ALTERNATIVE FUELS AND REDUCING AGENTS FOR METALLURGICAL PROCESSES

Purposes and implication
It is possible to use fuels and reducing agents that are made from renewable carbonaceous materials instead of combustible minerals in metallurgical processes (such as sintering, electric arc steelmaking, direct reduction, putting on the blast in blast furnace, etc.) as well as in chemical industry. It will allow to reduce dependence of metallurgy on fossil fuels and their products, produce both fuel and reducing agents with the required parameters (such as size, strength, chemical reaction qualities, element and proximate analysis), recycle biomass processing waste, improve technical and economic performance of metallurgical plants, reduce emission of harmful substances.

Key characteristics of the developed technology
The technology presupposes directed pyrolysis of solid biomass mixed with coal. By changing the thermal treatment conditions that depend on the properties of the raw material, it is possible to produce the product of required quality to be used in metallurgical processes.

Comparison with the world analogues, major advantages
The production of alternative fuels and reducing agents is directed at satisfying the requirements of definite metallurgical processes. It takes into account technical characteristics of modern metallurgical equipment, its modes and operating conditions.

Intellectual property rights protection
One patent for the utility model registered in Ukraine, research articles.

Market demand
A lot of industries have different requirements for fuels and reducing agents that should possess sustainable properties and relatively low cost. The developed alternative fuels and reducing agents meet the requirements.

Availability of the technology
There has been tested the conditions as well as prepared laboratory samples of fuels and reducing agents that comprise solid biomass of various size, shape, and quality.

Solid carbonaceous waste received with the addition of pelletized biomass
Carbonaceous briquettes received with the addition of wood