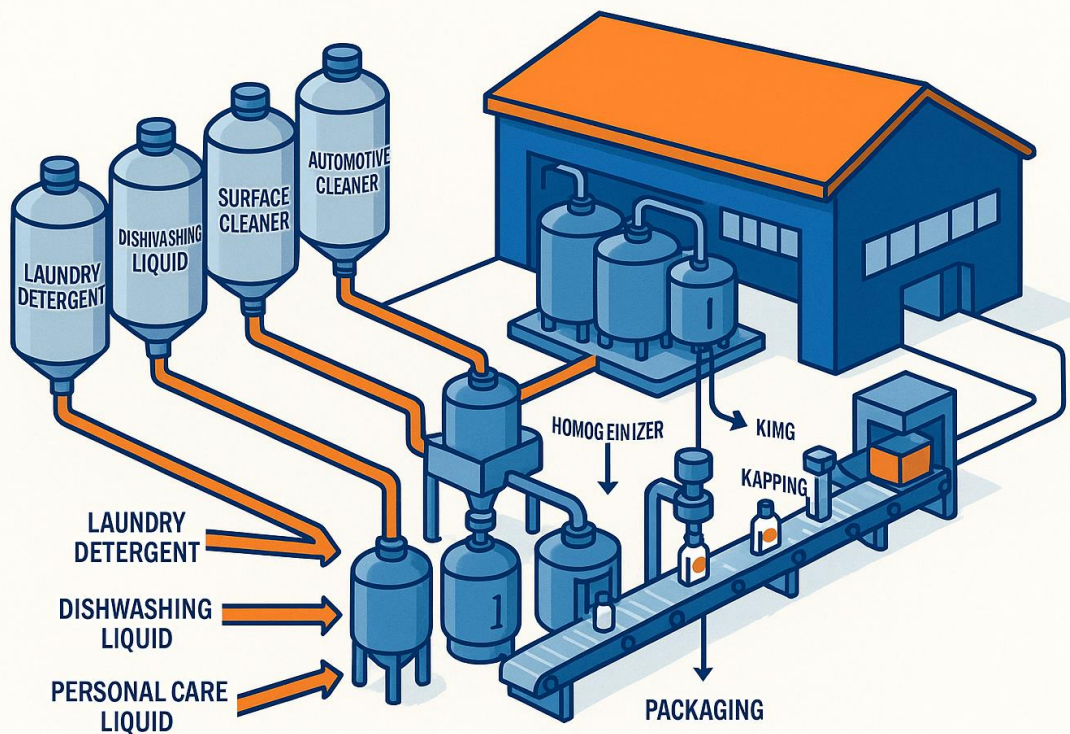


Liquid Detergent & Household Cleaners – Complete Turn-Key Business Proposal



Executive Summary

This proposal presents a **complete turn-key solution** for establishing a modern factory to manufacture liquid detergents and related cleaning products. By integrating water treatment, mixing, homogenisation, filling and packaging equipment under a single roof, investors can produce a full range of household, personal care and industrial cleaners. With the support of Sanaatchi Industrial Vision, the facility will be designed, sourced, installed and commissioned to meet international quality standards and consumer expectations.

Key project highlights:

- **Product range:** Liquid laundry detergents, fabric softeners, stain removers, dishwashing liquids, multi-surface cleaners, glass and bathroom cleaners, floor cleaners, liquid soaps, shower gels, hand sanitisers, automotive shampoos and industrial degreasers.
- **Capacity:** Modular lines with batch sizes from **500 L to 5 000 L**, allowing production rates of **1 000 – 8 000 bottles per hour** depending on product viscosity and bottle size.
- **Investment:** **US \$100 000 – 0.5 million** for a multi-line plant including equipment, installation, training and working capital. Single-product lines can be established for **US \$100 000 – 150 000**.
- **Payback period:** **12 – 24 months** under a single-shift regime at 70 % capacity utilisation.
- **Market opportunity:** Rising urban incomes, growing awareness of hygiene and a push towards import substitution create strong demand for local production of household cleaners.

About Sanaatchi Industrial Vision

Sanaatchi Industrial Vision transforms your manufacturing vision into reality. We provide end-to-end services—from feasibility studies and engineering design to global sourcing, construction management and commissioning—ensuring that clients receive a fully operational factory on schedule and within budget. Our multidisciplinary team of engineers, procurement specialists and quality experts work seamlessly to deliver **ISO 9001, GMP, CE and Halal** compliant facilities.

Our **four-phase approach** includes:

1. **Engineering & Design:** Market and technical feasibility studies, process flow design, utility requirements and detailed layout drawings.
2. **Global Sourcing & Logistics:** Identification and procurement of mixing tanks, homogenisers, filling and capping machines, water treatment units, CIP systems and packaging lines from vetted suppliers; coordination of shipping, customs clearance and delivery.
3. **Implementation & Construction:** Site preparation, civil works, installation of machinery, piping and control systems under professional supervision.
4. **Commissioning & Support:** Pre-commissioning checks, trial runs, staff training and post-commissioning technical support.

Market Opportunity in Afghanistan

The domestic market for liquid detergents and cleaning products is largely underserved. Nearly all brands on supermarket shelves are imported, making them expensive and prone to supply disruptions. A local production facility can capture this market and expand regionally:

- **Growing urban population:** More households in cities demand convenient, ready-to-use cleaners for laundry, dishes, floors and personal hygiene.
- **Import substitution:** Local production lowers transport costs and import duties, allowing competitive pricing and improved margins.
- **Public health campaigns:** Government and NGO initiatives promoting handwashing and sanitation drive demand for liquid soaps and disinfectants.
- **Regional export potential:** Neighbouring markets in Central Asia and the Middle East share similar consumption patterns and can be supplied with Halal-certified products.
- **Industrial & automotive sectors:** Local transport fleets, workshops and factories require degreasers and specialised cleaners, opening additional revenue streams.

Product Portfolio

Category	Example Products	Key Features	Typical Price Range
Liquid Laundry Care	Laundry detergent liquids (low/high foam), fabric softeners, bleach alternatives, stain removers	Formulated with surfactants, enzymes and optical brighteners; adjustable pH; concentrated or regular strength; available in scented and unscented variants	US \$1 – 3 per litre
Kitchen & Dish Care	Hand dishwashing liquid, machine dish detergent, degreasing sprays	High grease-cutting surfactants, mild on skin, biodegradable ingredients; options for antibacterial agents and lemon fragrance	US \$0.8 – 2.5 per litre
Household Surface Cleaning	Multi-surface cleaners, glass cleaners, bathroom/toilet cleaners, floor cleaners	Formulated with solvents, surfactants and chelating agents to remove limescale and soap scum; fragrance options; spray or pour packaging	US \$1 – 2 per litre
Personal Care (Liquid)	Liquid hand soap, shower gel, hand sanitiser (alcohol-based or quaternary ammonium), gentle baby wash	Moisturising additives (glycerine, aloe), pH balanced; options for antibacterial or herbal extracts; packaged in pump bottles	US \$1 – 4 per litre
Automotive & Industrial	Car wash shampoo, engine degreaser,	Strong surfactants and solvents; foam boosters;	US \$1.5 – 5 per litre

Category	Example Products	Key Features	Typical Price Range
	general-purpose industrial cleaners	corrosion inhibitors; formulated for high dilution ratios	

Each product can be customised for viscosity, fragrance, dye and packaging size. The same core equipment can be used for multiple formulations by scheduling production and performing clean-in-place (CIP) operations between batches.

Manufacturing Process Flow

The production of liquid detergents and cleaners follows a multi-stage process. Efficient mixing systems are central to achieving a uniform product: **“At the heart of any liquid detergent manufacturing process is the equipment responsible for blending raw materials.”** Efficient mixers ensure that surfactants, builders and other components are combined uniformly, with capacity depending on formulation and production scale. Accurate filling systems are essential to deliver the correct volume of product to each container; automated systems handle varying viscosities while maintaining speed and precision. Packaging equipment protects the product and ensures brand consistency, while quality-control devices monitor pH, viscosity and stability.

Detergent Production Line Overview

The sequence below summarises the key steps in a liquid detergent production line.

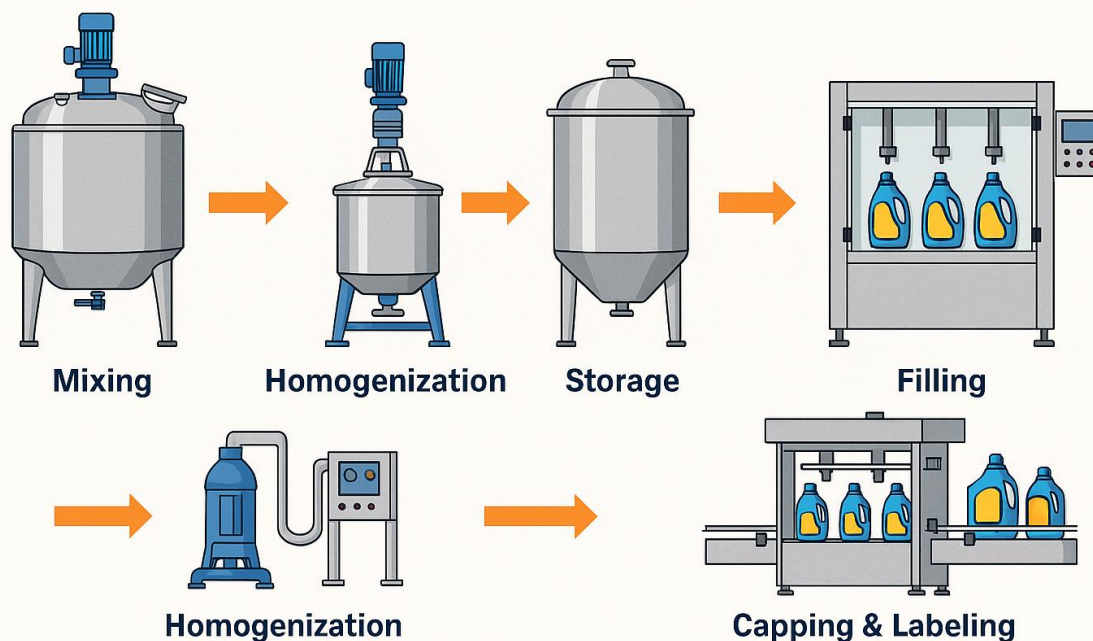
Figure 1 illustrates this flow visually.

Step	Process Name	Key Equipment	Main Parameters
1	Water Purification & Pre-Mixing	Reverse osmosis (RO) system with carbon and UV steriliser	Water conductivity < 10 $\mu\text{S}/\text{cm}$; flow rate 1 – 10 m^3/hr
2	Ingredient Charging & Mixing	Stainless steel mixing tank with agitator and heating jacket	Batch size 500 – 5 000 L; agitation speed 50 – 150 rpm; temperature 60 – 80 $^{\circ}\text{C}$
3	Homogenisation	High-shear inline or bottom-entry homogeniser	Shear rate up to 5 000 s^{-1} ; homogenisation time 10 – 30 min
4	Cooling & Storage	Insulated storage tank with cooling coil	Cooling to ambient (20 – 25 $^{\circ}\text{C}$); nitrogen blanketing to prevent oxidation
5	Filling	Automatic multi-head volumetric or gravity filler	Filling volume 250 ml – 5 L; speed 30 – 100 bottles/min

Step	Process Name	Key Equipment	Main Parameters
6	Capping & Sealing	Rotary or inline capping machine; induction sealer (optional)	Torque control 0.5 – 2 N·m; induction sealing power 1 – 2 kW
7	Labeling & Date Coding	Self-adhesive labeling machine; inkjet or laser coder	Label width 30 – 150 mm; coding speed synchronous with conveyor
8	Packaging & Palletising	Shrink wrapper or cartoner; palletiser	Packs of 6–12 bottles; palletising rate 10–30 cases/min
9	Quality Control	pH meter, viscometer, weight check, metal detector	pH range 7–10 (depending on product); viscosity 400–1 500 mPa·s

Figure 1 – Liquid detergent production process

LIQUID DETERGENT PRODUCTION PROCESS

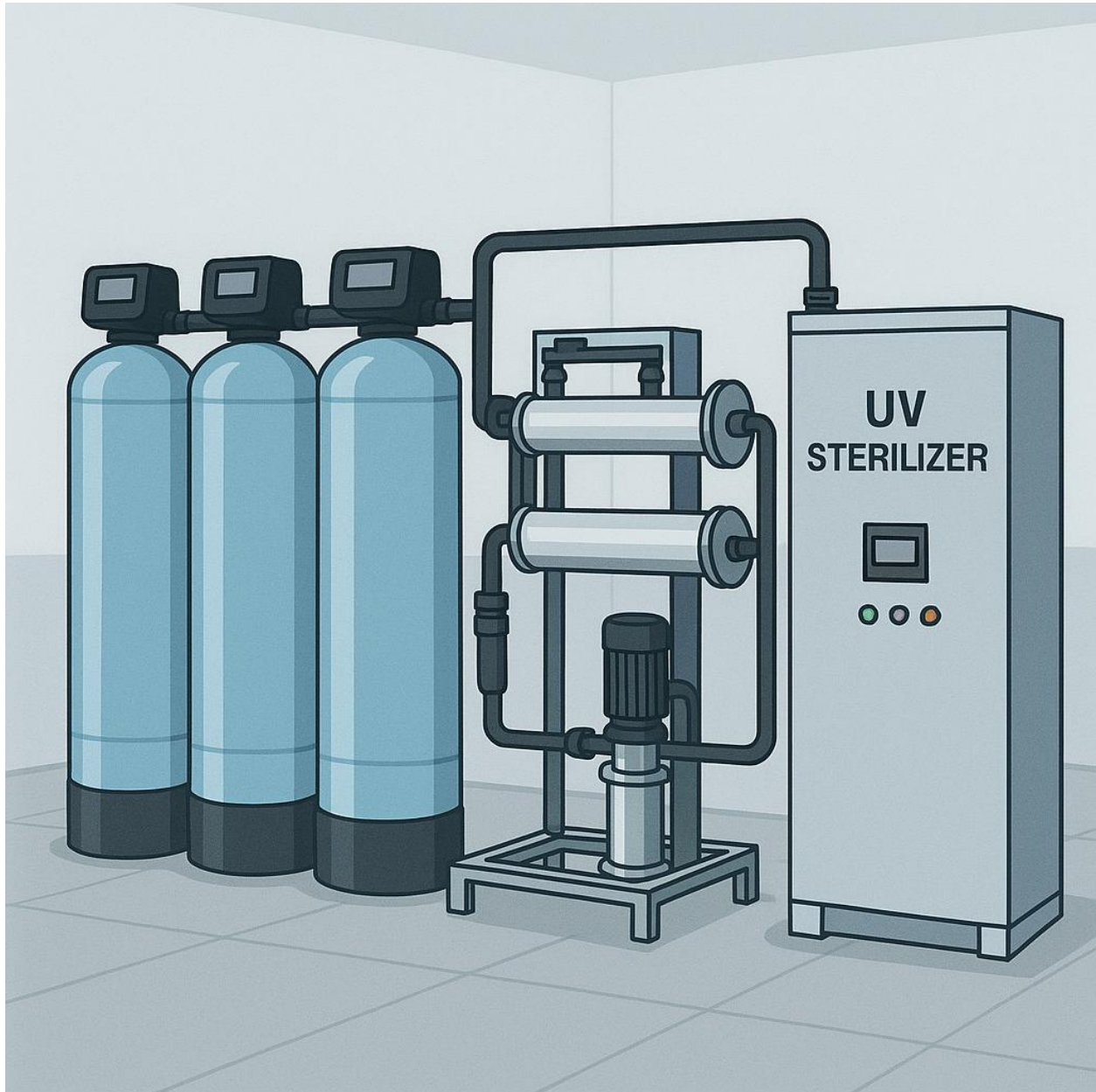


Liquid detergent production process

Equipment Illustrations

To visualise the machinery involved, the following photographs depict representative equipment used in the detergent production line.

- **Water Treatment:** Reverse osmosis and UV sterilisation system for generating purified water, essential for consistent detergent quality.



Water treatment unit

- **Mixing & Homogenising:** A stainless steel mixing tank with top-mounted agitator and control panel for batch preparation and emulsification.



Mixing tank with high-shear agitator

- **Automatic Filling:** Multi-head volumetric filling machine designed for viscous liquids, equipped with a hopper, conveyor and PLC control.



Automatic multi-head filling machine

- **Labeling Machine:** High-speed labeling equipment applying self-adhesive labels and integrating date coding.



Automatic labeling machine

- **Quality Control Laboratory:** Laboratory instruments for testing pH, viscosity and product stability, ensuring each batch meets specifications.



Quality control laboratory equipment

Raw Materials & Cost Analysis

The formulation of liquid detergents varies by product category, but common ingredients include:

- **Surfactants:** Anionic surfactants (linear alkylbenzene sulfonate, sodium lauryl ether sulfate) provide cleaning power; non-ionic surfactants (alkylpolyglucosides) enhance mildness; amphoteric surfactants for personal care.
- **Builders:** Sodium tripolyphosphate, sodium carbonate, silicates and citrates soften water and enhance detergent performance.
- **Solvents & Hydrotropes:** Ethanol, propylene glycol or glycol ethers adjust viscosity and solubilise fragrance oils.
- **Enzymes:** Protease, amylase and lipase improve stain removal in laundry detergents.
- **Thickeners & Stabilizers:** Xanthan gum, sodium chloride or carbomers control viscosity and prevent separation.
- **Preservatives:** Phenoxyethanol, benzisothiazolinone or sodium benzoate ensure microbiological stability.
- **Fragrances & Dyes:** Essential oils and synthetic fragrances provide scent; colourants differentiate product variants.

- **Packaging Materials:** HDPE/PP bottles with caps or pumps, PET jugs, shrink film and corrugated cartons.

Cost Estimate: For liquid laundry detergent, raw material cost typically falls between **US \$0.20 – 0.45 per litre**. Dishwashing liquids cost **US \$0.15 – 0.30 per litre**, household cleaners **US \$0.10 – 0.25 per litre**, personal care liquids **US \$0.25 – 0.60 per litre** and automotive/industrial cleaners **US \$0.30 – 0.80 per litre**. Bulk purchasing, in-house water treatment and local sourcing of packaging can further reduce costs.

Investment Summary & Returns

Component	Low Range (US) <i>HighRange</i> (US)	Notes	
Equipment	100 000	500 000	Includes water treatment unit, mixing tanks, homogenisers, CIP system, filling/capping/labeling machines and auxiliary pumps.
Installation & Training	5 000	10 000	On-site installation, piping, electrical connections and training of operators.
Facility & Utilities	50 000	100 000	Civil works, HVAC, compressed air system, storage tanks and laboratory set-up.
Working Capital	20 000	50 000	Raw materials, bottles and packaging, utilities and labour for first three months.
Total Investment	150 000	500 000	Aggregate of the above costs.

Implementation Timeline

1. **Months 1–2:** Feasibility study, design and procurement contracts.
2. **Months 3–4:** Manufacturing and fabrication of mixing tanks, filling lines and packaging equipment; site preparation.
3. **Month 5:** Delivery, customs clearance and installation.
4. **Month 6:** Commissioning, trial batches and staff training.
5. **Month 7:** Commercial production and market launch.

With efficient operations and distribution, the project is expected to break even within **12–24 months**.

Quality Standards & Compliance

To ensure product safety and market acceptance, the facility will adhere to stringent quality and safety standards:

- **ISO 9001 Quality Management System** for consistent product quality and continuous improvement.
- **Good Manufacturing Practice (GMP)** guidelines, including clean-in-place (CIP) systems and validated cleaning procedures.
- **Hazard Analysis and Critical Control Point (HACCP)** principles to identify and control potential contamination hazards.
- **CE Certification** for machinery to meet European safety directives.
- **Halal Certification** for products destined for Muslim markets, ensuring ingredients and processes meet Islamic requirements.
- **Environment, Health & Safety (EHS)** compliance including effluent treatment, fume extraction and worker safety protocols.

Routine quality control tests will monitor pH, viscosity, density, microbiological contamination and shelf-life stability. Automated filling lines ensure accurate dosing and reduce product giveaway.

Conclusion & Next Steps

The demand for locally produced liquid detergents and household cleaners in Afghanistan is strong and growing. By investing in a **turn-key liquid detergent production line** through Sanaatchi Industrial Vision, you will secure a competitive foothold in this market, reduce reliance on imports and open opportunities for regional export. Our expertise in engineering design, global sourcing, installation and commissioning ensures that your plant will start up smoothly and operate efficiently from day one.

Next Steps:

1. **Contact Sanaatchi** to schedule a detailed consultation and define your product mix, capacity and packaging requirements.
2. **Site assessment & proposal:** We will prepare a customised proposal, including factory layout drawings, utility specifications and cost estimates.
3. **Contract & procurement:** Upon agreement, we will sign supply contracts with selected equipment manufacturers and arrange shipping.
4. **Installation & training:** Our engineers will supervise installation and train your staff to operate and maintain the equipment.
5. **Commercial launch:** After successful trial production, we will assist with product registration, regulatory approvals and market launch strategies.

To begin your journey toward local manufacturing of world-class cleaning products, please contact us:

Sanaatchi Industrial Vision – Afghanistan

- **Phone:** +93 779 819 820
- **Email:** info@sanaatchi.com
- **Working hours:** Saturday – Wednesday 9:00–17:00; Thursday 9:00–13:00

Sanaatchi Industrial Vision – China

- **Phone:** +86 159 5171 6867
- **Email:** china@sanaatchi.com
- **Working hours:** Saturday – Friday 9:00–18:00

Visit **www.sanaatchi.com** for more information or to request a bespoke proposal.