initially contaminated with pathogens, the cinder residue is neutral and can be used as a mineral fertilizer or soil deoxidizer.

HARMFUL EMISSIONS NEUTRALIZATION

Coal has a complex petrographic composition and various impurities. When Coal decomposes, harmful impurities form chemical compounds in the gas phase. The **Pollutant Gases Purification Unit (10)** is used to clean and remove polluting gases, after which the output remains only environmentally friendly and safe carbon dioxide (CO₂) within the permissible range.

To purify sulfur chemical compounds contained in polluting gases, the **Desulfurization Unit (11)** is used, in which sulfur is concentrated and purified to a marketable state.

MEASURING, MANAGEMENT AND CONTROL

The greenBLAZE Coal Processing System is controlled by the operator through the **MCS (Measuring and Control Station) (12)** with semi-automatic control system.

SOLVING THE PROBLEMS OF THE COAL INDUSTRY



ENVIRONMENTAL DAMAGE REDUCTION

GreenBLAZE Coal Processing System environmentally safely disposes of coal dust and other coal waste directly at the sites of their generation and storage.

TURN COAL TRASH INTO CASH

Coal waste becomes a highly liquid raw material for boiler fuel production, turning disposal costs into a permanent source of income.


AREAS OF APPLICATION OF BOILER FUEL


- In all areas instead of using traditional Heavy Fuel Oil: industry, navy, housing, utilities and agriculture
- Ideal as a boiler fuel for use in boiler rooms. No boiler conversion is required for use of boiler fuel.
- Boiler fuel can be used as an analog diesel fuel.
- Boiler fuel can be used instead of natural gas. 1 liter of boiler fuel replaces 1.88 m³ of natural gas and exceeds the figures for the amount of heat released and combustion efficiency.


ECOLOGY & SOCIETY

GreenBLAZE Coal Processing System allows coal mining and processing plants to be located near populated areas without violating technical and environmental standards.

WE'RE CHANGING THE WORLD FOR THE BETTER!

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