

Phosphorus Removal

As regulations become more stringent, removing phosphorus/phosphates from wastewater effluents is easily accomplished by the addition of a metal coagulant. The most common are aluminum and iron based. However, finding the correct chemistry for your specific application is critical to achieving results. With one of the largest selections of products available, Coyne Environmental Services is poised to provide you with the most cost-effective solution in meeting your treatment needs.



Coyne Environmental is uniquely positioned with the most comprehensive collection of treatment options available to assist the municipal and industrial water and wastewater treatment industries in meeting your specific treatment goals.



MUNICIPAL & INDUSTRIAL WASTEWATER TREATMENT

Phosphorus Removal

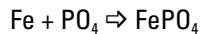
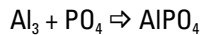
Metal coagulants offer distinct advantages over biological treatment, can achieve lower residual levels, and can be implemented with minimal capital costs. Phosphate removal utilizing a metal coagulant is based upon a physical reaction between the inorganic metal and the phosphorus compound.

Contact between the molecules is critical and must be achieved to obtain optimum removal. Thus, mixing energy is essential to the process. If optimum conditions are achieved, phosphate levels of <0.5 mg/L and lower can be easily realized. In fact, when combined with a proper wastewater treatment process, effluent phosphate levels of <0.05 mg/L have been achieved. Determining the correct addition point to achieve maximum efficiencies is critical.

All metal coagulants used in the phosphate reduction consume alkalinity as they transform from the disassociated salt form to their hydroxide state in an aqueous environment. The amount of alkalinity required to complete the hydrolysis of a metal coagulant is influenced by several factors:

- *The molar amount of the metal salt being used*
- *The pH and available alkalinity of the wastewater flows*
- *The basicity of the metal ion species being used*
- *The differential charge state of the metal being used*

CALCULATION OF PO₄ REMOVAL



Chemical additions that consume alkalinity may require the addition of an alkaline source to perform at optimum levels. Coyne Environmental is well versed to review these options with you to provide total treatment.

In addition, beginning a treatment program, making changes to existing chemistry or dosage used, or adding alkalinity may impact your biosolids operation as well. Coyne Environmental has the expertise to address these potential issues.

Thus, many factors beyond stoichiometric chemistry prevail in determining the most cost-effective product for your application. Coyne Environmental's diverse product line is essential to achieving optimum results for our customer base.

To learn more about Phosphorus Removal or any of our products and the applications they serve, or to schedule an appointment with one of our Chemical Application Specialists, please contact our offices at: **215-785-3000**.

Or visit us at:

www.coyneenvironmental.com

ALUMINUM-BASED PRODUCTS

Aluminum Chloride
Aluminum Chlorohydrate
Aluminum Sulfate
Inorganic / Organic Blends
Polyaluminum Chloride
Sodium Aluminate
Specialty Inorganic Blends

IRON-BASED PRODUCTS

Ferric Chloride
Ferric Sulfate
Ferrous Chloride
Ferrous Sulfate
Inorganic / Organic Blends
Specialty Inorganic Blends

Coyne Chemical Environmental Services provides practical, economical, and user-specific solutions to virtually any municipal or industrial water and wastewater treatment challenge.