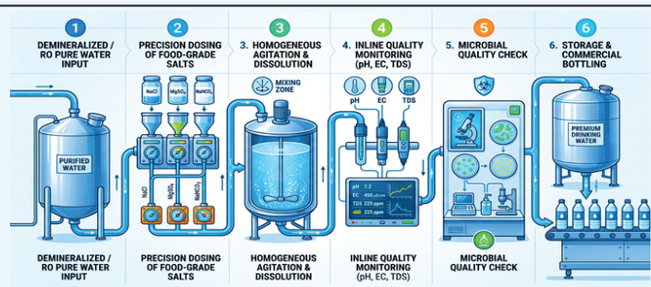
Institute of National Analytical Research and Service (INARS)

BCSIR Mineral Water

Product	BCSIR Mineral Water
Brief Description	A precision formulation process that enriches purified or demineralized water (such as RO product water) with essential dietary minerals to produce high-quality, balanced drinking water meeting international health and taste standards. 
Problem being addressed	Standard water treatment technologies like Reverse Osmosis (RO) strip essential minerals, leaving water acidic, flat-tasting, non-mineralized, and chemically imbalanced. Long-term consumption of demineralized water can lead to mineral deficiencies and hinder proper bodily functions. Most commercially available bottled waters in Bangladesh are merely "ordinary drinking water" lacking essential minerals. Basic mineral dosing or plain RO/distilled water, which lack precise, bio-available ionic ratios, standardized safety profiling, and health benefits.
Primary application	Commercial bottled mineral water production, beverage manufacturing, and institutional drinking water units. Packaged drinking water production, commercial re-mineralization units, and post-RO mineral balancing stations.
Target Users & Buyers	Beverage manufacturing companies, commercial bottled water brands, municipal water boards, and private water processing enterprises. Commercial bottled water vendors (e.g., Akij Food & Beverage, Partex Beverage, Meghna Group), local water treatment plant operators, and institutional water supplier networks.
Development Status	Validated laboratory formulation and standardized chemical dosing protocol developed by scientists at BCSIR, Dhaka. Successfully formulated and batch-tested for analytical balance, mineral concentration stability, and microbiological safety.
Testing & Quality Validation	Physicochemical Properties: Achieves optimal drinking-water pH (7.5–8.0), and total dissolved solids (TDS = 660–890 mg/L). Mineral Profile: Delivers optimal ionic concentrations, including calcium (70–100 mg/L), magnesium (25–45 mg/L), sodium (70–90 mg/L), potassium (20–35 mg/L), bicarbonate (200–300 mg/L), sulfate (140–170 mg/L), and silica (20–30 mg/L). Microbiological & Safety Standards: Confirmed complete absence of E. coli, total coliforms (< 1.8 MPN/100 mL), fecal coliforms (< 1.8 MPN/100 mL), and low bacterial count (< 10 CFU/mL). Toxic heavy metals arsenic (< 0.005 mg/L), lead (< 0.001 mg/L), cadmium (< 0.001 mg/L), and chromium (< 0.01 mg/L) remain well below regulatory safe thresholds.
Core Technical Advantages	Restores natural, health-beneficial mineral ratios lost during filtration, improving taste while supporting bone, tooth, and muscle formation. Standardized chemical formulation ensures batch-to-batch consistency and regulatory compliance without over-mineralization. Zero harmful chemical by-products or nitrite accumulation.
Raw Materials & Supply Chain	Food-grade calcium chloride ($CaCl_2$, 98–100%), sodium bicarbonate ($NaHCO_3$, 98–100%), magnesium sulfate ($MgSO_4$, 98–100%), and potassium bicarbonate ($KHCO_3$, 98–100%).
Key Machinery	• Dosing pumps and precision analytical balances. • Stainless-steel (SS-316) mixing and equilibration tanks. • Secondary micro-filtration or bottling line equipment.
Indicative Economics	Low chemical input cost per liter due to high potency and affordability of food-grade mineral salts. Easily integrates as an add-on module to existing RO or desalinated water treatment facilities, adding minimal capital expenditure while drastically increasing commercial product value.
Market Evidence & Readiness	Standardized formulation protocol developed at BCSIR is ready for commercial technology transfer, industrial scale-up, and license agreements.
Contract Address	Director, INARS, BCSIR, Dhaka and Sr. Ind. Liaison Office, BCSIR, Dhaka.