Treatment of Toxic Effluent
Made Easier with Rugged pH System

To ensure correct processing of toxic salts and that resulting effluent complies with regulations, involves precise pH measurement. To meet this challenge a metal treatment company required a highly capable pH measurement system. For accuracy, reliability and sensor lifetime METTLER TOLEDO’s solution excelled.

Liquid waste processing specialists
Afig Foessel Engineering is a France-based design-production-assembly firm specializing in industrial liquid waste processing. One of their customers was looking for a highly accurate pH measurement system for use in the pre-treatment of toxic effluent. METTLER TOLEDO provided the ideal solution.

Toxic waste
Afig Foessel’s customer is a metal treatment company who employ electrodeposition to apply a metallic deposit onto the surface of metals. The waste water from these processes requires conditioning in an effluent treatment system before being discharged into municipal sewers. Some of the electrodeposition processes involve hexavalent chromium which must undergo pretreatment upstream of the general distribution channel.

Dechromatation (the reduction of hexavalent chromium salts to less toxic trivalent chromium) is possible only with a sufficient quantity of a reducer such as sodium bisulfite and a strong acid (hydrochloric or sulfuric acid at pH 2).

In order to ensure satisfactory dosing of acid and sodium bisulfite and rapidity of the reaction, a pH/redox measurement is necessary. The measurement is done directly in the dechromatation tank at room temperature.

Expectations
Afig Foessel’s customer was looking for a
pH/redox solution that would be easy to install and control, and which would be low in maintenance. But more importantly, it had to be very accurate to verify that the customer was complying with stringent regulations.

**METTLER TOLEDO solution**

After thoroughly examining the process conditions that measuring equipment would face, we proposed a solution comprising our InPro 3250 i pH electrode and M300 transmitter.

**InPro 3250 i pH electrode**
The InPro 3250 series are low-maintenance pH electrodes that have been designed for a wide range of demanding applications in the Chemical industry. The electrodes are available with an array of pH-sensitive glass membranes to provide optimum measurement performance regardless of process conditions.

A major feature of the electrodes is METTLER TOLEDO’s proprietary Intelligent Sensor Management (ISM) technology. ISM reduces the installation, maintenance and calibration efforts of measurement equipment, while increasing process reliability, productivity and system availability.

**M300 transmitter**
The M300 is a robust transmitter which combines simplicity, reliability and affordability. Its wide screen, easy-to-access cabling terminals, plain text interface and fast start-up menu ensure practical operation. Like the InPro 3250 i electrode, the M300 is quipped with ISM technology which, for transmitters, allows much easier configuration and commissioning. The unit is equipped with two 0/4…20 mA outputs that make it possible to monitor pH and redox signals simultaneously.

**Excellent performance**

Afig Foessel’s client is delighted with the METTLER TOLEDO system. They report that accuracy is excellent, and that the electrodes perform reliably and have a long lifetime despite the harsh conditions they are exposed to. Afig Foessel themselves are also very satisfied and plan to use METTLER TOLEDO systems in future projects.

If you need a highly accurate, low maintenance pH measurement system at your facility, go to:

- [www.mt.com/pro-pH](http://www.mt.com/pro-pH)
- [www.mt.com/ISM](http://www.mt.com/ISM)