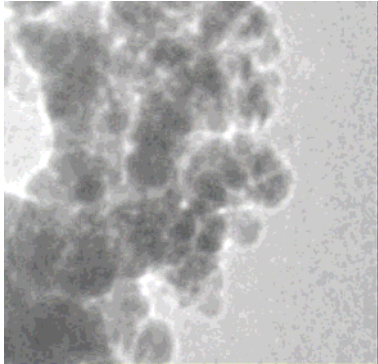

AC Nano™ Nanotechnology

A New Generation of Products for
Capturing Heavy Metals

Description of the Product

- Colloidal suspension of synthetic calcium minerals
- Engineered to provide optimum performance for heavy metal decontamination of industrial chemical waste water, polluted soils and ground waters
- Selectively removal of Pb, Cd, Cu, Zn under neutral pH environment without using any form of sulfur
- Supplied as an aqueous solution with solids content in the range of 15% w/w
- Compatible with other precipitation and coagulation treatment systems

Immobilization Mechanisms



100 nm

Electron Micrograph of
AC Nano at 30,000X

The high surface area and low crystallinity of the nanocrystallites in AC Nano promotes nucleation of the metal complex over a wide range of metal concentration (<10ppb to 1000ppm).

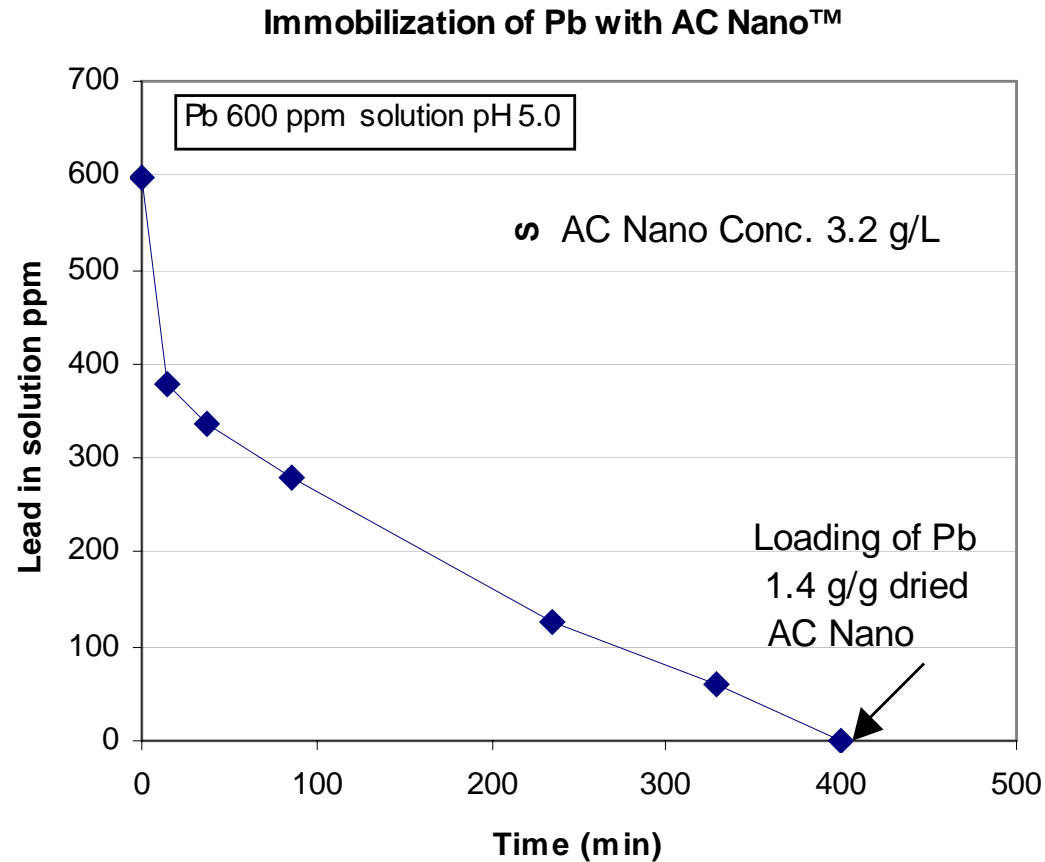
AC Nano works to bind metals by several mechanisms:

- Ion exchange at the crystallite surface
- Surface complexation
- Dissolution followed by precipitation
- Actual mechanism(s) is determined by the metal type, concentration, and solution chemistry
- Sorption kinetics are generally fast

Highly effective for Lead and Cadmium

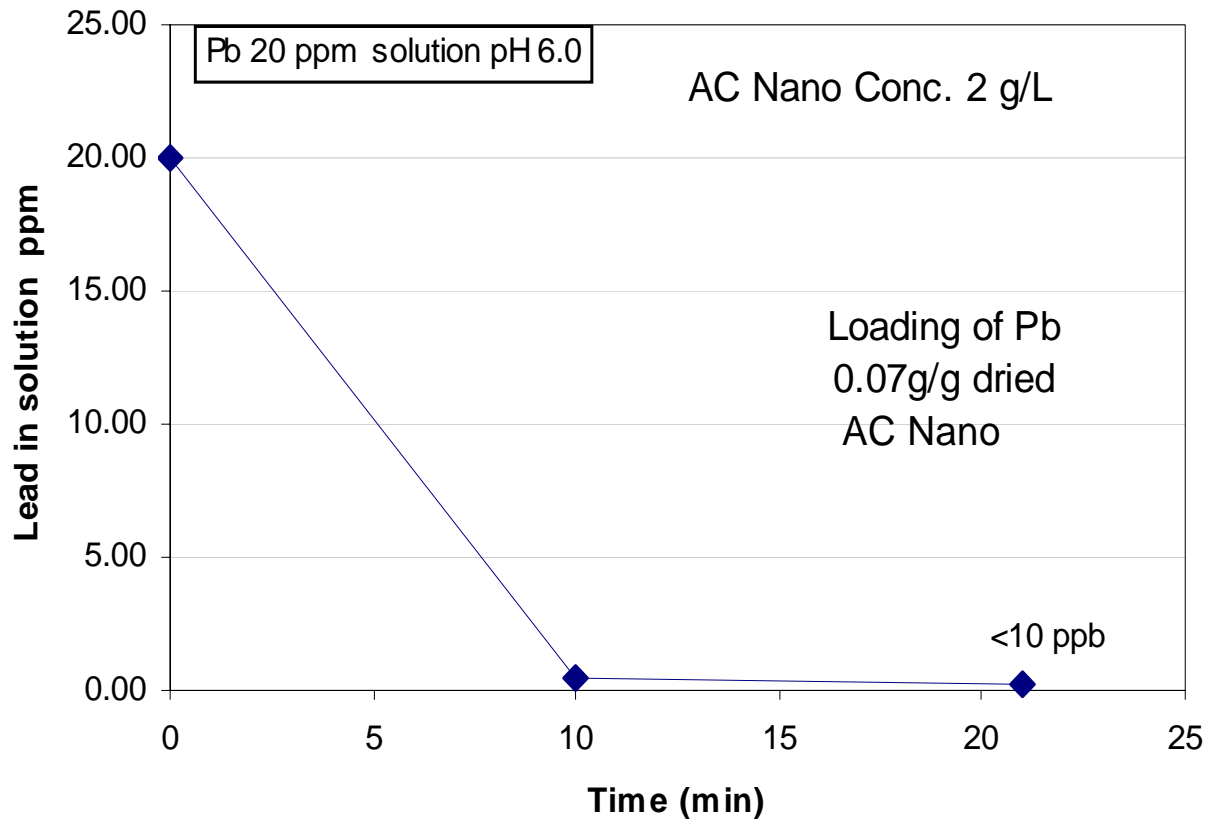
- For Lead, low solubility compounds are formed that are stable under typical pH and aqueous chemistry found in the environment
- Cadmium immobilization is a two- step process with rapid exchange of cadmium ions for calcium at the surface of the crystallites followed by the slower incorporation into the bulk of the crystallites
- For wastewater applications, the low solubility AC NanoTM- Cadmium compounds can be disposed of in a landfill or processed to recover the metal

Lab test demonstrated exceptionally high adsorption of Lead ions

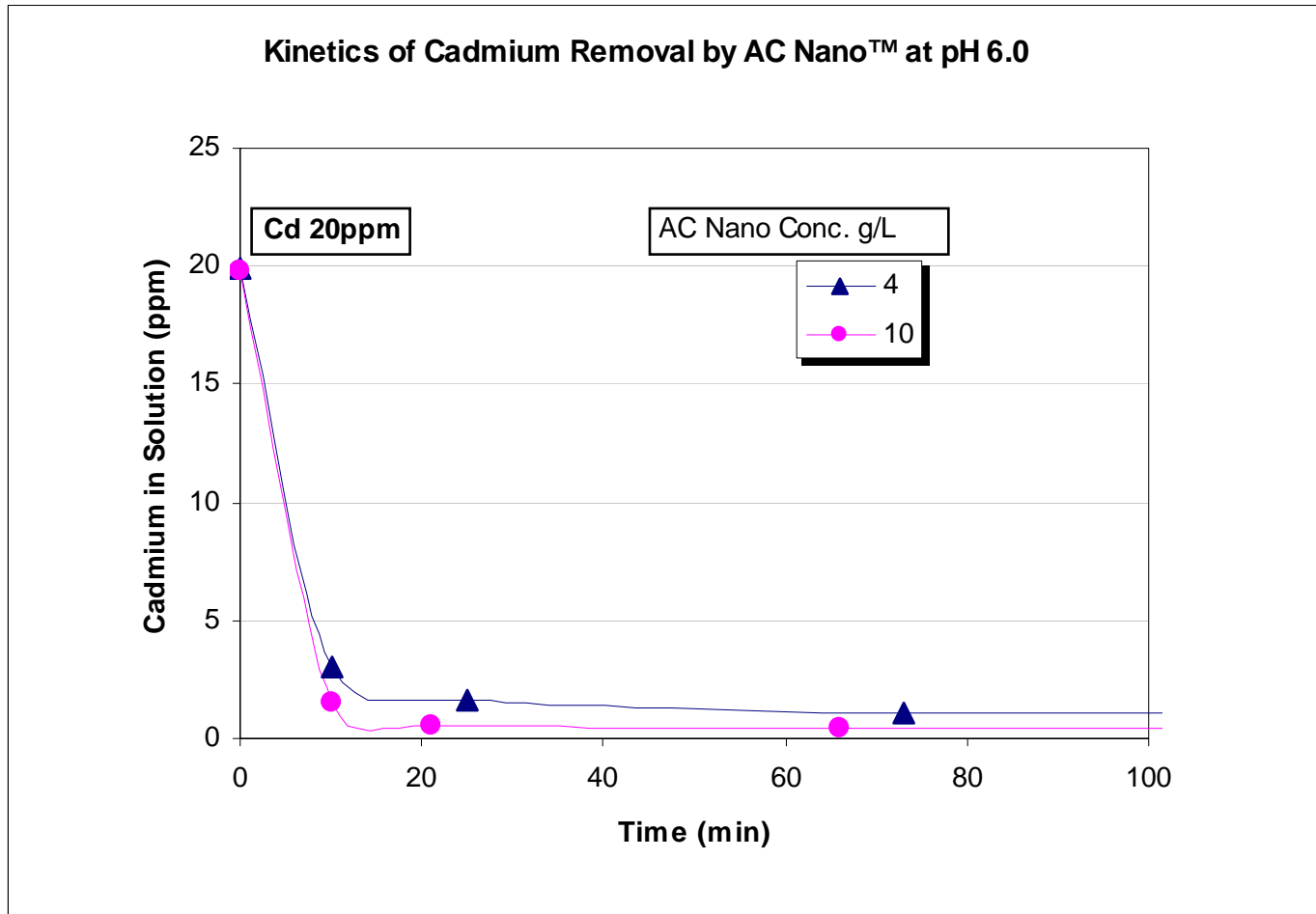


Lab test showed fast and complete removal of Lead at low concentrations

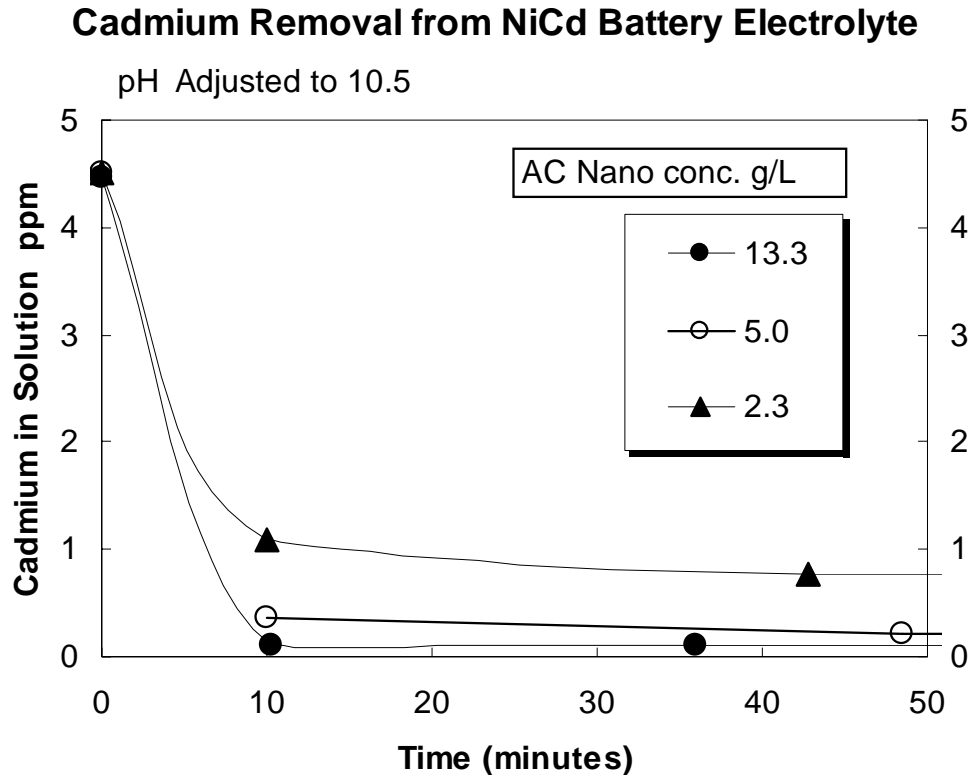
Immobilization of Pb with AC Nano™



Complete removal of Cadmium at low concentration



Removal of Cd from a high ionic-strength (20% KOH) waste battery electrolyte



New Technology for Various Applications

- High Adsorption Capacity and Fast Kinetics
- Containing no Sulfur or other secondary contamination
- Performs over a range of pH conditions, particularly effective at Neutral pH Environment
- Ideal for Shooting Range Soil and Water Treatments
- Battery Recycling Operations or Waste Treatments
- Treatment of Acid Mine Leaching
- Remediation of Water and Soil of Pb and Cd polluted agricultural fields (e.g. Rice fields in China and India)
- Emergency treatments of toxic Pb and Cd leakage