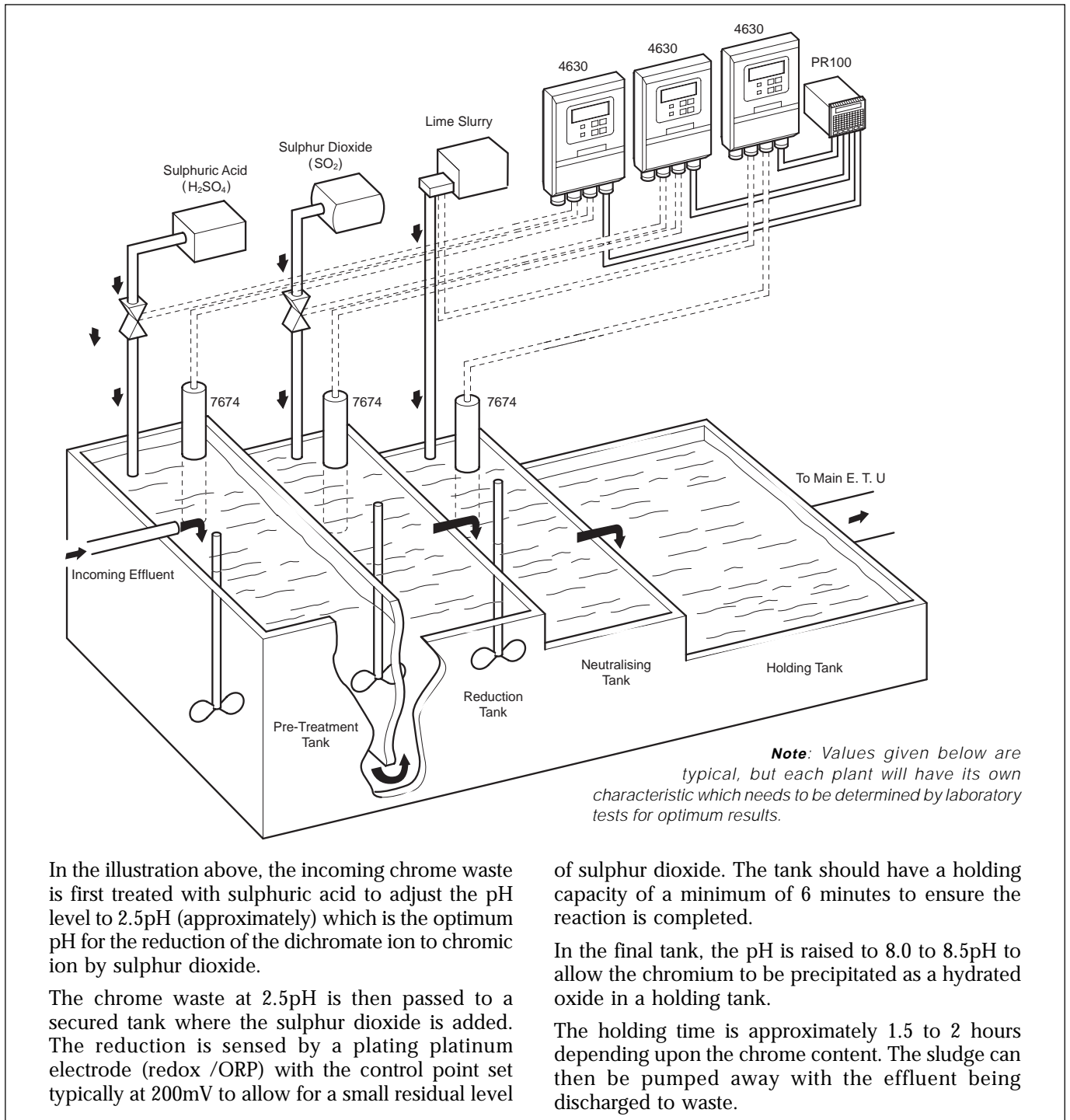


Measurement and Control of Chromate Treatment Plant in the Electro-plating Industry using pH and Redox



Why use pH/redox for the treatment of chromate ?

The customer needs:

- ▶ To ensure that the dichromate ions in the solution have been reduced to chromic ions.
- ▶ To ensure that the effluent discharge meets the discharge consent limits.
- ▶ To use the minimum quantity of chemicals to keep costs to a minimum.

Why use ABB Instrumentation ?

- ▶ Rugged, virtually maintenance-free sensor system minimises risk of damage and keeps maintenance to an absolute minimum.
- ▶ Advanced sensor technology – provides industrialised sensor system to minimize the risk of physical damage.
- ▶ Easy to fit sensors and simplified maintenance – eliminates the need for skilled technicians.
- ▶ Low operating costs – long life sensor designed to minimise risk of damage.
- ▶ Replaceable liquid junction – extends the life of the sensor and provides the opportunity to replenish KCl electrolyte to further increase sensor life.
- ▶ Easy to use 4600 Series instruments designed to be used by operators with virtually no experience of measurement.
- ▶ Back-lit LCD provides easy to read display in all environments.
- ▶ Simple automated calibration procedure – avoids the risk of operator error.
- ▶ Automatic buffer recognition – eliminates operator error.
- ▶ IP66/NEMA 4X case – protects instrument in corrosive atmosphere.
- ▶ Multilingual software – switchable for use throughout the world.
- ▶ Programmable current output for customer flexibility, choice of:
 - 0 to 10mA,
 - 0 to 20mA,
 - 4 to 20mA.
- ▶ Security level protection – prevents unauthorised tampering.
- ▶ pH/Redox (ORP) programmable – same instrument is used for pH and redox.
- ▶ Two alarm relays/setpoints – provide all the control features necessary for the addition of chemical reagents.
- ▶ Automatic temperature compensation – eliminates errors caused by temperature fluctuations.
- ▶ Wide range of recorder options provides single source supply – one stop shopping.

What ABB products are Suitable?

- ▶ Model 4630/500 wall-mounted pH/Redox transmitter/controller, or:
- ▶ Model 4635/500 panel-mounted pH/Redox transmitter/controller.
- ▶ Model 7674/000 multi-dip pH system.
- ▶ Model 7674/000 multi-dip redox system.

Associated ABB Instrumentation Product Applications

- ▶ Temperature measurement of process liquids.
- ▶ Liquid level control of the treatment/reagent tanks.

Installation

- ▶ It is essential to site the sensor system where the true effect of the chemical dosing can be measured, e.g. avoid positioning the sensor too close to the dosing reagent to ensure true mixing of the reagent.
- ▶ Ensure that the sensor is never left in air and is always immersed in solution.
- ▶ Emphasise the importance of agitation of the sample to encourage mixing of the sample and reagent.
- ▶ Ensure all extension leads are watertight and use IP65 minimum junction box with silica gel driers.
- ▶ Ensure there is sufficient excess connection cable to remove systems from the tank for easy buffering routines.



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