

## **How To Fix High pH And Comply With The Clean Water Act**

When the Clean Water Act was enacted, one of the intentions of this legislation was to reduce the untreated industrial waste water burden on publically owned waste water treatment plants (POTW) so that industrial wastewater would only load the treatment plant to the same extent as ordinary household sanitary waste. Industrial facilities that generated process wastewater had to begin pre-treatment of the water before it could be returned to the local POTW. They had to test for heavy metals, chemical oxygen demand, biological oxygen demand, pH, solvents and other chemicals that were contained in the waste water stream and then treat to ensure removal of the contaminants. The Act also established limits on water discharged to the environment from an industrial facility or discharged upon the grounds of the facility.

Among the chemicals and oxygen demand levels prohibited to be discharged without treatment, the Act also defined the pH limits and Total Suspended Solid levels of discharges to the environment as follows: any waste stream with a pH below 6.5 or higher than 9.0 is by definition hazardous waste. The act set limits of 30 mg/l of suspended solids for process water and 100 mg/l for stormwater. Enforcement is conducted by local and state agencies that administer the Clean Water Act on behalf of the EPA.

The above limits on pH and total suspended solids has had an impact on ready mix and precast concrete producers. Many of the concrete production plants generate large amounts of high pH process water from rinsing and cleaning of equipment. High pH water comes from rinsing the drums on the mixer trucks after returning from a delivery and from rinsing the exterior of the trucks after loading at the batch plant. Another factor is that the jobsites receiving the loads of concrete no longer allow the rinsing of the mixer trucks at the job site, so the amount of waste concrete brought back to the production plant has been increased.

High pH process water contains dissolved solids and suspended solids that do not settle out in the basins. Total suspended solids may be removed filtration. The high cost and time required to maintain the filters is prohibitive for most producers. The suspended solids can be easily removed with pH adjustment by using carbons dioxide which reacts with the calcium hydroxide in the water and forms calcium carbonate which is insoluble and drops out of solution thereby lowering the suspended solids to permissible levels.

Ready mix concrete and to some extent precast producers generate excess process water. Stormwater can add to the problem if the water drains into the basins designed to contain the process water. The stormwater becomes process water at that point. High pH process water may be recycled into fresh concrete for many projects. However, many states require the use of potable water as the make-up water for concrete when manufacturing for structural projects such as bridges and roads. This limits the amount of process water that can be recycled.

The producer must have an economical way to deal with this problem short of storing it or paying for it to be transported for disposal as industrial waste water. Discharge of the high pH water off the property can incur a liability for fines and future fees for remediation of the property upon which the water was discharged.

Fortrans Inc. offers a worry free and low cost solution for pH and total solids control. Fortrans Inc. designs and manufactures self-contained CO<sub>2</sub> based pH control systems that solve this problem for the producers. The systems use low cost CO<sub>2</sub> gas to automatically lower the pH of the process water to

target levels and lower the total dissolved and suspended solids so the producer can easily meet the Clean Water Act limits for discharge to the environment or return to a municipal wastewater system.

Fortrans pH control systems can provide automatic control and monitoring of process water. The treated water may be recycled for batching fresh concrete, pumped to wash racks, used for irrigation and dust control. More information is available on Fortrans' Operation Overview document available on our website [www.fortransinc.com](http://www.fortransinc.com).