

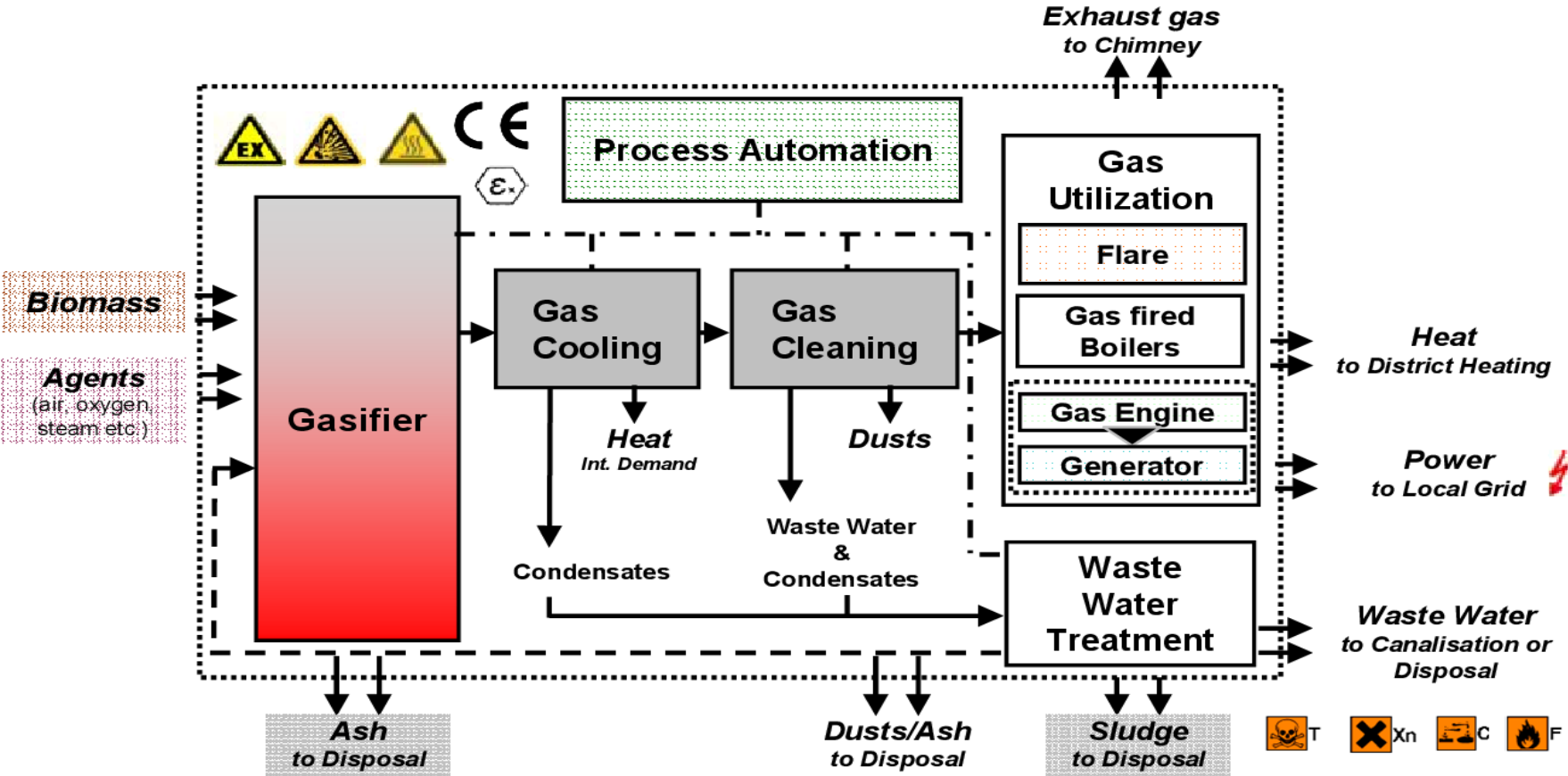
Biomass Gasification Power Generation (Green Energy)

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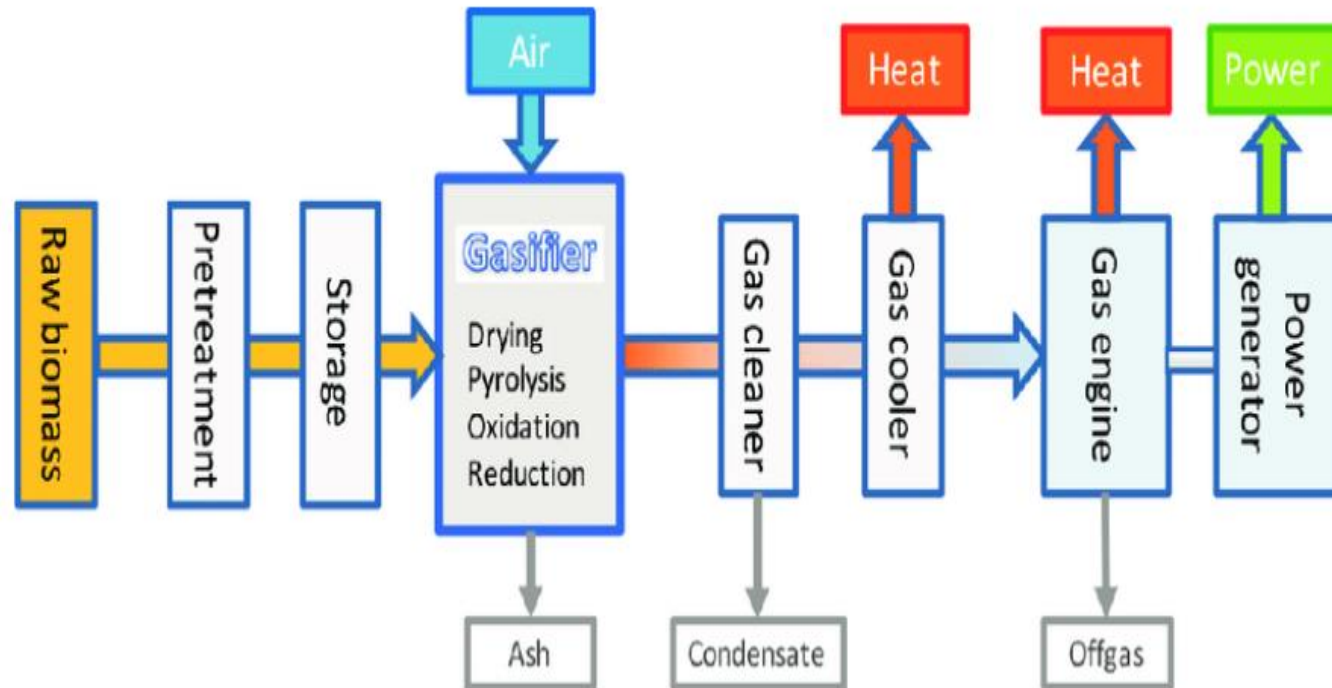
Founder of MESEC

Biomass Gasification Power Generation Process



Components of Biomass Gasification Power Generation System

- ▶ Biomass Feeding Elevator
- ▶ Biomass Gasifier
- ▶ Biochar Cooling Machine
- ▶ Gas/Ash Separator
- ▶ Indirect Cooler
- ▶ Electro-Static Precipitator (ESP)
- ▶ Gas Tank
- ▶ Gas Flare
- ▶ Gas Generator Set

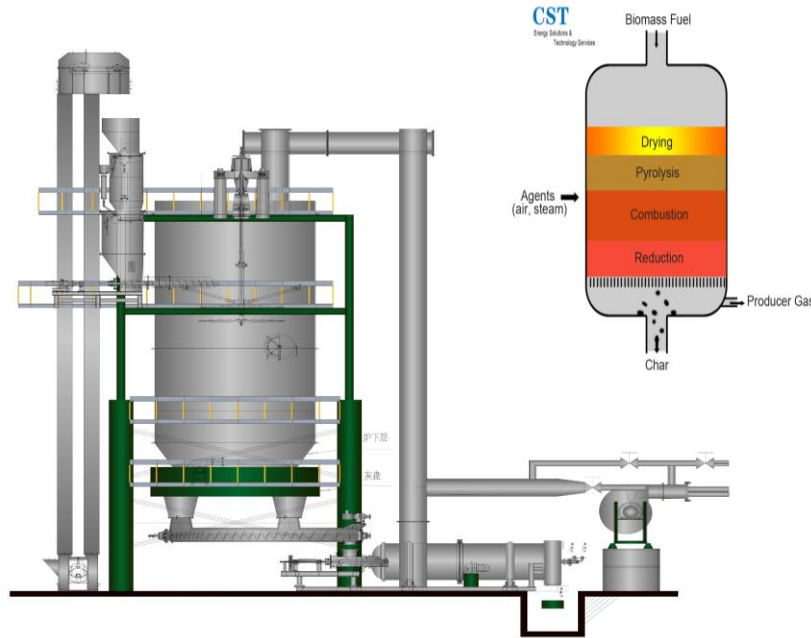


Steps of Biomass Gasification Power Generation System

1. Biomass Gasification
2. Gas Conditioning
3. Electricity Generation



Step 1: Biomass Gasification



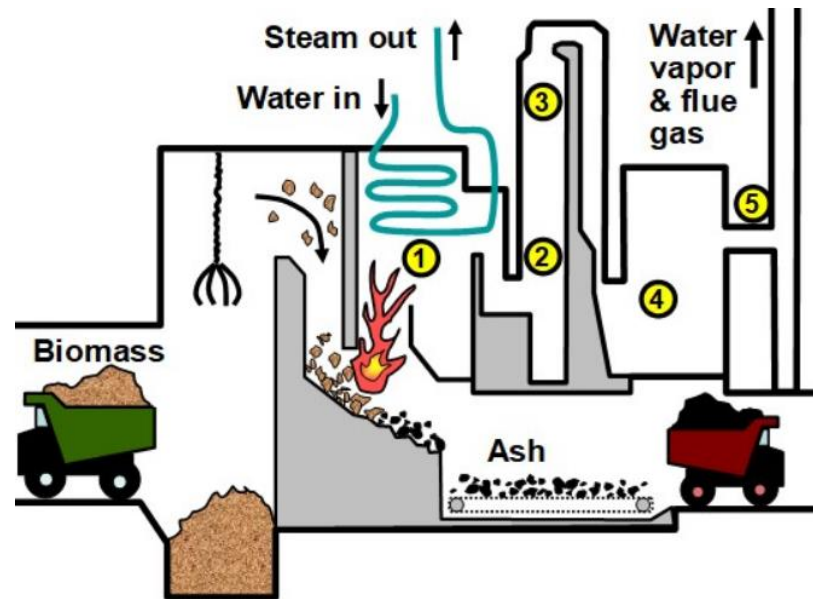
Biomass Gas Output



Ash / Bio-Char

Step 2: Gas Conditioning

- ▶ Gas conditioning is a process used to clean and improve the composition of the gas produced by biomass gasification.
- ▶ This is necessary because the gas produced by biomass gasification can contain impurities and other non-desirable products that can be harmful to the environment and human health.



Step 3: Electricity Generation

Clean & Cool
Biomass Gas



Electricity Output
400V/50Hz or 440/60Hz

Internal Combustion Engine: 500kw, 600rpm/min, Chinese Brand
Generator: Siemens, Made in China

Applications of Ash/Biochar

1. Ash/Biochar as Fertilizer

- ▶ Rich in potassium (6-12%) with over 90% water-soluble carbonate form.
- ▶ Contains phosphorus (1.5-3%) and essential nutrients like calcium, magnesium, and sulfur.
- ▶ Includes micronutrients: iron, manganese, copper, zinc, boron, and platinum.
- ▶ Enhances soil fertility and crop productivity.
- ▶ Outperforms chemical potassium fertilizers in efficiency.
- ▶ Provides full-spectrum nutrient support for plant growth.





Leaf Yellowing



Underdeveloped Root



Withered Leaf

Before Using of Ash/Biochar

After Using of Ash/Biochar



Applications of Ash/Biochar

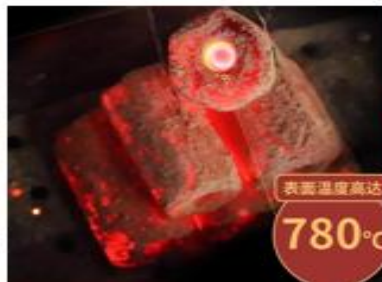
2. Ash/Biochar as Charcoal

- ▶ Ash/Biochar from gasification has high carbon content and good heat value.
- ▶ Economically viable to produce charcoal briquettes from biochar.
- ▶ Biochar mixed with corn starch for briquette formation.
- ▶ Pressing machine used to create natural, chemical-free **charcoal briquettes**.



Charcoal Briquettes

- ▶ Burn resistance: 5~6 hours
- ▶ Low ash content
- ▶ Sufficient burning and uniform fire
- ▶ Smokeless and odorless



Advantages of Biomass Energy

- ▶ **Widely Available Renewable Source:** Biomass is always accessible and infinite, derived from organic materials like garbage, wood, and manure.
- ▶ **Carbon Neutral:** Releases only the carbon absorbed by plants during their lifecycle through photosynthesis.
- ▶ **Reduces Fossil Fuel Dependency:** Offers an alternative to limited fossil fuels and mitigates carbon dioxide emissions and environmental damage.
- ▶ **Cost-Effective Energy Source:** Biomass technology is cheaper than fossil fuel production, requiring less capital investment.
- ▶ **Additional Revenue Stream:** Converts waste into biomass energy, creating profitable opportunities for manufacturers.
- ▶ **Decreases Landfill Waste:** Reduces landfill garbage by 60-90%, lowering disposal costs and land usage.

Conclusion

- ▶ Generates 1KW electricity from 1.6Kg rice husk.
- ▶ Produces 45% organic fertilizer that is water-soluble.
- ▶ Yields 30-35% biochar for cooking and industrial use.
- ▶ Enables heating and cooling for centralized temperature control.
- ▶ Provides gases for boilers and power generation.
- ▶ Extracts transportable nitrogen and hydrogen gases.

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. The shapes are primarily triangles and polygons, creating a dynamic, layered effect. The central area is white, providing a clean space for the text.

Thank You!

Any Question?