

Egg Powder Production Plant

Complete Turnkey Business Proposal



Made-in-China supplier reference: real egg washing, breaking, filtration, pasteurization, CIP and spray-drying line.

500-1,000 kg eggs/h screening feed range	1 launch powder product	24/7 utilities and hygiene discipline	18-30 months study-to-operation range
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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 strategic food-ingredient plant converting graded eggs into whole-egg, yolk or albumen powder through shell washing, candling, automated breaking and optional separation, chilled liquid filtration, controlled pasteurization without coagulation, optional concentration, hygienic balance holding, spray drying, powder cooling, sieving, metal detection and moisture-barrier packing. It requires dependable egg supply, laboratory control, steam, clean air and institutional offtake.

Why this project fits Afghanistan

- Powder can serve bakeries, noodles, confectionery and institutional food makers.
- Longer storage can absorb seasonal shell-egg surplus only if energy and offtake are bankable.
- Whole-egg powder is simpler than launching separate yolk and albumen powders.
- Food safety and functional performance require a capable laboratory and experienced integrator.

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

Begin with a bankable study proving at least one institutional buyer, daily graded-egg supply, product specification, energy cost and laboratory capability. Screen a 500-1,000 kg egg/h integrated line with one launch product-whole-egg powder-and contract an experienced egg-process and spray-drying integrator. A laboratory 1-5 kg/h dryer is not a commercial plant.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Whole-egg powder	Buyer-defined protein, fat, moisture, microbiology, solubility and functional performance	Industrial bakeries, biscuits, noodles and food manufacturers
Yolk or albumen powder expansion	Separated-stream product with dedicated pasteurization and functional specifications	Specialist industrial buyers after Phase 1

Egg proteins can coagulate during incorrect pasteurization; albumen and yolk require different conditions. Spray-dryer inlet/outlet temperatures, residence time and hygiene must be validated. Small laboratory dryers advertised online cannot establish commercial CAPEX, yield or powder functionality.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Egg receiving, washing and candling	Controls shell soil and rejects defective eggs	500-1,000 kg eggs/h screening basis
2	Automatic breaker and shell separator	Recovers liquid egg with low shell carryover	Whole-egg launch; separation optional
3	Chilled filtration and balance tanks	Filters and protects liquid egg before treatment	Closed sanitary system
4	Liquid-egg pasteurizer	Controls pathogens without damaging proteins	Product-specific validated curve
5	Optional vacuum evaporator	Raises solids and reduces drying energy	Study by energy balance
6	Commercial spray dryer	Atomizes and dries pasteurized liquid egg	Explosion/fire and hygienic design
7	Powder cooler, sifter and metal detector	Stabilizes and releases uniform powder	Low-humidity closed handling
8	Barrier packer and laboratory	Protects powder and verifies every lot	Industrial buyer specification

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 egg washing, breaking, filtration, pasteurization, CIP and spray-drying line.



Made-in-China supplier reference: real industrial spray-drying tower used for egg powder.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Contracted graded eggs with documented seasonal volume and Salmonella-control program
- Moisture- and oxygen-barrier bags with food-grade inner liner
- Approved cleaners, sanitizers and laboratory consumables
- Filtered drying air, potable water, steam and suitable fuel

Utilities & infrastructure

- Stable electricity matched to motors, controls, refrigeration and lighting
- Potable process and sanitation water with adequate pressure
- Washable food-grade rooms, drainage, pest control and hygiene barriers
- Segregated live/dirty, edible-process, packaging and finished-product zones
- Cold rooms, wastewater and by-product systems sized to the confirmed process

Quality, safety and environmental controls

- Complete HACCP and validated shell-to-powder pathogen control
- Control liquid egg temperature, hold time and maximum pre-process age
- Validate pasteurization separately for each egg fraction
- Monitor dryer inlet/outlet conditions, fire/explosion safeguards and cleaning
- Test moisture, water activity, microbiology, solubility and functional properties
- Maintain allergen zoning, lot traceability and dry-room humidity

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 credible commercial route starts with one whole-egg powder, confirmed industrial offtake and a 500-1,000 kg egg/h integrated process. Laboratory spray dryers, multiple powder fractions, land and working capital are excluded.

Component	Indicative range	Notes
Bankable feasibility, trials and engineering	US\$40k-150k	Supply, energy, buyer and pilot validation
Egg receiving, breaking and liquid processing	US\$250k-900k	500-1,000 kg eggs/h screening scope
Commercial spray dryer and powder handling	US\$450k-1.8m	Not a laboratory dryer
Utilities, laboratory and environmental systems	US\$250k-1.0m	Boiler, clean air, CIP and wastewater
Civil works, installation and contingency	US\$250k-1.1m	Food-grade building and specialist erection
Indicative strategic project basis	US\$1.2m-4.95m	Land, financing and egg working capital excluded

Implementation sequence

Phase 1	3-5 weeks	Confirm supply, products, capacity, site, permits and buyer standards
Phase 2	3-6 weeks	Complete process, hygiene, cold-chain 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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