Tomato paste plant in Ghana ï¿½ sachet and can packing from aseptic bulk

Target application: tomato paste plant ghana

Reference configuration: 3,000 kg/h finished product from aseptic bulk paste (500ï¿½5,000 kg/h configurable)

Ghana imports most of its tomato paste and consumes it mainly in sachets and small cans. The realistic first step is a rework and packing plant supplied with aseptic bulk ï¿½ it starts producing within a year, runs 250ï¿½300 days and creates local packaging and distribution value immediately. A campaign plant in the Upper East or Brong Ahafo growing areas becomes viable once inbound tonnage and post-harvest logistics are contractually secured.

SCOPE OF SUPPLY

- Aseptic drum / IBC emptying and buffer storage
- Standardization to 22ï¿½28 ï¿½Brix with inline refractometer control
- Recipe dosing, deaeration and tubular pasteurization 92ï¿½98 ï¿½C
- Multi-lane sachet filling (50ï¿½100 g) and can filling / seaming (400 g ï¿½ 2.2 kg)
- Electrical design 400 V / 50 Hz with generator backup and voltage stabilisation
- Water treatment for borehole or municipal supply, wash-water recovery
- FDA Ghana product registration support and GSA conformity documentation
- Installation, commissioning, operator training and spare-parts planning

TYPICAL OUTPUTS

Sachets 50 / 70 / 100 g ï¿½ Cans 400 g ï¿½ 2.2 kg ï¿½ Standardized paste 22ï¿½28 ï¿½Brix ï¿½ Pizza sauce and seasoned varia

DIMENSIONS AND BUILDING ENVELOPE

Process and filling footprint	700ï¿½900 mï¿½ at 3,000 kg/h (250ï¿½350 mï¿½ at 500 kg/h, 1,100ï¿½1,300 mï¿½ at 5,000 kg/h)
Clear height	6ï¿½7 m under beam over mixing and thermal section, 4.5 m over filling
Drum unloading station	60ï¿½110 mï¿½, two alternating stations above 3,000 kg/h
Mixing bay	2 ï¿½ 6,000 L tanks, 120ï¿½180 mï¿½ including gravimetric dosing platform
Thermal section	90ï¿½140 mï¿½ for pasteurizer, hold cell, buffer tank and CIP interface
Filling and packing	260ï¿½380 mï¿½ including seamer, pasteurization tunnel, coding and case packing
Bulk and finished storage	500ï¿½900 mï¿½ for inbound drums / IBCs and finished pallets

LAYOUT ï¿½ FUNCTIONAL ZONES IN FLOW ORDER

1 ï¿½ Bulk intake	Drum, IBC and bag-in-box reception, sampling and traceability scanning
2 ï¿½ Unloading	Heated drum emptying stations, filtering, transfer pumps
3 ï¿½ Mixing & recipe	Mixing tanks with agitator, gravimetric dosing of water, salt, sugar and spices
4 ï¿½ Standardisation	Continuous mass-flow loop with inline refractometer, ï¿½ 0.2 ï¿½Brix at steady state
5 ï¿½ Thermal treatment	Tubular or scraped-surface pasteurizer 92ï¿½98 ï¿½C with validated holding section
6 ï¿½ Filling & closing	Cans, glass jars, sachets or doypacks with seaming / capping and vacuum control
7 ï¿½ Pasteurization tunnel	Tunnel or retort, cooling section and dryer before labelling

8 ï¿½ End of line	Coding, labelling, case packing, palletizing and finished-goods staging
9 ï¿½ Utilities & CIP	Steam skid, chilled water, compressed air, water treatment, CIP skid

UTILITIES AND CONSUMPTION

Installed power	350ï¿½450 kW at 3,000 kg/h (90ï¿½140 kW at 500 kg/h, 550ï¿½700 kW at 5,000 kg/h)
Steam	1.5ï¿½2.5 t/h saturated at 6ï¿½8 bar at 3,000 kg/h
Process and cooling water	8ï¿½12 mï¿½/h at 3,000 kg/h, treated and softened before dilution
Compressed air	300ï¿½500 Nmï¿½/h at 7 bar
Effluent	3ï¿½7 mï¿½/h to treatment, mainly CIP and tunnel blowdown
Manning	6ï¿½9 operators per shift including QC and end-of-line
Operating calendar	250ï¿½300 days/year, 16ï¿½20 productive hours/day ï¿½ not a seasonal campaign

CAPEX, OUTPUT AND PAYBACK

Ghanaian project ï¿½ investment profile

First projects normally sit between 500 and 2 000 kg/h of finished product, packed in sachets and small cans.

500 kg/h finished product	Turnkey CAPEX: ï¿½0.6 ï¿½ 0.9 million | Annual output: 1 500 ï¿½ 2 200 t/year packed | EBITDA: 12 ï¿½ 18% of revenue | Payback: 3 ï¿½ 4.5 years | Commissioning: 7 ï¿½ 9 months contract-to-commissioning
1 000 kg/h finished product (reference)	Turnkey CAPEX: ï¿½0.9 ï¿½ 1.4 million | Annual output: 3 000 ï¿½ 4 400 t/year packed | EBITDA: 14 ï¿½ 19% of revenue | Payback: 3 ï¿½ 4 years | Commissioning: 8 ï¿½ 10 months contract-to-commissioning
2 000 kg/h finished product	Turnkey CAPEX: ï¿½1.5 ï¿½ 2.3 million | Annual output: 6 000 ï¿½ 8 800 t/year packed | EBITDA: 15 ï¿½ 20% of revenue | Payback: 3 ï¿½ 4 years | Commissioning: 9 ï¿½ 12 months contract-to-commissioning
3 000 kg/h finished product	Turnkey CAPEX: ï¿½2.2 ï¿½ 3.2 million | Annual output: 9 000 ï¿½ 13 000 t/year packed | EBITDA: 16 ï¿½ 21% of revenue | Payback: 2.5 ï¿½ 4 years | Commissioning: 10 ï¿½ 13 months contract-to-commissioning
5 000 kg/h finished product	Turnkey CAPEX: ï¿½3.4 ï¿½ 4.8 million | Annual output: 15 000 ï¿½ 22 000 t/year packed | EBITDA: 17 ï¿½ 23% of revenue | Payback: 2.5 ï¿½ 3.5 years | Commissioning: 12 ï¿½ 15 months contract-to-commissioning

Assumptions behind the figures

- 250ï¿½300 working days per year, 16ï¿½20 productive hours per day: the feedstock is stored aseptic concentrate, not seasonal fresh tomato.
- Inbound bulk paste at 36ï¿½38 ï¿½Brix in 220 L bag-in-drum or 1 000 L IBC, standardized in line to 22ï¿½28 ï¿½Brix.
- Finished product filled in tinplate cans, glass jars or sachets, with pasteurization and end-of-line packing included.
- CAPEX is turnkey scope: emptying station, mixing, standardization, pasteurizer, filler, closing, CIP, automation, installation, commissioning and training; civil works, land and bulk paste stock excluded.
- EBITDA and payback assume retail or food-service pricing of the packed product and no financing cost inside the operating margin.
- Ghanaian project: 400 V / 50 Hz with generator backup, borehole or municipal water treatment, sachet 50ï¿½100 g and can 400 g ï¿½ 2.2 kg formats.
- Import duties, GSA conformity, inland transport from Tema and civil works are excluded from the CAPEX range.

Indicative engineering ranges used by MCF Technology for budget screening of rework projects, not a quotation and not the audited result of a specific plant. Final figures are fixed in the feasibility study, once inbound ï¿½Brix, packaging formats, utilities cost and working hours are confirmed.

INSTALLATION, SITE CONDITIONS AND SCOPE BOUNDARIES

- Scope of supply: process equipment, automation, mechanical and electrical erection, commissioning, FAT/SAT, HACCP validation and operator training.
- Excluded from the ranges: land, civil works, building steelwork, external utility generation and import duties.
- Installation, commissioning and after-sales service are delivered worldwide by MCF crews, with remote diagnostics on the SCADA.
- Ghana: 400 V / 50 Hz with generator backup, borehole or municipal water treatment, sachet 50ï¿½100 g and can 400 g ï¿½ 2.2 kg formats, FDA Ghana documentation.

TECHNICAL FAQ

What capacity suits the Ghanaian market?

Most first projects sit between 500 and 2 000 kg/h of finished product: 1 500ï¿½8 800 t/year packed over 250ï¿½300 working days, which matches national retail volumes without over-sizing the investment.

Indicative CAPEX?

ï¿½0.6ï¿½0.9 million at 500 kg/h, ï¿½0.9ï¿½1.4 million at 1 000 kg/h and ï¿½1.5ï¿½2.3 million at 2 000 kg/h, turnkey process scope excluding civil works, land and bulk paste stock.

How is power reliability addressed?

Generator backup with automatic transfer and voltage regulation, plus staged restart of the pasteurizer and filler so that a grid interruption does not compromise a batch.

Which approvals are needed?

FDA Ghana registration for the finished product and Ghana Standards Authority conformity for imported equipment; machines are CE-marked with EHEDG hygienic design and AISI 304L/316L food-contact surfaces.

Can a fresh-tomato section be added later?

Yes ï¿½ the packing section is designed so that a reception, hot break and evaporation train can be tied in later, once contracted local tonnage justifies concentrate production.

NEXT STEPS

- Full technical page: https://mcftechnology.group/en/tomato-paste-plant-ghana
- Configure the line and request the feasibility study: https://mcftechnology.group/en/configurator
- Run the ROI simulator: https://mcftechnology.group/en/roi-simulator
- Build the bankable financial plan (3ï¿½10 years): https://mcftechnology.group/en/financial-plan
- Request a quotation: https://mcftechnology.group/en/contact

DISCLAIMER

All figures in this datasheet are indicative engineering ranges used by MCF Technology for budget screening and layout discussion of the reference configuration. They are not a quotation, not a performance guarantee and not the audited result of a specific plant. Final specification, dimensions, utilities and CAPEX are fixed in the feasibility study on your product, packaging formats, utilities cost and site conditions.