

## Advantages of the Powell Continuous Sodium Hypochlorite Process System



- The continuous system can use liquid chlorine, so equipment and energy requirements of a chlorine vaporization system are eliminated.
- Due to better mixing and control of the reaction, excess caustic can be lowered from typical levels of 1% by weight sodium hydroxide to typical levels of 0.2 - 0.3% by weight.
- Due to better mixing and control of the reaction, lower levels of chlorate are achieved typically with large savings in raw materials costs.
- The system is automatic and required very little skill by the operator; the requirement for high skilled operators is eliminated. New operators can be quickly trained to produce a quality product.
- Since this continuous plant is completely automatic, considerable person-hours are saved compared to other bleach operations. For example, one person, including all materials, handling, and testing, can operate a typical plant producing 70,000 gallons of 16% by weight sodium hypochlorite per 8-hour shift.
- The system can be easily and inexpensively upgraded for higher production rates so production of the sodium hypochlorite never limits the sales of the product.
- The system can also use vapor chlorine, either wet chlorine directly off chlorine cells or dry vapor chlorine under pressure off chlorine compressors. The system can also utilize gas streams containing chlorine with other gases, reacting the chlorine to produce the sodium hypochlorite and acting as a chlorine gas scrubber of other gases. A typical application would be chlorine tank car or ISO container evacuation for removal of the chlorine.
- The system utilizes 32% or 50% caustic, eliminating the need for costly dilution tanks and production space. Existing diluted caustic can be chlorinated which eliminates the caustic dilution system and reduces the initial cost.
- When the system is installed into a large industrial complex with an existing distributed control system (DCS), the Powell Bleach Plant controls can be integrated into the existing system quickly and easily.