Power Waste Gasification, LLC

The Thermal Conversion Process

Thermochemical Pressed-Bed Gasification (PGP)

An Environmentally and Economically Viable Waste-to-Power Conversion Technology

The Next Level in Green Energy

As the world's population continues to expand, so does the demand for environmentally friendly energy sources. It is time to take the next step in green energy; to put to use a technology that is financially practical while helping keep the air, land, and oceans clean.

Our unique breakthrough technology takes the next step in green energy by using waste that otherwise goes to landfill.

EFFICIENT ENERGY - *More than triples* the net energy output of any current waste processing technology, resulting in:

FINANCIAL PROFITABILITY - Greater production and economic efficiency created through lower operating costs and reduced energy consumption

MINIMAL FOOTPRINT - The most efficient use of existing municipal waste with the lowest emission levels of any existent technology in the industry

Now, the game-changer….

THERMOCHEMICAL PRESSED-BED GASIFICATION

Our technology is a giant leap ahead for the field of renewable energy. Using ordinary municipal solid waste, our uniquely engineered pressed-bed gasifier (PGP) creates syngas by injecting air into the system and compressing the feedstocks through our proprietary thermochemical process until they are broken down. The silicate slag removed in this process can be repurposed for other use, such as road construction. The syngas is then cooled, cleaned, and run to a power generator. The results of this new process are astounding - three to four times the power generated at a fraction of the cost versus any methods currently in use!

This technology provides a self-sustaining plant, multiple revenue streams through generation of energy, heat, and reusable byproducts, and a smaller environmental impact than any current method of power generation. In short, our technology makes the dream of an eco-friendly, self-sustaining society not just a reality, but a positive proposition for everyone.

Turning Industry Problems Into Solutions

Most waste-to-power technologies have failed to date, either due to low energy efficiency, because of not meeting increasing environmental standards, or both.

Environmental Viability Hurdles

- Exceeding emission standards - NOx, dioxides, furans, aromatic hydrocarbons, VOCs and others
- Residue - toxicity (oxides of heavy metals) and high carbon content
- Substantial tars in the syngas - requires their combustion and costly gas cleanup

Economic Viability Hurdles

- High drying costs (reducing moisture in feedstock) and high heat losses
- Multiple processes significantly lower efficiency and increase system and operating costs
- Efficiency limitations of energy generation (20% maximum via boilers/steam turbines)
- High investment and high-energy consumption (e.g., Plasma

SOLUTION: OUR REVOLUTIONARY PROCESS

This breakthrough technology uniquely turns virtually all existing environmental and profitability barriers into solutions.

PRIMARY ADVANTAGES

- 81% Thermal Efficiency, resulting in lower capital cost, smaller footprint, higher quality fuel gas, and converts most carbon.
- Creates significantly more syngas than other known processes due to a unique heat transfer design. Syngas is suitable for use in combustion gas engines, thus doubling energy output over turbines.
- Prevents and /or minimizes the formation of tars, NOx, SO2, dioxins/ furans.
- Works with raw materials with high humidity (with up to 30% moisture content); Drying takes place inside the vessel.
- Feedstock residue, non-organic components and heavy metals are encapsulated into non-toxic silicates suitable for industrial applications.
- The entire process takes place in one single multi-zone reactor operating at approximately 1,300 C^{o}, thereby significantly reducing system costs.
- Because syngas is primarily cleaned up inside the reactor by the process, the syngas cleanup system costs are significantly lowered.

ENVIRONMENTAL ADVANTAGES

Use of MSW as Renewable Feedstock. Up to 70% of MSW is considered "Renewable" by the EPA.
Prevention of NOx formation. Due to the existence of the reforming zone, NOx levels are prevented or minimized.
Reduction of CO2. The reforming zone enables significant reduction of CO2 by conversion into CO as fuel, using a thermal chemical reaction.
Elimination of the use of external fuels. The process is based on exothermic reactions and does not require use of external fuels.
Elimination of tars and VOCs. Obtained syngas does not contain complex aromatic hydrocarbons, VOCs, and tars (all of which are oxidized during the thermal chemical process), which simplifies the gas cleanup system and allows the use of a combustion gas engine versus a steam turbine, creating substantially more energy output. The gas cleanup system is minimal due to the destruction of tars, VOCs and particulates inside the reactor.
Prevention of toxicity formation in the output residue. During the process in the thermal chemical process zone, temperatures reach a point where chemical processes for silicate formation begin, in turn enabling the full formation of silicates from the non-organic portion of the carbon char (consisting of oxides of metals, including heavy metals and dioxides of silica) via chemical reaction.

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