

Essential Oil Steam Distillation Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real modular steam-distillation system for flowers, leaves and roots.

100-200 L/batch starter still volume	1 validated launch botanical	2 outputs oil plus hydrosol	5-8 entry operators
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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 batch extraction line for selected Afghan aromatic flowers, leaves or seeds, covering botanical receiving, preparation, steam generation, controlled distillation, condensation, oil-water separation, oil drying or polishing filtration, protected storage and small-bottle packing. Every botanical requires its own yield and quality trial.

Why this project fits Afghanistan

- Afghan aromatic crops can be tested for higher-value essential oils and hydrosols.
- A flexible batch still permits different botanicals with validated cleaning between lots.
- Local distillation reduces transport of bulky fresh plant material.
- Small dark-bottle packs support cosmetic, fragrance and ingredient buyers.

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

For the lowest credible entry, use a 100-200 L stainless steam-distillation vessel with removable plant basket, small steam generator, condenser, cooling-water loop, Florentine separator, dark oil receiver and manual or bench-top filling for one validated botanical.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Botanical essential oil	Declared species and part, buyer-approved profile, water content and clean package	Fragrance, cosmetic and ingredient buyers
Co-produced aromatic hydrosol	Separated lot, clarity, aroma and microbiological specification	Personal-care and household formulators where permitted

Supplier vessel volume does not predict oil output. Yield depends on species, plant part, harvest stage, storage, loading density, steam rate and fraction cut. Commercial purchase follows local raw-material trials, laboratory identity/profile testing and a buyer-approved sample.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Botanical sorting and preparation station	Removes defects and creates specified feed	Manual entry; cutter only if validated
2	Steam generator	Supplies controlled clean steam	Matched to vessel and local fuel
3	Stainless distillation vessel and basket	Holds plant material above steam distribution	100-200 L entry vessel
4	Demister and vapor line	Limits entrainment into condenser	Food/cosmetic-compatible construction
5	Condenser and cooling loop	Condenses oil-and-water vapor	Sized for peak vapor load
6	Florentine separator	Continuously separates oil and hydrosol	Matched to oil density behavior
7	Oil polishing and dark receiver	Removes residual water and protects oil	Small inert light-protected vessels
8	Bench filler, capper and coder	Packs released oil into small bottles	One or two launch volumes

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 modular steam-distillation system for flowers, leaves and roots.



Made-in-China supplier reference: real stainless essential-oil vessel, condenser and separator configuration.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Correctly identified traceable aromatic plants
- Clean steam and cooling water
- Dark compatible bottles, closures, labels and cartons
- Approved filtration, drying and cleaning materials

Utilities & infrastructure

- Stable electricity matched to the selected equipment
- Potable process water where product contact occurs
- Washable food-grade rooms with pest and dust control
- Segregated raw-material, packaging and finished-goods storage
- Compressed air, steam or cooling water only where specified

Quality, safety and environmental controls

- Confirm botanical identity, plant part and harvest condition
- Record load, steam rate, time, temperature and fraction cuts
- Use compliant pressure, steam and burn-protection systems
- Measure oil and hydrosol mass balance for every batch
- Test identity/profile, odor, water, oxidation and contaminants to buyer plan
- Use validated cleaning to prevent cross-botanical carryover

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

Lowest entry validates one botanical in one small batch still and uses bench-top filling. Multiple stills, solvent extraction, automatic bottling, full laboratory, building and crop working stock are excluded.

Component	Indicative range	Notes
100-200 L still and plant basket	US\$7k-18k	One validated botanical
Steam generator and condenser loop	US\$5k-13k	Local fuel and cooling confirmed
Separator, oil handling and filtration	US\$3k-8k	Protected small-batch scope
Bench filling and quality tools	US\$2k-6k	One or two bottle volumes
Freight, installation and spares	US\$5k-11k	Steam and pressure interfaces
Indicative low-entry total	US\$22k-56k	Building, crop stock and laboratory certification excluded

Implementation sequence

Phase 1	2-3 weeks	Confirm product specifications, capacity, packs and regulatory route
Phase 2	2-4 weeks	Run representative Afghan raw-material and packaging trials
Phase 3	5-9 weeks	Manufacture, inspect and ship the approved equipment
Phase 4	3-5 weeks	Install, train and validate process, hygiene and release controls

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

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