Biomass Feedstock Chart: *Information for Power Pallet & GEK Usage*

Fuel Type	Suitability for use		Issues	Processing required
	GEK & GEK TOTTI	Power Pallet		
Nut shells	Excellent	Excellent	None-note however crushed walnut shells are not appropriate	Perfectly suited as is
Hardwood Chips	Great	Great	Must be able to pass through a 1” x 1” screen, but not through a 0.5” x 0.5” screen.	.5” to 1.5” long, 0.25” thick, such as from a disk chipper.
Softwood Chips	Great	Great	Must be able to pass through a 1” x 1” screen, but not through a 0.5” x 0.5” screen.	.5” to 1.5” long, 0.25” thick, such as from a disk chipper.
Coconut Shell	Great	Great	Must be able to pass through a 1” x 1” screen, but not through a 0.5” x 0.5” screen.	Must be broken into chunks
Sawdust	Fair	Not suitable	Possible issues with clogging or swelling.	Must be pelletized to min. 1” diameter 1.0-1.5” long
Corn Cobs	Fair	Fair	Depending on cob size; has not been extensively tested.	Must be broken into chunks
Cow Manure	Fair	Not suitable	Highly variable. High mineral content could lead to slag.	Dry to 25% moisture, pelletize to min. 1” diameter and 1.0-1.5” long
Coffee Grounds	Marginal	Poor	Possible issues with clogging, swelling, and mulching.	Must be pelletized to min. 1” diameter 1.0-1.5” long
Poultry Litter	Marginal	Poor	High slag, no known successful use yet.	Must be dried and condensed into chunks
Municipal Solid Waste	marginal	Poor	High availability. High mineral content could lead to slag.	Must be dried and condensed into chunks
Bamboo	Poor	Not suitable	High silica & ash content causes jams on ash grate.	
Paper	Poor	Not suitable	Fuel with Insufficient density to move through system. Possible fuel in briquette form, research needed.	
Sugar Bagasse	Poor	Not suitable	A fluffy fuel. Could work better if a preparation process is developed.	
Corn Stover	Poor	Not suitable	High ash & silica content. Could work better if a preparation process is developed.	
Plastic	Not suitable	Not suitable	Melts into a thick mass, damaging the reactor. Can produce toxic gasses.	
Palm Pressings	Not suitable	Not suitable	Under research as a fuel. Possible high energy density.	
Rice Husks	Not suitable	Not suitable	High silica content, small particle size	
Coconut Husk	Not suitable	Not suitable	Too fibrous to move through the system. Could work better if a process is found.	
Coal	Not suitable	Not suitable	Burns so hot it will destroy reactor	
Trash	Not suitable	Not suitable	Certain trash produces highly toxic fumes!	
Tires	Not suitable	Not suitable	The GEK is designed to run on waste biomass.	
Straw or Husks	Under review	Not suitable		high silica and ash contents. Currently being researched as a fuel.
Algae	Under review	Not suitable		possible low tar content. Currently being researched as a fuel.

In general:

- Effective particle size: 0.5-1.5’’
- Moisture content (% by dry weight): <30 (<10% during start up)
- Fixed to volatile carbon ratio: >0.25
- Ash content: >5%

Anything fuels outside of this range is considered experimental, and while we absolutly encourage experimentation, use of fuels outside of this range may not be covered under our warranty agreement--please contact us if you have any questions before using different fuel types.

Power Pallet

“Hands-off” conversion of biomass to electric power

GEK & GEK TOTTI

“Hands-on” experimentation with converting biomass to “producer gas”; DIY projects.