

Animal-Fat Rendering & Tallow Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real animal-fat rendering, separation and refining line.

3-5 t/day entry raw-fat design	1 launch tallow grade	100-140°C supplier rendering range	10-16 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 closed medium-industrial line receiving segregated beef or sheep fat and approved fatty trimmings, size reducing them, controlled dry rendering, separating solids, settling or centrifuging crude fat, polishing filtration, optional deodorisation for the specified grade, cooled holding and drum or block packing. Product route must be decided before purchase: soap/industrial tallow, feed fat or edible fat require different feedstock, hygiene, refining and legal controls.

Why this project fits Afghanistan

- Slaughter and meat plants produce recoverable sheep and cattle fat.
- Tallow can supply soap, candles and selected industrial users.
- Closed rendering reduces open-boiling odour and contamination.
- Rendered solids need a legal safe outlet, not informal disposal.

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

Obtain an installed quotation for a 3-5 t/day batch dry-rendering system with enclosed fat crusher, steam-jacketed vacuum cooker, screw press or decanter, heated settling tanks, filter press, vapour condenser and odour scrubber. Launch non-edible soap-grade tallow unless an edible or feed-grade buyer and authority approve the full hygiene and refining design.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Soap-grade sheep/cattle tallow	Declared species route, controlled moisture, insolubles and free-fatty-acid limit	Soap, candle and industrial users
Feed or edible fat expansion	Only from approved feedstock and purpose-designed hygienic/refining controls	Licensed buyers after authority approval

Do not mix edible, feed and industrial claims. Incoming material age and temperature strongly affect acidity and odour. Rendering vessels are pressure/thermal hazards; vapours, condensate and wastewater need closed treatment. Every co-product and rejected load needs a documented legal route.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Enclosed fat crusher and conveyor	Creates consistent cooker feed without open handling	3-5 t/day entry
2	Jacketed vacuum batch renderer	Cooks, sterilizes and removes moisture	Supplier-guaranteed cycle
3	Screw press or decanter	Separates liquid fat from protein solids	Yield trial on Afghan material
4	Heated settling tanks	Allows residual water and solids to separate	Insulated and agitated as required
5	Filter press or polishing filter	Controls insoluble matter in released tallow	Buyer-defined clarity
6	Condenser and odour scrubber	Captures vapours and reduces nuisance emissions	Mandatory mass-balance scope
7	Cooled product tanks and filler	Holds and packs drums or forms blocks	One launch grade
8	Condensate and solids system	Controls wastewater and protein residue	Approved disposal/offtake

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 animal-fat rendering, separation and refining line.



Made-in-China supplier reference: real stainless animal-fat process tanks and separation system.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Fresh segregated sheep or cattle fat and approved fatty trimmings
- Clean drums, liners or block-forming packaging
- Filter media and grade-approved processing aids
- Fuel, steam, cleaning chemicals and laboratory consumables

Utilities & infrastructure

- Stable three-phase electricity matched to motors and controls
- Potable process and sanitation water with adequate pressure
- Process heat or steam sized to the confirmed thermal load
- Washable rooms, trapped drainage, pest control and hygiene barriers
- Odour, wastewater and by-product controls approved for the site

Quality, safety and environmental controls

- Accept only documented species, age, temperature and condition
- Track cooker time, temperature, vacuum and mass yield
- Test moisture, insolubles, acidity and buyer-specific parameters
- Verify pressure-vessel certification and safety interlocks
- Monitor odour, condensate, wastewater and rendered solids
- Keep edible/feed/industrial materials, labels and tanks segregated

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 credible entry produces one non-edible soap-grade tallow from segregated sheep/cattle fat. Full edible refining, winterisation, automatic block packing, building and working stock are excluded.

Component	Indicative range	Notes
Crusher, conveyors and receiving	US\$25k-65k	3-5 t/day enclosed feed
Vacuum renderer and separation	US\$90k-230k	Batch installed process core
Settling, filtration and packing	US\$35k-95k	One industrial grade
Steam, odour and effluent systems	US\$60k-180k	Mandatory site-specific scope
Freight, installation and contingency	US\$50k-150k	Pressure and thermal commissioning
Indicative installed total	US\$260k-720k	Land, building and raw-fat stock excluded

Implementation sequence

Phase 1	3-5 weeks	Confirm raw-material supply, product, capacity, site and buyer rules
Phase 2	3-6 weeks	Run representative product, yield, hygiene and packaging trials
Phase 3	6-12 weeks	Manufacture, inspect and ship the approved equipment scope
Phase 4	4-8 weeks	Install, train, validate sanitation and pass performance 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

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