Community Power Corporation
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SynTech Bioenergy LLC

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BioMax® Gasifier Walnut-Shell Biochar

Who makes it: Community Power Corporation is the world's leading developer and supplier of small, modular, biomass-to-energy gasification systems called BioMax.® The BioMax® converts agricultural residues, such as wood chips and nut shells, into electricity and heat through the process of gasification.

How it's made: High quality biochar is a byproduct of our patented BioMax® gasification system.

Where it's made: Northern California

What it's made of: Regionally sourced walnut shells

Specifications:

Bulk Density at 1% moisture	15.2 lb/ft^3		**Soluble Nitrogen**	0.22 wt%
Organic Carbon	78.4% of total mass		**Soluble Potassium (K)**	7.6 wt%
Hydrogen/Carbon (H:C)	0.22 Molar Ratio		**Particle Size**	1-8mm
Liming (neut. Val as-CaCO3)	13.0% $CaCO_3$		**Surface Area Correlation**	876 m^2/g dry

Soil Enhancing & Sequestration Properties:

- Increases water holding capacity and water availability in saline sandy-loam soil.[1]
- Increases corn harvest by up to 8% when combined with mineral fertilizer or compost compared to either soil enhancer alone in a silt loam soil.[2]
- The very low H:C ratio of 0.22 predicts an extremely long carbon sequestration.[3]

Activated Carbon Properties:

- Immobilize nickel, copper, cadmium, and lead from aqueous solutions better than low-temperature wood biochars.[4]
- Holds and slowly releases soluble organic compounds from "compost tea" better than activated carbon and low-temperature wood biochars, helping to keep them in the top soil and out of the ground water.[5]
- Adsorbs herbicides better than soft wood biochar.[6]

Types & Quantities Available:

BioMax® Walnut-Shell Biochar (raw product with no additives):

#5 Gallon Bucket	–	10lb (dry basis) per bucket
Bulk Ag-Bag	–	400-500lb per bag
Truckload	–	20+ Bulk Ag-Bags

References:

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3. Budai, A.; Zimmerman, R.; Cowie, A.L; Webber, J.B.W.; Singh, B.P.; Glaser, B.; Masiello, C.A.; Andersson, D. Shields, F.; Lehmann, J.; Camps Arbestains, M; Williams, M.; Sohhi. S.; Joseph, S (2013) "Biochar Carbon Stability Test Method: An Assessment of Methods to Determine Biochar Carbon Stability," from the International Biochar Initiative website: www.biochar-international.org/sites/default/files/IBI_Report_Biochar_Stability_Test_Method_Final.pdf
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6. Daoyuan Wang, Fungai N.D. Mukume, D. Yan, H. Wang, K. Scow, and S. Parikh (2015) "Phenylurea Sorption to Biochars and Agricultural Soil, *J. Environmental Sciences and Health. Part B. Pesticides, Food Contaminants, and Agricultural Wastes*, vol. 50, Issue 8, 544-551.

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