

Choosing Feedstock for your Power Pallet and GEK Gasifier

For your gasifier to operate properly, you must use the correct biomass fuels which have been properly prepared and sifted. Feedstock fuel must be dry, of the correct shape and size to flow through the reactor, and free of dust, sand and contaminants:

- Particle size: 1 cm - 4 cm (0.5 in. - 1.5 in.)
- Moisture content (% by dry weight): 5% min – 30% max
- Ash content: less than 5%



LEGEND	
Green	Known to work with standard operations and maintenance
Yellow	Known to work with increased operations and maintenance
Gray	Not enough testing yet to approve. Use voids warranty
Red	Known to not work. Use voids warranty

The following Table of Feedstocks shows the most common ones that have been tested and are known to work, which ones are known to be unusable, and which ones need more testing. For more information on fuel preparation, contact APL

FEEDSTOCK	NOTES
Wood Chips e.g: Oak, Rubber, Pine	Use only chips; chunks or long shards can bind auger or bridge in the reactor
Nut Shells e.g: Coconut, Walnut , Hazelnut	Not all shells will work, please contact us to discuss your particular feedstock
Corn Cobs	Must be broken to size and must not include husks. Increased chance of slagging
Palm Kernel Shells	Risk of high temperatures. May need to be blended or other steps taken to lower temperatures
Macadamia Nut Shells	Excellent shape, not enough testing
Cashew Nut Shells	Known toxicity, not enough testing
Wood Pellets	May work depending on size & makeup, pellets prone to decompose
Coffee Grounds	Too fine, not physically compatible, pelletization may allow use
Saw Dust	Too fine, not physically compatible, pelletization may allow use
Corn Stover	High ash content; silica content leads to slag
Rice Husk	High silica content leads to slagging
Bamboo	Difficult to prepare to correct size and shape
Grasses: Switchgrass, Miscanthus, etc.	High silica and low bulk density.
Paper, Sugarcane Bagasse, Coconut Husk	Shapes not physically compatible
Municipal Solid Waste/Trash	Slag risk; heavy metals; plastic content not suitable
Coal	Burns too hot, releases sulfur and heavy metals
Plastics	Melts and fouls auger/reactor
Tires	Not chemically compatible
Manure - Cow, Pig, Chicken, etc.	High slag, low energy density