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CR-20 REDUCING REAGENT

CR-20 is a stabilized liquid reducing reagent specifically formulated to reduce hexavalent chromium to its trivalent state as a preparatory stage to precipitation. Because the hexavalent chromium ion is very stable and cannot be precipitated from solution by conventional chemical precipitation methods, **CR-20** is utilized to provide the reaction required for the valence reduction.

APPLICATIONS

In addition to chromium reduction, **CR-20** can also serve as a reducing reagent for persulfate, permanganate and chlorine solutions and a reactant for the conversion of formaldehyde reducing agents to a methanol derivative. **CR-20**, as a plating solution additive, improves the efficiency of metallic plate-out systems. Additional applications for **CR-20** include dechlorination, deoxidation, and reduction of other high valence metals such as arsenic, mercury, molybdenum and selenium.

DOSING CRITERIA

The **Oxidation Reduction Potential (ORP)**, expressed in millivolts, of a hexavalent chromium solution is utilized to determine when the reduction reaction has been achieved. Therefore, a means of monitoring the ORP of the solution is required. An ORP control system which both monitors and controls the reaction is the most effective means of dosing **CR-20**. The process sequence requires a untreated solution pH of 2-3. At that pH, **CR-20** is added to the solution until an ORP millivolt reading of 250-300 (mV) is achieved and maintained for 15 minutes..

To do your own bench-scale jar tests with **CR-20**, ask for a free sample.

In a full scale installation, **CR-20** should be dosed by means of an electronic dosing system which includes a pH electrode & controller, an ORP electrode & controller, and a metering pump. Ask for our product information bulletin on REAGENT CONTROL SYSTEMS.

Exhaust Ventilation is required for all chemical operations.

REDOX REACTIONS

Reduction and oxidation (REDOX) reactions are defined as reactions in which electrons are transferred. The species receiving electrons is reduced, that donating electrons is oxidized. Redox potential is a measure of the intensity of overall redox reaction potential in a system, not the capacity of the system for specific oxidation or reduction reactions. The reduction of hexavalent chromium (Cr+6) occurs when **CR-20**, a reductant or reducer, donates three negatively charged electrons to the Cr+6 ion, thus reducing the chromium charge by 3 to its trivalent state (Cr+3). In this trivalent state, ionic chromium will precipitate when the solution pH is raised to 8-8.5

See material safety data sheet for further information

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