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neowaterfx

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A better way to remove phosphorus and reduce sludge volumes

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NeoWaterFX[™] can deliver very high rates of phosphorus removal in municipal and industrial water treatment plants. Levels of less than 0.07 mg/l can be achieved without the use of ultra-filtration.

WaterFX also significantly reduces sludge volumes.

Neo WaterFX[™] is a lanthanide salt solution developed specially for rapid and stable precipitation of phosphorus in municipal and industrial water treatment plants.

The product can be applied in primary, secondary, and tertiary treatment, and has successfully removed phosphorus in trickling filters, rotating bed contactors, sequencing batch reactors, clarifiers, and media filters.

Neo WaterFX's targeted reaction with phosphorus greatly reduces the amount of product needed to achieve the desired final phosphorus level in the plant's effluent stream. As a result, less chemical sludge is generated in the treatment process.

Municipal plants using WaterFX have repeatedly passed whole effluent toxicity testing at 100% effluent concentration.

How **NeoWaterFX**[™] Works

Neo WaterFX works differently – and much more efficiently – than traditional water treatment chemicals like ferric chloride or aluminum chloride. **Neo WaterFX** preferentially reacts with phosphorus to form a strong crystalline ionic bond with phosphorus, creating an insoluble precipitate: REP04·H20 (Rhabdophane). **WaterFX** achieves phosphorus removal at a 1:1 molar ratio of RE:P04.

In contrast, traditional metal salts like ferric chloride or aluminum chloride do not bind to phosphorus very efficiently or very tightly. They form M+OOH and M+(OH)3 intermediates, to which phosphate adsorbs to the surface. This is a function of surface chemistry, instead of a strong ionic bond. Phosphorus removal occurs at approximately a 5:2 ratio of Fe/Al to P, which is why it takes relatively large amounts of Fe/Al to reduce phosphorus to desired levels.

Because **WaterFX** removes phosphorus more efficiently, much less of the product is needed to obtain excellent phosphorus removal results compared to competing products. neowaterfx



Traditional Metal Salts



Neo WaterFX binds tightly to phosphorus through a strong crystalline ionic bond, and achieves removal at a 1:1 molar ratio of RE:PO4. As a result, much less **WaterFX** is needed than traditional metal salts to obtain excellent phosphorus removal.



Ferric or aluminum chloride form M+OOH and M+(OH)3 intermediates, to which phosphate adsorbs to the surface. Phosphorus removal occurs at approximately a 5:2 ratio of Fe/Al to P, so it takes larger amounts of Fe/Al to reduce P to desired levels.

Extensive municipal and industrial water treatment plant trials have proven the following benefits of using **Neo WaterFX**:

- Achieves < 0.07 ppm-P with no added capital equipment such as tertiary filters.
- Improves dewatering in filter presses and centrifuges.
- Reduces sludge volume due to less chemical contribution to sludge.
- Improves clarifier solids coagulation.
- Eliminates the need for heated storage and pipe tracing due to its -40°F freezing point.
- Enables plants to meet low phosphorus discharge levels while avoiding increased aluminum release.
- Inhibits struvite build-up.
- Is non-hazardous and safer to work with than iron- and aluminum-based products.
- Can be applied in primary, secondary, and tertiary treatment, and has successfully removed phosphorus in trickling filters, rotating bed contactors, sequencing batch reactors, clarifiers, and media filters.
- Municipal plants using WaterFX have repeatedly passed whole effluent toxicity testing at 100% effluent concentration.
- Product is available in bulk tanker trucks and 275-gallon totes containing 1,500kg of solution.



NeoWaterFX helps municipal and industrial water treatment plants achieve greater water clarity than competing products, as well as faster coagulation, improved sludge dewatering, better digester performance, and no staining or discoloration of facility structures.