

Raw-Sugar Refining Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real raw-sugar refining line equipment.

100-250 t/day strategic screening basis	1 white grade controlled launch	target ICUMSA buyer specification	55-110 three-shift 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 large strategic food refinery converting imported raw cane sugar into one defined white-sugar grade through raw-sugar receiving, affination and melting, clarification and filtration, decolourisation using the licensed adsorbent or ion-exchange route, evaporation, vacuum-pan crystallisation, centrifuging, drying, cooling, screening, hygienic bagging and laboratory release. It is not a small sugar-cube machine and requires steam, water, process chemicals, by-product handling and food-safety engineering.

Why this project fits Afghanistan

- Refining can supply a consistent food-grade sugar where raw-sugar logistics are secure.
- Colour removal, crystal quality and hygiene are central to customer acceptance.
- Steam and energy use dominate cost and require a credible utility plan.
- Molasses, filter cake, wastewater and process chemicals need compliant handling routes.

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

Proceed only after a bankable refinery study covering raw-sugar supply contracts, port/logistics, target ICUMSA grade, local market demand, steam/cogeneration, water, chemicals, filter cake/molasses route, food permits and financing. A sensible first screen is 100-250 t/day refined white sugar with one bag range, but the final process must be selected by a specialist licensor and proven by a raw-sugar trial.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Refined white cane sugar	ICUMSA colour, polarity, moisture, grain size, ash, insolubles, sulphur dioxide where relevant, microbiology, metal contaminants and bag mass	Qualified Afghan food manufacturers, retailers, institutions and beverage/confectionery buyers

Refinery economics depend on raw-sugar quality, yield, energy, water, colour-removal performance and by-product value. A specialist provider must guarantee a defined raw-sugar analysis window, white-sugar grade, recovery, steam/power/water balance, chemical use, emissions, effluent and by-product routes. Acceptance tests raw sugar, colour, polarity, moisture, grain size, ash, insolubles, microbiology, foreign matter, bagging and actual mass balance.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Raw-sugar storage, affination and melt system	Receives and prepares tested raw sugar	100-250 t/day screen
2	Clarification, filtration and decolourisation train	Removes suspended and colour impurities	Licenser-guaranteed chemistry
3	Evaporator and vacuum-pan crystallisation	Creates controlled sucrose crystals	Target ICUMSA and grain size
4	Centrifuge, dryer, cooler and sifter	Separates, dries and grades white sugar	Hygienic continuous duty
5	Sugar laboratory, bagging and by-product systems	Releases food-grade sugar and manages streams	Mass balance and food permits

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 raw-sugar refining line equipment.



Made-in-China supplier reference: second real machine configuration for raw-sugar refining line.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Imported raw cane sugar within defined colour, moisture, ash and contamination limits
- Approved clarification, decolourisation and filtration media
- Food-grade bags, labels, pallets and hygienic spare parts

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 steam or cogeneration, treated water, cooling and compressed air
- Food-grade chemical storage, dust control, fire protection and hygienic packing zone
- Wastewater treatment, filter-cake/molasses handling and emissions controls

Quality, safety and environmental controls

- Release raw sugar for colour, polarity, moisture, ash and contaminants
- Record melt, clarification, filtration and decolourisation performance
- Track steam, water, chemical use and complete mass balance
- Test ICUMSA, polarity, moisture, grain size, ash and insolubles
- Verify microbiology, foreign matter, bag mass and storage hygiene
- Audit molasses/filter cake/wastewater route and food traceability

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

There is no credible small-machine substitute for a food refinery. The lowest strategic screen is one 100-250 t/day white-sugar grade after raw-sugar, utility, buyer and finance validation.

Component	Indicative range	Notes
Raw-sugar storage, melting and clarification	US\$3m-8m	100-250 t/day basis
Decolourisation, evaporation and crystallisation	US\$5m-15m	White-sugar core process
Centrifuge, drying, bagging, lab and by-products	US\$3m-9m	Food-grade release
Utilities, civil, installation and commissioning	US\$4m-12m	Steam and water intensive
Indicative strategic project total	US\$15m-44m	Land, finance and raw-sugar 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://www.made-in-china.com/showroom/mintzmachine/product-detailavMmGsxIRrYt/China-Raw-Sugar-4000icumsa-Refinery-White-Sugar-35icumsa-Processing-Line.html>

- <https://www.alibaba.com/showroom/raw-sugar-refinery-machine.html>