AQUACHEM

Pure Water. Proven Performance.

Industrial Water Treatment Portfolio 2025

Power • Oil & Gas • Manufacturing • Municipal • Textile

Aquachem Engineering
Sister Concern of Fluidtech Engineering Bangladesh

AQUACHEM at a Glance

For over 25 years, AQUACHEM has been the trusted water treatment partner for demanding industrial operations across the region. As a sister concern of **Fluidtech Engineering**—Bangladesh's fastest growing sustainable water treatment solutions and chemical supplier—we combine deep chemical expertise with digital monitoring and on-site engineering support to deliver measurable outcomes: reduced downtime, lower total cost of ownership, and regulatory compliance.

Key Performance Metrics

25+ Years Experience	**1,200+** Active Installations	**15** Countries Served
98% Client Retention Rate	**40+** Technical Specialists	**24/7** Remote Monitoring

Certifications & Standards:
• ISO 9001:2015 — Quality Management System
• ISO 14001:2015 — Environmental Management System
• ISO 45001:2018 — Occupational Health & Safety
• NSF/ANSI Standard 60 — Drinking Water Treatment Chemicals
• REACH Compliant — European Chemical Regulation Standards
• GSO/GCC Conformity & Halal/Kosher Certified Formulations

Bangladesh Presence & Footprint:
• **Head Office:** House # 28, 1st Floor, Road # 03, Nikunja-2, Dhaka-1229. Bangladesh.
• **Khulna Office:** Jhilpukurpar, Khalispur, Khulna-9100. Bangladesh.
• **Production & Logistics:** Local chemical warehouse hubs in Dhaka, Chittagong, and Khulna to ensure zero downtime delivery.
• **R&D; Facilities:** Collaborative laboratory audits and jar testing setup for textile, power, and manufacturing sectors.

Your Water. Our Expertise. Measurable Results.

Boiler Water Treatment Program

Complete chemistry programs for steam generation efficiency, asset protection, and regulatory compliance.

HERO PROGRAM TECHNOLOGY — AQUATREAT BW-3000

All-in-One Boiler Water Treatment formulation combining volatile oxygen scavenger, alkalinity builder, phosphate/polymer sludge conditioner, and anti-foam. Reduces chemical handling points by 75%. Ideal for fire-tube and water-tube boilers up to 65 bar. Deployed across textile mills and manufacturing units in Bangladesh to improve heat transfer and boiler lifespan.

■ Oxygen Control

Sulfite, DEHA, and carbohydrazide programs for feedwater, hotwell, and offline wet storage protection.

■ Scale Prevention

Phosphate, polymer, and chelant programs custom-matched to feedwater hardness and operating pressure.

■■ Carryover Control

Anti-foam and steam purity programs for turbine and process steam line protection.

■■ Corrosion Management

Volatile neutralizing amines (morpholine, cyclohexylamine, DEAE) for condensate return line protection.

Operating Parameters

- Pressure Range: 5 to 120 bar
- Feedwater Hardness: 0 to 100 ppm CaCO■
- Makeup Water: 5% to 100% condensate return

Standard Compliance

- BS 2486 Steam Boiler Water Standards
- ASME Boiler Water Guidelines
- IBR (Indian Boiler Regulation) 1950

Boiler Water Treatment Portfolio

AQUATREAT BW-3000

All-in-One Boiler Water Treatment

Chemistry: Sulfite / Polymer / Phosphate / Anti-foam
Form: Liquid (25L, 200L, 1000L)
Dosage: 50–200 ppm based on O■ & hardness
pH: 10.5 ± 0.5 | **SG:** 1.15 ± 0.02

Key Benefit: Reduces chemical dosing points from 4 to 1; simplifies operational control.

AQUATREAT OS-100

Catalyzed Oxygen Scavenger

Chemistry: Catalyzed Sodium Sulfite (cobalt catalyst)
Form: Powder (25kg bags)
Dosage: 8–15 ppm per 1 ppm dissolved O■
pH: 9.5 ± 0.5 | **SG:** N/A

Key Benefit: Ultra-fast reaction kinetics; protects economizer and feedwater lines.

AQUATREAT VC-220

Volatile Condensate Corrosion Inhibitor

Chemistry: Morpholine / Cyclohexylamine / DEAE blend
Form: Liquid (25L, 200L)
Dosage: 3–15 ppm injected in steam header
pH: 11.2 ± 0.3 | **SG:** 0.98 ± 0.02

Key Benefit: Balanced distribution ratio protects short, medium, and long steam lines.

AQUATREAT AF-50

Silicone-Free Steam Anti-Foam

Chemistry: Mineral oil / hydrophobic silica emulsion
Form: Liquid (20L, 200L)
Dosage: 5–20 ppm in boiler water
pH: 7.0 ± 0.5 | **SG:** 0.92 ± 0.02

Key Benefit: Eliminates carryover and foaming; safe for downstream sensitive processes.

Dosage Selection Reference

Pressure (bar)	Hardness (ppm)	Condensate (%)	Program Recommendation	Typical Dosage
5–15	< 5	> 80	AQUATREAT BW-3000 only	50–80 ppm
15–40	5–20	50–80	AQUATREAT BW-3000 + OS-100	80–150 ppm
40–65	20–50	30–50	AQUATREAT BW-3000 + OS-100 + VC-220	120–200 ppm
65–120	50–100	< 30	Custom Engineered Solution	150–300 ppm

Cooling Water Treatment Program

Integrated scale, corrosion, and microbiological control for open, closed, and once-through systems.

HERO PROGRAM TECHNOLOGY — AQUACOOL CW-4000

Broad-Spectrum Cooling Water Treatment formulation incorporating terpolymer scale inhibitors, organic phosphonates, azole copper corrosion inhibitors, and specific biodispersants. Designed for systems operating at high cycles of concentration. Replaces multi-drum dosing stations, providing stable, scale-free condenser surfaces under harsh makeup water conditions in Bangladesh.

■ Scale Inhibition

Advanced polymers and phosphonates to prevent calcium carbonate, sulfate, phosphate, and silica scaling.

■■ Corrosion Prevention

Synergistic azole and molybdate formulations protecting carbon steel, copper, and alloy heat exchangers.

■ Microbiological Control

Oxidizing and non-oxidizing biocide rotation programs to prevent bio-slimes, algae, and Legionella bacteria.

■ Fouling & Biofilm Control

High-efficiency biodispersants to penetrate biofilm layers and maintain clean heat transfer surfaces.

System Design Compatibility

- Open Recirculating Systems (Cooling Towers, spray ponds)
- Closed Loop Chilled Water & Process Glycol Systems
- Once-Through Cooling Systems (Seawater / River Water)
- Hybrid and Data Center Liquid Cooling Systems

Cooling Water Product Portfolio

AQUACOOL CW-4000

All-in-One Scale & Corrosion Control

Chemistry: Terpolymer / HEDP / Tolyltriazole blend
Form: Liquid (25L, 200L, 1000L)
Dosage: 50–150 ppm continuous dosage
pH: 4.5 ± 0.5 | **SG:** 1.10 ± 0.02

Key Benefit: Replaces 3-4 separate chemicals; optimizes inventory and ensures dosage accuracy.

AQUACOOL SI-850

High-Performance Silica Antiscalant

Chemistry: Maleic/acrylic terpolymer + phosphonate
Form: Liquid (25L, 200L)
Dosage: 5–20 ppm active polymer in tower
pH: 3.8 ± 0.3 | **SG:** 1.12 ± 0.02

Key Benefit: Inhibits silica polymerization up to 250 ppm SiO■; ideal for high-cycle operations.

AQUACOOL CI-300

Copper Corrosion Inhibitor

Chemistry: Tolyltriazole / Benzotriazole active blend
Form: Liquid (50% active, 25L)
Dosage: 1–5 ppm active azole residual
pH: 11.5 ± 0.5 | **SG:** 1.18 ± 0.02

Key Benefit: Establishes a strong monomolecular passivating film; highly stable with chlorine.

AQUACOOL BIO-X

Non-Oxidizing Biocide

Chemistry: Isothiazolinone blend (CMIT/MIT 1.5%)
Form: Liquid (25L, 200L)
Dosage: 50–100 ppm weekly slug dose
pH: 3.5 ± 0.5 | **SG:** 1.02 ± 0.02

Key Benefit: Broad-spectrum control of sulfate-reducing bacteria (SRB), algae, and fungi.

Cooling Program KPI Dashboard

Monitoring Parameter	Target Range	Frequency	AQUAMONITOR™ Telemetry
Cycles of Concentration (CoC)	3.0 – 5.0	Continuous	Enabled (Conductivity Sensor)
System pH	8.0 – 9.0	Continuous	Enabled (pH Electrode)
Mild Steel Corrosion Rate	< 0.10 mm/year	Monthly	Enabled (ER/LPR Corrosion Probe)
Copper Corrosion Rate	< 0.02 mm/year	Monthly	Enabled (LPR Probe)
Total Viable Bacteria Count	< 1,000 CFU/mL	Weekly	Manual Entry (Dip Slides)
Product Active Residual	3 – 5 ppm PO■	Daily	Enabled (Colorimetric Analyzer)

RO & Membrane Treatment Program

Maximize permeate quality, extend membrane life, and minimize cleaning frequency across SWRO and BWRO systems.

HERO PROGRAM TECHNOLOGY — AQUAMEM AS-2000

Universal High-Recovery Antiscalant. Certified under NSF/ANSI Standard 60. Highly effective in preventing calcium carbonate, calcium sulfate, barium sulfate, strontium sulfate, and silica scaling. Designed to support RO recoveries up to 90%+ on challenging brackish groundwater and surface water feeds throughout Bangladesh.

■ Antiscalant Dosing

Continuous chemical injection calculated using saturation indices (LSI, SDSI) to suppress crystal nucleation.

■ Membrane Cleaning (CIP)

Specialized low-pH and high-pH cleaning protocols to remove mineral scales, organic matter, and biofilms.

■ Pretreatment Optimization

Coagulants and filtration aids to reduce Silt Density Index (SDI) and protect RO membranes from physical fouling.

■ Biofouling Prevention

Non-oxidizing membrane-compatible biocides (DBNPA-based) and bio-dispersants to control bio-slime.

RO Recovery vs. Antiscalant Selection

- **< 75% Recovery:** AQUAMEM AS-1000 — Standard scaling protection
- **75% to 85% Recovery:** AQUAMEM AS-1500 — High sulfate feedwaters
- **85% to 92% Recovery:** AQUAMEM AS-2000 — Universal high-recovery (NSF certified)
- **> 92% Recovery / ZLD:** AQUAMEM AS-3000 — Extreme scale control with crystal modifiers

RO Membrane Treatment Portfolio

AQUAMEM AS-2000

Universal High-Recovery Antiscalant

Chemistry: Proprietary polyacrylate / phosphonate
Form: Liquid (25L, 200L, 1000L)
Dosage: 2–5 ppm in RO feedwater feed
pH: 4.2 ± 0.3 | **SG:** 1.12 ± 0.02

Key Benefit: NSF/ANSI Standard 60 certified. Controls LSI up to +2.5 and silica up to 250 ppm.

AQUAMEM AS-3000

Extreme Scale / ZLD Antiscalant

Chemistry: High-MW terpolymer + crystal modifier
Form: Liquid (25L, 200L)
Dosage: 5–15 ppm in brine stream
pH: 3.8 ± 0.3 | **SG:** 1.15 ± 0.02

Key Benefit: Suppresses scale in high-recovery reject lines and Zero Liquid Discharge (ZLD) systems.

AQUAMEM CL-100

Low-pH Membrane Cleaner

Chemistry: Citric acid / amidosulfonic acid / chelant
Form: Powder (25kg bags)
Dosage: 2% weight solution for CIP soak
pH: 3.0 ± 0.3 (in solution) | **SG:** N/A

Key Benefit: Removes calcium carbonate, sulfate scales, iron oxide deposits, and metal complexes.

AQUAMEM CL-200

High-pH Membrane Cleaner

Chemistry: NaOH / SDS / EDTA / dispersant blend
Form: Liquid (25L, 200L)
Dosage: 1% weight solution for CIP soak
pH: 11.2 ± 0.3 (in solution) | **SG:** 1.10 ± 0.02

Key Benefit: Highly effective against organic foulants, biological slimes, humic acids, and silica gels.

Standard Membrane Cleaning (CIP) Protocol

Step	CL-100 Low-pH (Acid Clean)	CL-200 High-pH (Alkaline Clean)
1. Pre-Flush	Permeate flush (15 mins), no pressure	Permeate flush (15 mins), no pressure
2. Batch Prep	Prepare 2% wt solution, adjust pH to 3.0	Prepare 1% wt solution, adjust pH to 11.2
3. Heating	Heat CIP tank to 35°C (max 40°C)	Heat CIP tank to 35°C (max 40°C)
4. Recirculate	Recirculate at low pressure (30 mins)	Recirculate at low pressure (30 mins)
5. Soaking	Soak membrane elements (60 mins)	Soak elements (60 to 120 mins) for biofilm
6. Flush & Verify	Rinse with permeate until effluent pH 6-7	Rinse until pH 7-8; check flux recovery

Process & Specialty Chemicals

Targeted chemistries for specific unit operations — from raw water pretreatment to wastewater compliance.

Pretreatment & Clarification (Raw Water)

AQUAFLOC CF-500

Cationic Coagulant (PolyDADMAC)

Chemistry: Polydiallyldimethylammonium chloride
Form: Liquid (200L, 1000L IBC)
Dosage: 2–10 ppm active dosage
pH: 6.5 ± 0.5 | **SG:** 1.08 ± 0.02

Key Benefit: High charge density; replaces alum/PAC, producing low sludge volumes.

AQUAFLOC AF-800

Anionic Flocculant (High-MW)

Chemistry: Anionic Polyacrylamide (18–22M Da)
Form: Powder (25kg bags)
Dosage: 0.5–3.0 ppm active dosage
pH: 7.0 ± 0.5 | **SG:** N/A

Key Benefit: Promotes rapid settling and floc size growth; excellent for sludge dewatering.

Wastewater & Compliance (Effluent Treatment)

AQUATREAT WW-PRECIP

Heavy Metal Precipitant

Chemistry: Dimethyldithiocarbamate (DTC) sodium salt
Form: Liquid (25L, 200L)
Dosage: Stoichiometric + 10-20% molar excess
pH: 9.5 ± 0.5 | **SG:** 1.15 ± 0.02

Key Benefit: Precipitates Ni, Cu, Zn, Pb from industrial effluents; passes EPA TCLP tests.

AQUATREAT WW-DEFOAM

Silicone-Free Wastewater Defoamer

Chemistry: Mineral oil / hydrophobic silica blend
Form: Liquid (25L, 200L)
Dosage: 10–50 ppm based on foaming severity
pH: 7.0 ± 0.5 | **SG:** 0.90 ± 0.02

Key Benefit: Fast foam collapse in biological aeration tanks; zero RO membrane fouling risk.

Process-Specific Cleaners & Additives

AQUAPROCESS HX-CLEAN

Online Heat Exchanger Cleaner

Chemistry: Organic acid / surfactant / corrosion inhibitor
Form: Liquid (200L, 1000L IBC)
Dosage: 1000–3000 ppm continuous injection
pH: 2.8 ± 0.3 | **SG:** 1.06 ± 0.02

Key Benefit: Online descaler; removes deposits from heat exchangers without system shutdown.

AQUAPROCESS GS-100

Gas Sweetening Amine Reclaimer

Chemistry: Proprietary antioxidant & corrosion inhibitor
Form: Liquid (200L drums)
Dosage: 50–200 ppm in circulating amine solution
pH: 9.0 ± 0.5 | **SG:** 1.04 ± 0.02

Key Benefit: Reduces amine degradation and corrosion rates in H■S/CO■ absorption units.


JAR TESTER
120
1500
Coagulant
Aluminum
Chloride
Polymer
Flocculant
1
2000ml
2
2000ml
3
2000ml
4
2000ml

Beyond Chemistry — Service & Digital Solutions

AQUACHEM delivers outcomes, not just drums. Our integrated technical service platform turns water data into operating decisions.

AQUAMONITOR™ — Real-Time IoT Water Analytics

- **24/7 Cloud Dashboard:** Access cooling tower, boiler, or RO water parameters live from any web browser or mobile application.
- **Multi-Parameter Probes:** Continuous monitoring of pH, TDS, temperature, dissolved oxygen, and LPR corrosion rates.
- **Instant Smart Alerts:** SMS, WhatsApp, and email alerts when parameters drift outside operating limits.
- **AI Anomaly Detection:** Predictive modeling detects scaling or corrosion spikes before physical damage occurs.

Mobile Laboratory & Field Services

- **Mobile Lab Fleet:** Fully equipped testing vans offering rapid on-site water analysis within 4 hours turnaround time.
- **Analytical Capabilities:** On-site spectrophotometry, titration, microbiological ATP tests, and raw water quality profiling.
- **Emergency response SLA:** Certified service engineers dispatched within 4 hours for critical water system shutdowns.
- **Monthly Technical Audit:** Detailed report with chemical mass balances and heat transfer efficiency analysis.

Precision Chemical Dosing Skids

- **Pre-Engineered Systems:** Custom-built, skid-mounted dosing packages including chemical pumps, tanks, and controller boards.
- **Telemetry IBC Tanks:** Smart storage containers tracking real-time chemical volumes with automatic reorder triggers.
- **API 675 Compliance:** Solenoid and motorized dosing pumps sized for accurate chemical feed rates, eliminating manual error.
- **Maintenance Contracts:** Quarterly calibration, tubing replacement, and system cleaning contracts to ensure reliability.

AQUACADEMY Operator Training

- **Certified Training:** 3-day certified programs for local industrial boiler and cooling tower operators in Bangladesh.
- **Practical Troubleshooting:** Hands-on training for chemical testing, blowdown control, and membrane cleaning operations.
- **Standard Operating Procedures (SOPs):** Customized plant SOP kits, troubleshooting flowcharts, and safety manuals.
- **Operator Mentorship:** Quarterly review webinars and phone support connecting plant staff to global water experts.

Proven Results — Industrial Case Studies

Measured water savings and cost reductions verified by our active clients.

CASE STUDY 1: Combined Cycle Power Plant (2.4 GW)

• **Challenge:** Frequent boiler tube failures (3 per year) due to scaling and oxygen corrosion; excessive chemical usage.

• **Solution:** Transitioned to AQUATREAT BW-3000 all-in-one chemical program, integrated with AQUAMONITOR™ real-time corrosion monitoring and monthly lab audit protocol.

• **Results:** 100% elimination of boiler tube failures over 2.5 years; 47% reduction in annual chemical consumption (saving 8,500 L/yr); chemical cost savings of **$185,000 per year**.

CASE STUDY 2: Petrochemical Complex — Cooling Tower Conversion

• **Challenge:** Serious condenser scaling forcing system cycles to remain below 3.2; high copper corrosion rates in heat exchangers.

• **Solution:** Deployed AQUACOOL CW-4000 scale inhibitor + CI-300 copper corrosion inhibitor + BIO-X biocide rotation, combined with online ATP monitoring.

• **Results:** Increased operating cycles from 3.2 to 4.8; 33% reduction in raw water makeup volume; 78% drop in steel corrosion rates; annual water and chemical savings of **$2.1 Million**.

CASE STUDY 3: Municipal Sea Water RO Desalination Plant

• **Challenge:** High membrane fouling rate requiring CIP cleaning every 14 days; high antiscalant dosage and boron breakthrough.

• **Solution:** Deployed AQUAMEM AS-2000 high-recovery antiscalant combined with raw water coagulant adjustment (AQUAFLOC CF-500) and standard low/high pH CIP cleaners.

• **Results:** Extended membrane cleaning intervals from 14 days to 55 days (293% improvement); 33% reduction in antiscalant dosage; membrane replacement rates cut by 60%; annual OPEX savings of **$1.8 Million**.

Ready to Optimize Your Industrial Water Systems?

Request a Free On-Site Water Audit & Jar Testing
Our engineers will perform complete water profiling and design a customized program for your boiler, cooling, or membrane filtration systems.

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