



8525 SW St. Helens Drive • P.O. Box 1849  
Wilsonville, OR 97070  
(503) 682-4411 FAX (503) 682-4421

**Newsletter Volume 18**

## **PACKAGE SYSTEMS**

### **Batch Make-Up Package Systems**

Some concentrated chemicals need to be prepared before being ready to use. This can include dilution, blending, additional chemical feed, activation and even solution aging. It can also be important to have flexible chemical addition for changing applications. In these cases, it can be useful to build batches of the product to be applied. This is particularly true when the concentrated chemical feed rate is low. Pre-mixing a batch can allow a higher application rate of the made-down product, resulting in better mixing and more effective and efficient chemical results.

### **Automatic Batch Refill System**

This type of system uses a non-clogging ultrasonic level control as its brain. When a field adjustable low level set point is detected in the product tank, power is switched on to open a solenoid valve to begin filling the system with water. At the same time, a flow sensor and flow computer are powered up to measure and totalize water flow in the system. The computer is capable of sending a signal to a chemical pump so it feeds chemical in proportion to flow. Also, the computer can send out a 4 to 20 mA signal to record system water usage externally. After a short period of time, based on tank level, the chemical pump is turned on to continue the dilution process. Past the chemical injection point, the combined flow goes through an in-line mixer before entering the product tank. The concentration of the product in the tank can be varied by adjusting the chemical pump diaphragm stroke length, and by changing the rate of the proportional chemical flow through the flow computer programming. Shortly before reaching the high level set point, the level control sends a signal to turn off the chemical pump, using the last flow volume before closing the solenoid valve to flush the plumbing and prepare for the next system cycle.

All four level points in the product tank respond to switching from the level sensor: Opening the solenoid valve and turning on the flow system, turning on the chemical pump, turning off the chemical pump, and closing the solenoid while shutting down the flow equipment. This switching is controlled through a flow controller with four power outlets, where one outlet is for unswitched service (level control), and the other three are switched by the level control (solenoid valve, flow computer and chemical pump). The flow controller has 15 amp fuse protection.

## **Manual Batch Refill System**

This type of system includes a transfer pump but lacks the rest of the electrical automation of the automatic batch refill package, though it can certainly still get the job done. A sight glass with calibration markings is added to the front of the product tank, so that proportional amounts of water and chemical can be added to the tank. A hinged cover in the front of the tank allows easy access. The product can then be mixed through the recirculation loop before being redirected to the application.

The system includes all of the hardware needed to add at a future date any degree of automation that might be desired. Pump mounting shelves, tank bulkhead fittings and plumbing spacing can all be included in the manual system.

## **Polymer Feed Systems**

Polymers can be a special case for batching systems. Some polymers, like long chain anionic emulsions, can benefit from having some aging time to fully uncurl their molecules and completely activate. So building a batch of made-down polymer allows some aging time, and can make good sense over continuous feed.

Another strong case for building polymer solution batches is low flow applications. An occasional spurt of polymer into a water line has no chance to apply a homogeneous mixture to a water stream. Blending and activating in a batch allows continuous treatment for the water or wastewater application

If your polymer requirements allow continuous feed, please see our MixMate Polymer Feed Systems. Call us.

## **Cooling Tower Feed System**

