



Coal combustion catalyst

Coal-CC919C

☆ The characteristics of Coal-CC919C (Crystals)

There are various oxidation states in some of the substances in this Coal-CC919C. They can be decomposed and release atomic oxygen and heat under high temperature, which catalyzes the coal burning reaction and release high energy. The dissociation energy of the oxygen and the activation energy of the combusting carbon can be effectively reduced by the catalyst without chlorine and corrosive substances, which is conducive to the burning of the coal and burn to the core at the end. It supports the combustion, increases energy and saves 8% ~ 20% coals. In addition, there is a chemical reaction between the alkaline oxide in the product and the soot or dirt on the heating surface, which makes the sulfide in the soot or dirt turn to sulphate and be released out of the furnace with the slag. The emission of the sulfur dioxide and harmful gas is reduced and consequently the environment is protected.

☆ Combustion of fuel

During the process of fuel combustion, factors like thick coal layer, fast grate rotation speed, coarse grain of coal, insufficient oxygen, bad combustion condition, quality of different types of coal etc may prevent the coal from reaching sufficient combustion, and this increases the content of carbon, carbide and sulphide in the smoke. This is not only a waste of energy source, but also causes an increase of the smoke's Lingeman blackness as well as pollution to the atmosphere.

☆ Principle of Coal-Saving and Combustion Improvement

Adding the Coal-CC919C will help the fuel to ignite earlier during combustion as well as sufficiently combust fixed carbon, increase furnace temperature, reduce particle loss, and speed up heat exchange; the product and the mixed gas of H_2O , CO_2 , CO , SO_2 etc produced during combustion would go through chemical reaction to generate inflammable gas that join the combustion, release heat, and increase flame area, density, and temperature; it also further increase heat exchange capabilities, as well as gradually break down into multiple strong oxidizing agent and catalyst; part of the material that made up the product has multiple oxidation state that break down and release heat during high temperature and release oxygen in atom, which significantly strengthens the combustion reaction of coal and releases higher heat energy. The catalyst does not contain chlorine or erosive material and it is capable of effectively reducing the dissociation energy of oxygen and the activation energy of coal combustion, strengthening the combustion of coal and causing coal to reach sufficient combustion by strongly improving combustion, energy generation and coal-saving. Also the basic oxide contained within the product will go through chemistry reaction with the chimney spot and smoke and cause the sulphide within the chimney spot and smoke to generate sulphate and be discharged together with slag, thus reduces the discharge of carbon dioxide in the atmosphere; and also reduces the discharge of harmful gas as well as protects the environment.

☆ Coke and Ash Removal

The metal and inorganic salt contained in a part of the product will engage in chemical reaction with the slag and cause the slag to come off, as well as restore certain ferrous sulfide within the slag into ferri ion, return it to the pipe surface and form a protection coat. This coat would be able to neutralize the sulphuric acid and sulfurous acid that keeps generating on the heat surface, and protect the pipe surface material from acid erosion, this would help extend the inspection & repair period of the boiler and the life span of device as well as reduce manual labor strength.

☆ Smoke and Sulphur Reduction

Also, the sulphur fixing content within the product has overcome the ignition retardation effect of traditional sulphur fixing agents, under the pretext of keeping existing boiler burner devices intact and basing on the chemistry reaction mechanism of coal burning, adding a small amount of combustion improvement and desulphurization agent will transform the sulfur dioxide produced by coal combustion into sulfur trioxide and fixate it into the cinder in the form of sulphate minerals, then be discharged off the furnace together with cinder, which both protects the environment and reaches the goal of "clean combustion" for coal. Economic benefit and environmental protection effect



- Smoke discharge temperature drops by about 5 ~ 20 °C, and the furnace temperature increases about 100~250°C.
- Coal-saving rate is 8~20%
- Lingeman blackness of smoke reduces to within 1 grade, and reaches the environment-monitoring requirement of China.
- Heat efficiency of boiler increases by 4~8% and at the highest 15%.
- Chimney spots of 1~2mm in thickness will come off in 10 ~15 days to reveal clean metal surface.
- Reduce the density of sulfur dioxide discharge (coal cinder desulphurization rate increases by about 60%).

☆ Dosage

Dosage 0.05% of Coal-CC919C to one MT of Coal, (it means 500g of Coal-CC919-C in per MT of Coal) The results were 84.30% of weight loss using Coal-CC-919C as catalyst which improved the coal combustion (80.90% for Coal blank sample); In principal; use less dosage of Coal-CC919C in to fine quality coal, more poor quality coal or moderate medium quality coal.

☆ Usage

The product may be used in following ways in civilian and small-scale industry boilers:

- When the coal contains over 12% water, you can directly mix the Coal-CC919C into the coal.
- Before mixing Coal-CC919C pours the concentrated crystals into 30 times water of concentrated solution (or the water volume less than 12% of the parts to dissolve the Coal-CC919C), stirring and diluting the mixture, then spray the mixture into the coal, stirring and blending together, it will be optimal if the total moisture content of coal can be achieved at 12%. Normally, we use hand test method, that is grasping a handful of raw coal, if the coal can be grasped together as a ball and with flaws on it means the moisture content is moderate; if the coal can be grasped together as a ball without flaws on it means over moisture content, if the coal can't be grasped together and loose means short of moisture content.
- When the coal contains less than 12% of water, you can use the water volume less than 12% of the parts to dissolve the Coal-CC919C in water and evenly spray onto the coal, or when used on power station boiler with conveyor feeding device, a product-feeding device may also be fitted onto the conveyor to perform the entire product adding process. If used in water solution, then the total liquid of the combustion agent should be a reasonable amount to ensure the total water content of the coal does not exceed 10~12%, the concentration of the mix is usually 10~20%. When making the solution, first add water and then add the combustion improver while stirring. When spraying or pouring, stir the coal slightly for even distribution. We suggest that the water content of combustible coal would not be over 12%.

☆ Application range

The product is suitable for all types of cement plant boiler, industry boiler and civilian boiler, home coal ball, manual furnace etc. The requirement of boiler worker when using combustion improver.

- After the combustion improver is added, the fire power of the furnace will be strong and fierce, in order to sufficiently make use of the heat from the high temperature fire, under the pretext of ensuring normal operation, it is required to reduce the rotation speed of the grate properly (generally reduce by one gear) to reach best effect.
After adding the combustion improver, in order for the coal to reach sufficient combustion, more oxygen is needed, please adjust the air blower based on practical conditions and reduce the coal layer thickness by 1-3cm.
- The product is not inflammable, but it requires careful management, please store it at least 30 m away from the boiler room.
- The product is of a powdery form and dissolves in water, with an ignition point of around 400 °C, please keep away from moisture.