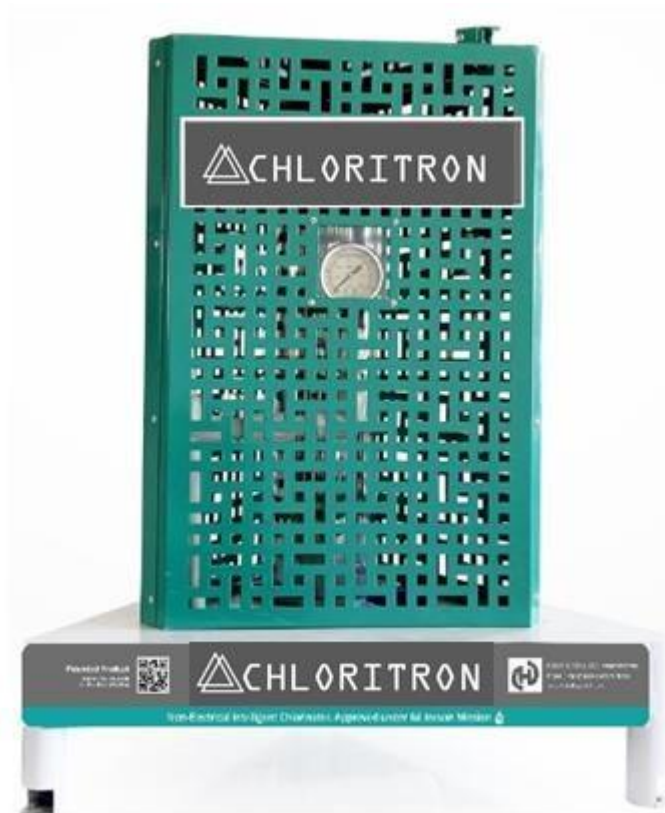


CHLORITRON®

NON-ELECTRICAL CONTINUOUS AUTOMATIC
CHLORINATOR/CHLORINE DOSING MACHINE
(PRESSURIZED)



**UNIQUE FEATURE OF
CONTINUOUS CHLORINATION AND RE-CHLORINATION TO MAKE
DRINKING WATER SAFE FROM BACTERIA AND VIRUSES**

100% INDIGENOUSLY DEVELOPED INNOVATIVE PRODUCT



CHLORINATION OF DRINKING WATER IS THE SINGLE MOST ECONOMICAL AND EFFECTIVE METHOD OF FIGHTING WATERBORNE INFECTIONS WORLDWIDE!



POTENT GERMICIDE- kills bacteria, viruses, other microbes etc. in water, making it safe to drink **DUE TO UNIQUE FEATURE OF CONTINUOUS CHLORINATION AND RE-CHLORINATION.**

“Residual disinfectant” levels i.e. free chlorine remaining in water prevents microbial re-growth, making water safe and preventing outbreaks of waterborne diseases **e.g. dysentery, cholera, typhoid, Hepatitis etc.**

PREVENTS GROWTH OF MOLD AND SLIME IN WATER TANKS- eliminates slime bacteria, molds and algae that commonly grow in water supply reservoirs, on the walls of water mains and in storage tanks.

TASTE AND ODOR CONTROL- Reduces disagreeable tastes and odors. Oxidizes naturally occurring substances such as foul-smelling algae secretions, sulfides and odors from decaying vegetation.

CHEMICAL CONTROL- Destroys hydrogen sulfide (which has a rotten egg odor) and removes ammonia and other nitrogenous compounds that have unpleasant tastes and hinder disinfection.

HEAVY METAL REMOVAL- Helps remove iron and manganese from raw water by precipitation

Ref: <https://waterandhealth.org/safe-drinking-water/wp/>

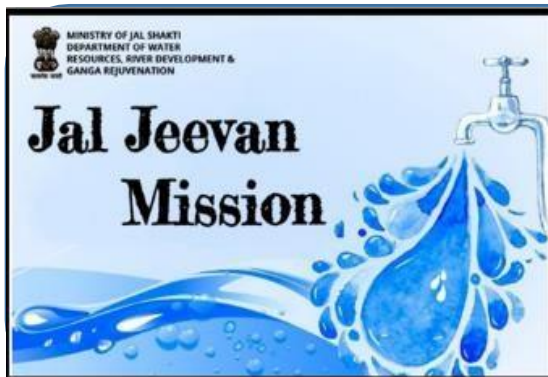
WHO RECOMMENDED CHLORINE CONCENTRATIONS IN WATER



For disinfection- 2 mg/L (2 ppm) of chlorine to destroy all organisms. **For preventing microbial re-growth- 0.2 and 0.5 mg/l (0.2-0.5 ppm).** Residual chlorine levels at point where the consumer collects water for normal domestic use (far extremities of the supply network) are lower. Close to disinfection point, levels are higher. **Levels of upto 4 ppm are considered safe for humans.**

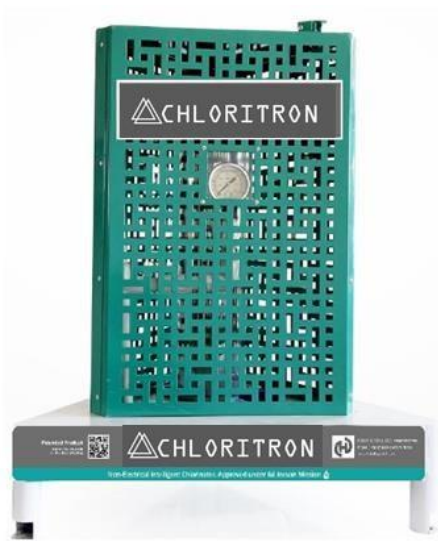
Ref: **WHO TECHNICAL NOTE (2011)**

https://www.who.int/water_sanitation_health/publications/2011/tn11_chlorine_levels_en.pdf



A significant new research led by Nobel Laureate Michael Kremer has found that India's Jal Jeevan Mission, which seeks to provide safe and adequate drinking water through individual tap connections by 2024 to all rural households, can save 1.36 lakh lives of children under five if it succeeds. *“If JJM succeeds, it will prevent around 1,36,000 under-5 deaths per year. However, this will require that water delivered through JJM is free from microbiological contamination.”* – THE TRIBUNE , 11th October, 2022

TECHNICAL ADVANTAGES



1. Carries out continuous chlorination and re-chlorination ensuring efficient water disinfection - Operates when water flow from pump starts and stops when water flow stops. Thus, water is not only CONTINUOUSLY CHLORINATED BUT RE-CHLORINATED WHENEVER WATER SUPPLY STARTS, making water safe and free from microbial contamination. Microbiologically contaminated drinking water can transmit diseases such as **diarrhea, cholera, dysentery, typhoid and polio** and is estimated to cause 485,000 diarrheal deaths each year
-Source-<https://www.who.int/news-room/factsheets/detail/drinking-water>

2. Universal Size- Unlike pre-existing devices which come in different sizes for different pressures and volumes of water, comes in single, universal size i.e. single size covers wide range of pressures and volumes of water to be disinfected. Easily works at high pressure heads of 120-150 meters or more where all other existing chlorinators fail. Successful operation at even 7-8kg/cm² pressure!

- 3. Non-Electrical** – Unique intelligent dosing mechanism using flow of water and critically controlled mechanical valves, delivers desired levels of chlorine in water, without use of any electricity at all. 100% savings of electricity worth lacs of rupees!
- 4. Manpower Cost Savings and Maintenance-** easy to operate and requires no dedicated or technical manpower. Only filling of liquid chlorine is needed on weekly/monthly basis. 100% savings of technical manpower! Has no moving parts or motors or electrical parts which can breakdown or need replacement after some time. Product life is more than 10 years!
- 5. Chlorine Wastage is Zero-** chlorine supply stops when water supply stops and starts when water flow starts. Thus, wastage is zero and risk of overdosing is also eliminated, since chlorination only takes place when water flows. Bolted, non-corrosive FRP cylinder eliminates chlorine leakage.
- 6. Safe to use** – uses NSF USA grade CPVC plastics and non-corrosive valves and tank.
- 7. Tamper Proof-** All above ground valves and fittings are encased in lockable FRP enclosure, thus ensuring safety from animal damage, mischief, playful children etc.

TECHNICAL EVALUATION/RECOMMENDATION



Evaluated for performance in public water supply schemes in Rajasthan, Madhya Pradesh, Telangana, Himachal Pradesh, J&K, Ladakh and West Bengal. Small test lot installed in Leh. Chlorinator is listed on GEM i.e. Govt. E-Market Place.

IMPROVEMENTS TO ENSURE LONG LIFE AND PRODUCT RUGGEDNESS



PIPES AND FITTINGS- Use of only National Safety Foundation (NSF, USA) certified CPVC pro pipes, valves, fittings and unions manufactured by ASTRA India, Ahmedabad, Gujarat. Guaranteed life 30 years. Non-corrosive and not affected by chlorine solution at all.

RUBBER GASKETS - CUSTOMIZED to ensure long life and non-reactivity with chlorine.

FRP CHAMBER- METAL FREE, 100% FRP CHAMBER, for sodium hypochlorite solution filling. Made entirely of FRP (food grade resin), eliminating metal altogether. Pressure tested at 2 kg/cm².

MATERIALS – Only BIS compliant materials used, as recommended for chlorination apparatuses.



EASY QUANTITATION OF FREE RESIDUAL CHLORINE - HANDHELD ELECTRONIC DIGITAL METER FOR CHLORINE QUANTITATION provided with each CHLORITRON UNIT (Model CL-20 ONLY).

ECONOMICS AND SAVINGS

Inexpensive Compared to Complex Chlorination Plants

Owing to universal size, non-electrical automatic operation, safety and ease of use, can replace very expensive chlorination plants requiring motors, complex controls, civil works and dedicated, trained manpower costing several lacs of rupees.

Maintenance Free

3 Years Warranty. Life cycle of more than 10 years- no moving parts or motors needing replacement or repair. Product recovers its cost within few years.

Non-Electrical

Operates with flow of water and consumes no electricity at all. Significant electricity and AMC savings per unit.

Low Consumable Cost

Uses low-cost, easily available SODIUM HYPOCHLORITE GRADE 2 Solution (12-15%). 1 kg of the solution is sufficient to disinfect 2 lac liters of water at 0.25 ppm free residual chlorine concentration. Thus, one time 20 kg refill can disinfect 40 lac liters of water.

TECHNICAL DESCRIPTION/ MODELS

S. No.	Description	GEM PORTAL LISTING		
1.	Name	NON-ELECTRICAL CONTINUOUS AUTOMATIC WATER CHLORINATOR WITH ACCESSORIES FOR DRINKING WATER DISINFECTION		
2.	Title on Marketplace	"CHLORITRON" - NON-ELECTRICAL CONTINUOUS AUTOMATIC PRESSURE OPERATED POSITIVE DISPLACEMENT TYPE IN-LINE WATER CHLORINATOR		
3.	Category	Water- Drinking and Sanitation		
4.	Brand	CHLORITRON		
5.	CHLORITRON Models and Capacity			
	Model	Filling Capacity	GEM Product ID	Disinfection capacity (at 0.25 ppm)
	CL-07	07 kg solution	0423576-91843160773	14 lac liters of water
	HS-20	20 kg solution	0423576-97729040039	40 lac liters of water
	HS-100	100 kg solution	-	200 lac liters of water
6.	Consumable	Sodium Hypochlorite Solution, Grade II (12-15%) for Drinking Water Disinfection		

- 1. Operation** - non-electrical, continuous, automatic operation. Only top-up needed at weekly or monthly intervals, as per scheme size.
- 2. Sizes and Fill capacity** - 7 kg refill (Model CL-07), 20 kg refill capacity (Model CL-20)
- 3. Pressure Head**- Capable to withstand mainline pressure of 5-6 kg/cm²
- 4. Chlorination Agent** - Sodium hypochlorite grade II solution (12-15%), single refill
- 5. Chamber material specifications**-Food grade PLASTIC/FRP Cylinder. Material- FRP, Aropol IN 5334 food grade unsaturated polyester resin without pigments, clear with reinforcing fibers 450 GSM e-glass CSM fiberglass, 400 GSM WR
- 6. Pressure indication**- Oil-filled SS gauge (0-10 kg/cm²) to indicate inlet pressure in machine
- 7. Protection**- Fittings enclosed in robust non-corrosive lockable enclosure/cage.
- 8. Conforming standards** - non-corrosive parts, accessories conforming to BIS/NSF standards relating to materials for chlorination equipment- as per IS:10553 (Part 5)-1987
- 9. Accessories**- a. Portable digital meter with 50 DPD tablets/sachets for accurate quantitative measurement of free residual chlorine on site b. non-corrosive, mechanical dispensing pump for safe dispensing of sodium hypochlorite solution from drums. C. Clamps and valves for fitment
- 10. Warranty** - 2 years

**IDEAL FOR STATE GOVT. DRINKING WATER SUPPLY & SANITATION DEPARTMENTS
HOUSING SOCIETIES, MUNICIPAL CORPORATIONS, LIVESTOCK/POULTRY FARMS,
DEFENCE CANTONMENTS. INDUSTRIAL ESTABLISHMENTS & EFFLUENT PLANTS**



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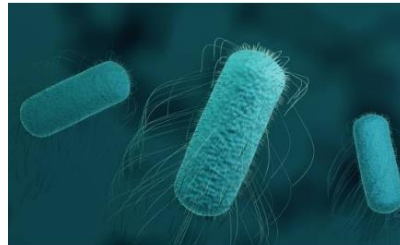
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Waterborne diseases affect about 4 crore Indians; about 1.5 million (15 lac) children die due to diarrhea every year. Loss of working days owing to waterborne diseases causes economic loss of about \$600 million (Rs.4951 crores approximately) annually

Ref: <https://www.indiawaterportal.org/faqs/waterborne>

USE OF CHLORITRON CAN HELP ERADICATE WATERBORNE DISEASES



Chlorine kills/inactivates microbes at extremely low concentrations of only 0.25-0.50 ppm by denaturing their protein