

Fruit-Stone Activated-Carbon Production Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real fruit-stone activated-carbon production line equipment.

1 feedstock validated source	1 grade launch product	650-950°C thermal stages	24-40 entry workforce
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Prepared for investment planning in Afghanistan and regional export markets. Final specifications, pricing, civil works, and utility loads require supplier quotation and site survey.

Executive Summary

A medium industrial plant converting qualified apricot, peach or other hard fruit stones into granular activated carbon through feedstock washing and drying, controlled crushing and sizing, oxygen-limited carbonization, sealed cooling, steam activation at high temperature, secondary combustion and flue-gas cleaning, product cooling, crushing/classification, washing only when specified, drying, adsorption testing and sealed packing. The project requires environmental approval and laboratory development before equipment purchase.

Why this project fits Afghanistan

- Afghanistan has concentrated fruit-processing residues with potential carbon yield.
- Activated carbon has water-treatment and industrial demand but is specification-driven.
- Feedstock species and carbonization history strongly affect adsorption performance.
- High-temperature gas, dust and wastewater controls make this a regulated industrial project.

Sanaatchi delivery scope

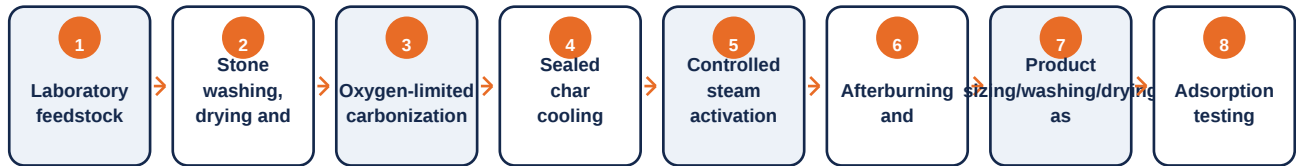
- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning
- International logistics, customs documentation, operator training, spare parts, and after-sales support

Recommended configuration

Do not begin with a turnkey kiln order. First run representative Afghan apricot/walnut-shell or fruit-stone trials in an independent carbon laboratory and select one feedstock and one granular adsorption grade. The lowest credible plant needs separate sealed carbonization and steam-activation control, hot-product cooling, gas afterburner, dust collection/scrubbing, water treatment where washing is used, and iodine-number, moisture, ash, hardness and particle-size testing.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Granular fruit-stone activated carbon	Feedstock, mesh range, iodine number or target adsorption, moisture, ash, hardness, pH and density	Water treatment or one validated industrial adsorption application

Charcoal is not activated carbon, and iodine number alone does not qualify every application. The contract must state feed preparation, carbonization and activation temperatures/residence times, steam rate, oxygen control, off-gas treatment, safe cooling, product yield and full test method. Food, drinking-water, gold-recovery and gas-phase grades require different contaminant and performance specifications.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Wash, dryer, crusher and screen	Prepares one fruit-stone feed	1-3 cm kiln feed basis
2	Sealed carbonization kiln and char cooler	Produces controlled precursor char	Oxygen-limited
3	Steam activation kiln and steam system	Develops adsorption porosity	850-950°C controlled
4	Afterburner and flue-gas treatment	Controls combustible gas and emissions	Permit basis
5	Product crusher, classifier and optional wash/dryer	Finishes one granular grade	Closed dust handling
6	Activated-carbon laboratory	Releases adsorption product	Iodine/adsorption, ash, hardness

Equipment models are indicative and will be matched to the selected capacity, local raw-material tests, available utilities, and preferred automation level.

Reference Equipment Gallery



Made-in-China supplier reference: real fruit-stone activated-carbon production line equipment.



Made-in-China supplier reference: second real machine configuration for fruit-stone activated-carbon production line.

Images are supplier references for configuration discussion; final equipment appearance and model may differ.

Plant, Raw Materials & Utility Requirements

Raw materials

- One laboratory-qualified hard fruit-stone or shell feed
- Process steam and approved fuel for activation start-up
- Water and treatment chemicals only for specified washing route
- Moisture-barrier sacks, liners and labels

Utilities & infrastructure

- Stable three-phase electricity with verified connected load
- Guarded machinery, lockout, ventilation and fire protection
- Covered segregated raw-material and finished-goods storage
- Maintenance tools, safe lifting and critical spare parts
- Continuous high-temperature process supervision and emergency cooling
- Engineered afterburner, stack monitoring, dust/scrubber and wastewater systems
- Fire separation for raw stones, char and finished activated carbon

Quality, safety and environmental controls

- Qualify feedstock species, moisture, ash and contamination
- Record carbonization temperature, residence and char yield
- Control activation temperature, steam and burn-off
- Prevent air entry during hot-char cooling
- Test mesh, moisture, ash, hardness and density
- Test iodine number and application-specific adsorption before release

A final factory layout must reserve safe forklift routes, maintenance clearances, raw-material segregation, finished-goods storage, fire protection, ventilation, and future expansion space.

Indicative Investment & Implementation Plan

LOW-ENTRY CONFIGURATION

The lowest defensible project fixes one locally proven feedstock and one granular grade, but it cannot omit sealed hot-char handling, emissions treatment or adsorption laboratory. A pilot toll trial should precede plant purchase.

Component	Indicative range	Notes
Feed preparation and carbonization section	US\$180k-420k	One validated feed
Activation, steam and hot-product cooling	US\$220k-520k	One granular grade
Gas treatment, dust/water controls and laboratory	US\$160k-430k	Permit and release basis
Freight, refractory, installation and spares	US\$140k-330k	Thermal commissioning
Indicative installed project total	US\$700k-1.70m	Land, building, utilities extension and working stock excluded

Implementation sequence

Phase 1	2-5 weeks	Confirm product specification, representative raw material, buyer, capacity, site and utilities
Phase 2	3-7 weeks	Run supplier trials with the buyer material and freeze the balanced machine, tooling and utility scope
Phase 3	8-22 weeks	Manufacture or refurbish, inspect, document and ship the contracted equipment
Phase 4	3-12 weeks	Install, commission, train operators and pass material-specific acceptance tests

Ranges are planning targets for a low-cost entry configuration, exclude land, and remain subject to confirmed capacity, supplier quotation, freight, duties, exchange rates and site conditions.

Next Steps & Contact Information

Recommended next steps

- Confirm target products, hourly output, and packaging formats
- Test representative raw materials and document quality requirements
- Complete site survey covering electricity, water, fuel, drainage, roads, and warehouse space
- Request comparable technical and commercial quotations from shortlisted suppliers
- Finalize financing, logistics, installation, training, and spare-parts plan

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Research and image references

- <https://xuyemachinery.en.made-in-china.com/product/mEJUenyjaKrN/China-Activated-Carbon-Manufacturing-Plant-Activated-Carbon-Production-Line-Fiber-Carbonization-Furnace.html>

- <https://xuyemachinery.en.made-in-china.com/product/IJGrLnabDHYA/China-Steam-Used-Active-Carbon-Charcoal-Coal-Active-Carbon-Production-Rotary-Kiln-Activation-Regeneration-Furnace-Manufacturer.html>