

SIGMA AgriScience

TECHNICAL DATA SHEET

EZ MIX

Medium granular · 100% virgin pecan shell biochar

Sigma Biochar EZ Mix

Medium granular pecan shell biochar for fertilizer blending

A clean, screened, medium granular biochar made from 100% virgin pecan shells. EZ Mix blends easily into dry fertilizers, humates and soil amendments, adding stable carbon, surface area and microbial habitat without fillers, binders or added ash.



Sigma Biochar EZ Mix: screened, clean, free-flowing.

Typical product characteristics

Particle size	**~1.0 mm**
Ash content	**5% w/w**
Moisture (as shipped)	**30% w/w**
Surface area	**250 m^2/g**
Bulk density	**28 lb / ft^3**
pH	**8.5**

Physical and chemical properties

Parameter	Value	Method
Organic carbon	**88.1%**	ASTM D4373
Total nitrogen	**0.77%**	Dry combustion
Electrical conductivity	**0.463 dS/m**	TMECC 4.10
Liming value	**7.8% $CaCO_3$**	AOAC 955.01
Carbonates	**2.8% $CaCO_3$**	ASTM D4373
Hydrogen / carbon ratio	**0.27 mol/mol**	ASTM D4373

Key benefits

- Improves macro and micronutrient efficiency in the blend
- Adds moisture retention, aeration and microbial habitat
- Improves uniformity of fertilizer and humate blends
- Reduces odor when mixed with compost or manure
- Single ingredient: 100% pecan shell biochar, no fillers or binders

Application rates

Use	Starting rate
Dry fertilizer blends	10% by weight
Blends with humic acids	Up to a 50/50 blend with humate
Garden and soil mixes	Replace 20% of peat moss
Tree plantings	10% by volume of backfill, or 10 lb per caliper inch twice a year
Composting	2% by volume at start, or 20% into finished compost

Packaging: 22 lb paper bag (91 bags, 2,002 lb per pallet) · bulk tote (1,820 lb). Private label bags and custom screened sizes on request.
Storage: keep dry and covered. Can be dusty when handled dry; use a dust mask.

Typical values from representative lab samples; results vary by lot. Rates are starting points; set final rates from soil tests, blend trials and site needs. Always read and follow the product label; confirm state registration.

Heavy metals and trace elements

Element (mg/kg dry)	Result	IBI threshold range
Arsenic (As)	**ND**	13–100
Cadmium (Cd)	**ND**	1.4–39
Chromium (Cr)	**72.2**	93–1,200
Copper (Cu)	**14.7**	143–6,000
Lead (Pb)	**ND**	121–300
Nickel (Ni)	**25.7**	47–420
Zinc (Zn)	**9.6**	416–7,400

ND = not detected. Every result is below the International Biochar Initiative (IBI) threshold range for each element.

Case study: PFAS adsorption

In a University of Illinois laboratory study, Sigma pecan shell biochar removed 33% to 77% of several PFAS compounds (PFHxS, PFNA, PFOS linear and branched, PFDoA) from water, measured by EPA Method 1633 (LC-MS/MS). The result points to the same high-surface-area carbon that holds nutrients in a blend.

In the bag: fertilizer blending

- **Stable carbon.** Fully carbonized, so it does not decompose in the bag. It is mildly alkaline (pH 8.5 to 9.7, with a small liming value), so bag-test new blends that carry ammonium or urea.
- **Holds nitrogen.** High surface area and porosity adsorb ammonia and ammonium, which can reduce volatilization loss and feed nitrogen back slowly. Ask the Sigma agronomy team for blend test data.
- **Handles well.** Biochar has no binder to crush, so screened grades flow through augers and conveyors without breaking down like granulated char.
- **Clean label.** One ingredient, 100% pecan shell biochar, with no added ash, manure, fillers or binders.

Sigma pecan shell biochar grades

Grade	Particle size	Best for
Powder+	~20 microns	Liquids, seed and granule coatings
EZ Mix	~1.0 mm	Dry fertilizer and soil blends
Custom screened	To your spec	Private label blends and bags

Private label and custom sizing. Every Sigma biochar grade can be private labeled. Screened chip sizes can be matched to your blend spec. The Sigma agronomy and registration teams support blend trials, label claims and state registration.

Pecan shell feedstock: a consistent, nutrient-rich, low-dust raw material that does not depend on forestry harvest. Typical values from representative lab samples; results vary by lot. Analytical methods per ASTM, EPA, AOAC and TMECC standards.