KLORIGEN™ M-SERIES

On-Site Electrochemical Chlorine Systems

THE KLORIGEN™ M-SERIES CHLORINE GENERATOR IS A SMALLER SCALE ELECTROCHEMICAL SYSTEM SPECIFICALLY INTENDED FOR REMOTE APPLICATIONS AND DESIGNED FOR SAFE AND COST EFFECTIVE PRODUCTION OF CHLORINE GAS AND SODIUM HYDROXIDE USING FOOD GRADE SALT. THESE SYSTEMS CAN ALSO BE CONFIGURED TO PRODUCE HIGH QUALITY COMMERCIAL STRENGTH BLEACH AT CONCENTRATIONS UP TO 10%.

Production capacity ranges from 20 to 100 kg per day of equivalent chlorine as either elemental chlorine gas or liquid bleach. The Klorigen™ M-Series systems eliminate the hazards typically associated with the use of pressurized chlorine gas and commercial bulk supplied sodium hypochlorite. The M-Series units are ideal for industries and municipalities that are currently using or require a form of chlorine for disinfection, sterilization or bleaching

FEATURES & BENEFITS

- Replaces pressurized chlorine gas to eliminate the potential for toxic gas release
- Membrane-grade sodium hydroxide is produced as a co-product
- Single-pass brine feed system using food-grade salt for maximum purity, efficiency and minimum maintenance
- Touch screen PLC control system compatible with SCADA systems for remote monitoring and control
- System utilizes NSF/ANSI Std. 61 certified components
- Hydrogen safely diluted below LEL
- Multi-year warranty and maintenance contracts available
- Containerized (”monocoque”) configurations

UTILITY REQUIREMENTS

- Motive water: 75 to 150 LPM at 4.2 kg/cm^2 for water operated eductor-based systems
- 208 or 460 VAC, 3 phase electric requirement (depending on output capacity)
- Potable water supply for making brine and diluting generated caustic
- Cooling water: 5 to 35 LPM depending on unit capacity

ELECTROLYZER

- Partitioned cells employ ion-selective Nafion®
- Membranes, coated titanium DSA® anodes and 316 stainless steel cathodes
- Vertical cell design eliminates H_2 gas pockets
- No acid cleaning requirement

GENERAL SYSTEM PERFORMANCE

- Power Consumption: less than 5.5 DC kWh per kg Cl_2
- Salt Consumption: less than 2.5 kg NaCl per kg Cl_2
- Electrochemical Efficiency: 70% to 85%

Klorigen™ - Designated “QATT” (Qualified Anti-Terrorism Technology) by DHS on February 16, 2010 and February 6, 2015

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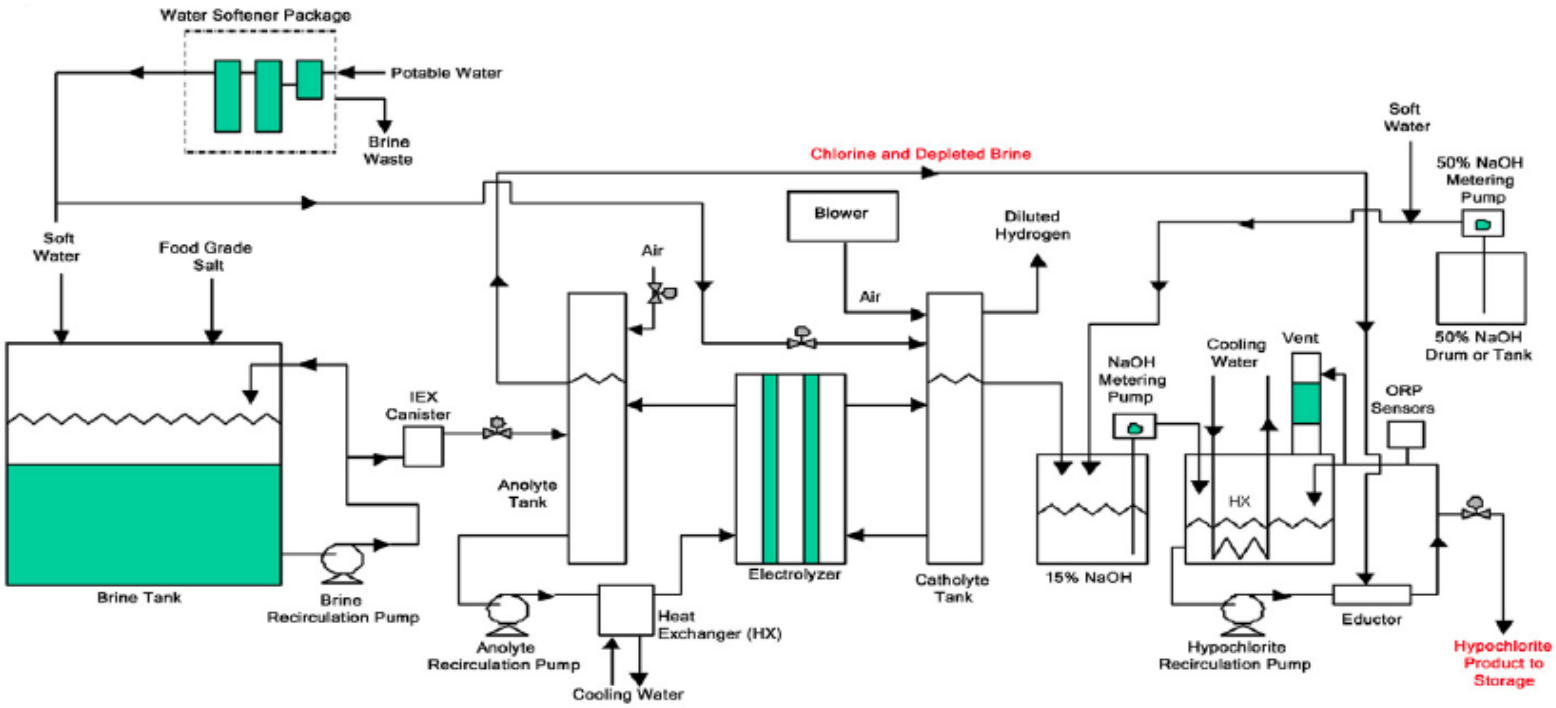
System Flow Diagram (Sodium Hypochlorite Application)



CONSTRUCTION

- Modular construction reduces installation time and cost
- Structural assemblies of chemical-resistant non-conducting pultruded GRP and UHMWPE
- 316L stainless steel fasteners
- All piping and valves are thermoplastic welded
- All fluid and gas fittings are thermal welded
- Components are NSF certified

BENEFITS

- Elimitates Risk Management Plan (RMP) reporting
- Low carbon footprint
- Allows for retention of current disinfection method and aspiration / injection system
- Proven chlor-alkali techonology uniquely modified for on-site generation
- Fully automated requiring minimal operator attention

POWER SUPPLY

- Precision engineered SCR regulated DC rectification to maintain steady state DC output
- Oil-cooled rectifiers are quiet and clean
- Chlorine output directly proportional to power input

MEDIA CONDITIONING

- Water and brine are purified onboard to optimize performance, eliminate cell maintenance (acid cleaning) and increase operating life.

HYDROGEN SAFETY

- Membrane - separated cells isolate electrical potential
- Automatic blower with flow safety swich
- Vertical orientation allows natural gas lifting
- Robust Electrolyzer construction
- Hydrogen is diluted and safety vented to atmosphere as it is produced

Electrolytic Technologies

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