

Hydrated Agricultural-Lime Finishing Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real hydrated agricultural-lime finishing line equipment.

3 t/h entry slaker	1 grade controlled launch	20-25 kg valve bags	7-11 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 small controlled lime-hydration and finishing line receiving certified quicklime made from Afghan limestone and converting it into one declared hydrated-lime grade through enclosed quicklime crushing, silo storage and metering, staged water slaking, temperature and residence control, slag removal, cooling, air classification, dust-contained product storage, sampling and moisture/Ca(OH)₂/fineness testing, and 20-25 kg valve-bag packing. It excludes limestone calcination and does not market caustic lime as a universal medical or food disinfectant.

Why this project fits Afghanistan

- Afghan limestone can support a local lime value chain.
- Buying certified quicklime avoids the cost and emissions of a kiln at entry.
- Hydration and fine bagging create a controlled agricultural soil input.
- Caustic exposure, dust, exothermic slaking and truthful application labels require strict control.

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 smallest responsible entry, buy certified high-reactivity quicklime from a compliant local kiln and install a 3 t/h enclosed two-stage slaker, bag filter, separator/classifier, cooler, product silo and valve-bag packer. Launch one agricultural soil-liming grade only after neutralizing-value, fineness and contaminant testing. Any sanitation-grade product requires a separate specification, label, exposure assessment and regulatory approval.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Hydrated agricultural lime	Declared Ca(OH)_2 or available-lime content, neutralizing value, fineness, moisture, insolubles, contaminants and application label	Soil pH correction only under soil-test and agronomic recommendation

Quicklime hydration is strongly exothermic and caustic. The equipment contract must include controlled water ratio, vapor/dust capture, temperature safeguards, unreacted-grit removal and emergency wash facilities. Agricultural lime and sanitation lime must not share unsupported claims. Limestone calcination, fuel and kiln emissions are outside this finishing line.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Enclosed quicklime crusher and feed silo	Controls reactive CaO feed size	Below supplier limit
2	Metered two-stage lime slaker	Hydrates CaO under controlled water and residence	3 t/h entry
3	Bag filter and vapor-control system	Contains caustic dust and steam	Negative-pressure points
4	Grit separator and air classifier	Removes unreacted material and controls fineness	One grade
5	Cooler and sealed product silo	Protects stable dry hydrate	Safe pack temperature
6	Valve-bag filler and lime laboratory	Releases traceable 20-25 kg packs	Ca(OH) ₂ /fineness/moisture

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 hydrated agricultural-lime finishing line equipment.



Made-in-China supplier reference: second real machine configuration for hydrated agricultural-lime finishing line.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Certified high-reactivity quicklime made from qualified Afghan limestone
- Controlled clean slaking water
- Moisture-resistant valve sacks and caustic-hazard labels
- Laboratory reagents, filters and critical wear 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
- Caustic-resistant floors, emergency shower and eyewash
- Enclosed dust extraction and filtered exhaust
- Dry silo and warehouse protected from water and carbon dioxide

Quality, safety and environmental controls

- Verify quicklime available CaO, reactivity and contaminants
- Control feed size, water ratio, temperature and residence
- Measure unreacted grit and separator reject
- Test Ca(OH)_2 /available lime, moisture and fineness
- Inspect dust containment and safe pack temperature
- Verify hazard label, application statement and net mass

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 responsible entry buys compliant quicklime and installs hydration, classification, dust control and one-grade packing. Limestone quarrying and calcination are separate larger projects.

Component	Indicative range	Notes
Quicklime crushing, silo and metering	US\$24k-58k	Purchased quicklime
Two-stage slaker, dust filter and separator	US\$65k-150k	3 t/h basis
Cooler, product silo, laboratory and bagging	US\$32k-78k	One grade
Freight, civil interfaces and commissioning	US\$28k-65k	Caustic-safe installation
Indicative installed low-entry total	US\$149k-351k	Limestone kiln, building and 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

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