

***PRO - pHx* Acid Life Extender**

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As a young boy, the late Dr. John C. Wagner visited the Petrified Forest and was intrigued by the fact that wood, an organic material, had turned into stone over the centuries since the trees had fallen. He never forgot the petrified wood during his career as a chemist and as a Professor at Tulane University. He speculated that this petrifying process could be speeded-up through catalyzed chemical reaction.

His many experiments resulted in several useful discoveries and as early as 1988 he was able to precipitate contaminating soluble metals from acid baths. The process involves introducing a decarboxylation product which causes contaminating metals, organic materials and other unwanted ingredients to become encapsulated and precipitate as inert silicates. This precipitate, which is easily filtered, purifies the baths and extends their lives dramatically.

This Catalyzed Reagent Process is a proprietary blend of soluble silicates, which allows for effective immobilization of soluble metals by reacting with them to form metal silicates. Silicon is a member of the carbon family and like carbon can form polymers. These polymers are a unique class of compounds in which sodium Oxide (Na_2O) is associated with silicon dioxide (SiO_2) generally in ranges varying from 1:1 to 1:3.22. In dilute solutions, these compounds depolymerize to form chains of silica and oxygen. Negative charges on some oxygen atoms react with positive metal ions to form stable, insoluble metal silicates. The ingredients in the catalyzed reagents will also react with volatile and non-volatile organic compounds producing a non-volatile, non-toxic, non-hazardous waste. The carbon dioxide (CO_2) formed reacts with the silicates and does not escape, thus no off-gassing. ***PRO - pHx*** (pronounced, "pro-fix") is considered non-toxic, non-hazardous, non-flammable, non-caustic, non-corrosive and non-acid. It is inorganic, water soluble, colorless and has no fumes or out-gassing.

In late summer of 2000, Gwen Wagner, John's widow began marketing this product and named it ***PRO - pHx***. She contacted Amplate, Inc. a plating company in Charlotte, NC and it's president, David French tested ***PRO - pHx*** for use in their acid baths.

After successful results in the laboratory, French tested it on a spent muriatic acid tank and found the acid was restored to a nearly like-new condition. So, instead of going through the expense of proper disposal and replacement, he was able to reuse this acid, and he is still using it over one year later. Since then, Amplate has introduced ***PRO - pHx*** into all seven of their plating lines acid strips, pickling tanks and activator baths with highly successful results. They found that a concentration of 0.5 to 1.0% ***PRO - pHx*** extends the bath life indefinitely and the filtered precipitate passes TCLP test and can be disposed of as a non-hazardous waste. Acid addition is only required to make-up for drag-out and evaporation. In the year 2001, Amplate disposed of no acids and has zero acid waste.

Walt Johnston, partner in Lake County Black Oxide also uses ***PRO - pHx***. He states, "In August (2001) we took a six month old, badly contaminated bath (15% muriatic) and restored it with ***PRO - pHx***. This same acid bath is like new today." ***PRO - pHx*** is equally effective in sulfuric, nitric, citric, formic, and hydrochloric acids.

Tests have also been run on sugar waste sludge having both low and 20% solids content. Results show very significant reductions in metal concentrations as well as hydrocarbon and COD levels.

Trials run on paper mill sludge have resulted in decreased, metal contents as follows: As - 43%, Cd - 89%, Cr - 44%, Pb - 54%. This reduction allowed the final product to be fabricated as a board material similar to particleboard.

Sewage plant waste was also tested with results showing decreases in Ca - 42%, Cu - 53%, Zn - 32% and over 99% in Total Coliform and Standard Plate Count.

PRO - pHx appears to be a win-win product. Not only can it save plating, galvanizing and anodizing companies money by extending the life of their acid baths and thus reducing the cost of acid replacement, but also it decreased the expense of hazardous waste handling and disposal. In addition, it is also environmentally friendly, since it is non-toxic and lowers landfill volumes, especially for hazardous materials.

To learn more about ***PRO - pHx*** contact:

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