

Wallace & Tiernan® Generators Millennium III™ EC Series C-Auto Chlorine Dioxide Generator

The Millennium III™ EC Series automatic generators are the foundation for a simple, less costly series of chlorine dioxide systems utilizing state-of-the-art technology combined with functional and durable components.

The Millennium III™ EC Series C-Auto generators combine a 25% sodium chlorite solution with chlorine gas under vacuum conditions to generate chlorine dioxide safely and efficiently. They are available as a free-standing configuration with touch screen controls and SCADA interface capabilities.

The Millennium III™ EC Series C-Auto generators are available in a range of capacities all utilizing a standard modular design and a smaller installed footprint than other currently available automatic generators.



Key Benefits:

- Direct flow path of motive water and chemical precursors provide for minimal pressure losses and improved flexibility.
- Injector design improves overall performance.
- Rotameters and check valves are maintenance free and are designed specifically for their intended uses.
- Materials of construction are compatible with chlorine dioxide and chemical precursors.
- Same compact footprint for larger capacity units.
- The safe generation of chlorine dioxide continues to be a primary design consideration. Generation under vacuum is used to minimize and control the reactions and concentrations.
- Efficiency and yield is maximized by reaction of chemical precursors in their concentrated form. These reaction conditions favor the immediate formation of chlorine dioxide, thereby minimizing byproduct formation found in other types of generators.

Product Sheet

Automatic Control Benefits

- State-of-the-art control valves specifically designed for low flow control of sodium chlorite and chlorine gas.
- Flow controls include PID loops for the liquid chemical precursor, sodium chlorite.
- Touch screen interface allows for maximum performance, ease in set up, parameter changes and troubleshooting.
- 10 Step chlorine valve linearization program produces accurate chlorine feed in proportion to the sodium chlorite flow. Operator selectable options provide for excellent feed rate flexibility.

Equipment Description

Generator:

- The same basic generator is used for all models, from simple manual units to the most complex automatic model.
- Simple design reduces operational difficulties.

Automatic Controls:

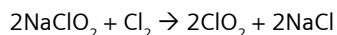
- One process controller performs all functions including generator set point control from local or remote (flow pace) sources, batch tank level control, dosage control (as a flow pace "multiplier", alarm monitoring and more.
- Control program parameters (for generator sizing, flow meter set-up, etc.) are accessible from easy to access and understand "EZTouch" touch screen displays.
- Significant program access is achieved utilizing removable memory modules that allow for quick changes and updates.
- Flow control valves and flow meters are industry accepted components that provide for trouble-free operation.
- Traditional chlorine feed control components are industry accepted and compatible with all chemicals involved.

Assembly:

- All components are securely mounted on a specially designed stainless steel skid with a small footprint that will allow placement in areas previously not considered.
- The skid construction is heavy duty, allowing location in operating areas that are subject to severe service conditions.
- Each valve and flow meter is secured to the frame to minimize vibration and flow related stresses. Piping runs are designed to insure a simple and safe flow path.
- Components requiring maintenance are easily accessible.

Typical Specifications

Chlorine dioxide feed equipment shall be manufactured by Siemens and shall be comprised of a process or chlorine dioxide generation utilizing 25% sodium chlorite solution and chlorine gas. The feed system shall be arranged with equipment to suit plant requirements. The generator shall maintain a minimum yield efficiency of 95% chlorine dioxide from the reaction of sodium chlorite solution and chlorine gas. The yield efficiency shall be based on the stoichiometric reaction as follows:



The reaction of sodium chlorite solution and chlorine gas shall take place under vacuum without the use of a separate mineral acid feed or the excess chlorine method (adding chlorine in excess of the stoichiometric chlorine requirements in order to lower the process pH). Excess chlorine shall be considered as any amount greater than 5% of the chlorine feed that remains in the generator product as unreacted chlorine. Yield shall be defined as the ratio of chlorine dioxide generated to the theoretical stoichiometric maximum. The theoretical maximum shall be determined from the feed rates of the chemical reactants. They shall be confirmed by an Amperometric analysis capable of differentiating between chlorine, chlorine dioxide and chlorite ion. Analysis shall be confirmed by the procedure as described in Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF, 20th edition 1998, Amperometric Method II, 4500-ClO₂E.

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