AMALGAM-60

Magnesium Hydroxide

ODOR, CORROSION AND FOG CONTROL IN SEWER LINES

USING AN ENVIRONMENTALLY FRIENDLY AND COST-EFFECTIVE TREATMENT.

Cost

$Mg(OH)_2$ is a low cost alternative to other odor control treatments, is manufactured locally by IER, and is delivered using dedicated personnel and equipment.

Odor Control

$Mg(OH)_2$ provides strong buffering to boost the wastewater pH, converting H_2S from a gaseous, corrosive, and stinky molecule to a nonvolatile water-soluble ion (HS^-) - no odor or corrosion.

FOG Control

$Mg(OH)_2$ treatment removes biomass and accumulated FOG mats in lift station sumps, unlike nitrate-based products that foster biomass growth.

Wastewater Treatment Benefits

The boost in pH and alkalinity from $Mg(OH)_2$ in the collections system improves microbiological performance at the treatment plant. In cases involving nitrification, this may eliminate the need for hazardous caustic soda (NaOH) at the plant.

At the same time, $Mg(OH)_2$ can provide solids settling and sludge compaction benefits – often reducing polymer usage.

Safety

$Mg(OH)_2$ is nonhazardous and completely safe for operators to handle and for treating wastewater microorganisms. $Mg(OH)_2$ dissolves only when it encounters acidity, unlike NaOH which immediately releases OH^- to burn operator's skin and eyes. While the pH can rapidly spike if NaOH is overfed, the overfeed of $Mg(OH)_2$ will safely buffer the pH up to 8 or 9. This "controlled release" trait of $Mg(OH)_2$ is a primary driver for acceptance as the ideal buffering agent for collection system odor and corrosion control.

IER
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ODOR AND CORROSION IN SEWER LINES

As the infrastructure in the United States continues to age it has become increasingly apparent that improved understanding, maintenance, and treatment for sewer line odor and corrosion is extremely important.

As can be seen in this photo, it is clear that the bottom of the sewer pipe is nearly unscathed, while the top section is nearly gone. To those in the wastewater conveyance industry, this photo is not uncommon.

Yet, what is often ignored, is that corrosion in sewer networks is entirely preventable using a cost-effective treatment that eliminates both odor and corrosion in the collection system, while providing beneficial treatment to the downstream water reclamation facility (WRF).

Hydrogen sulfide (H_2S) gas is produced in wastewater, causing odor and corrosion issues in sewer systems.

Odor and corrosion can be prevented.

Unlike other agents, which can be costly, potentially hazardous, and targeted at a single issue, AMALGAM offers a safe and cost-effective strategy for odor, corrosion and FOG (Fats, Oils & Grease) control.

THE SOLUTION

AMALGAM-60 for odor control in collection systems.

AMALGAM-60 Magnesium Hydroxide ($Mg(OH)_2$) is a safe, environmentally-friendly, and cost-effective alkalinity agent for treating wastewater in the collection system to control odor and corrosion associated with hydrogen sulfide (H_2S) and other organic acidic contaminants.

It is fed as a slurry product into a collection system pump station or at an injection point immediately upstream of a pump station or the headworks.

The industry standard for odor control treatment involves the use of nitrate-containing products that encourage wastewater microorganisms to denitrify NO_3^- into nitrogen gas (N_2), which is an odorless, noncorrosive gas. Unfortunately, these products drive excessive growth of bacteria in the collection system, resulting in biomass and FOG accumulation and decreased pumping rates of lift pumps, and require frequent cleanings that can be maintenance intensive.

Magnesium hydroxide works by providing a strong buffering of hydroxide ions (OH^-) into the treated wastewater to increase the pH.
As a weak acid, H_2S exists in a dynamic equilibrium with its deprotonated counter-anion, HS^-, according to the following equation.

$$H_2S \; <\text{-}> \; HS^- + H^+$$

By boosting the pH, sulfide is held in solution as the nonvolatile HS^- anion. Therefore, by buffering the pH to a slightly higher level, the sulfide is converted from a gaseous, corrosive, and stinky molecule (H_2S) to a water soluble ion (HS^-) that does not contribute to odor or corrosion.

The strong buffering nature of $Mg(OH)_2$ results in excellent odor and corrosion control performance even under conditions of long detention times.

Additionally, the boost in pH and alkalinity improves microorganism activity in the wastewater treatment plant.

There have been instances where a treatment plant experiencing a new NPDES permit with a reduced nitrogen discharge limit would traditionally be forced to treat with caustic soda at the plant (to counter alkalinity loss from nitrification), while feeding a nitrate product for odor control in the collection system.

However, the use of Magnesium Hydroxide in the collection system allows for the replacement of both chemicals – providing effective odor, corrosion and FOG control in the collection system, while maintaining sufficient alkalinity all the way through the treatment plant.

We pride ourselves in being a wastewater treatment partner

AMALGAM-60

IER's Magnesium Hydroxide product, AMALGAM-60 (60% $Mg(OH)_2$), is safe to handle and completely nonhazardous.

The slurry must be maintained in continuously agitated chemical storage tanks in order to ensure ease of product feed. Secondary containment is not required.

The slurry freezes at 32ºF so precautions to prevent freezing in the metering pump and feed line must be taken.

IER supplies agitated trial storage tanks to determine cost savings while confirming safety and feed reliability – allowing customers to gain a clear understanding of how $Mg(OH)_2$ will affect their overall system before deciding to make a permanent transition.

IER can supply AMALGAM-60 in bulk (3,800 gallons) and IBC totes using trained and dedicated IER personnel and equipment.

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Please call if you would like to learn more about IER's safe, environmentally-friendly, and cost- effective Magnesium Hydroxide product for your odor and corrosion control needs.

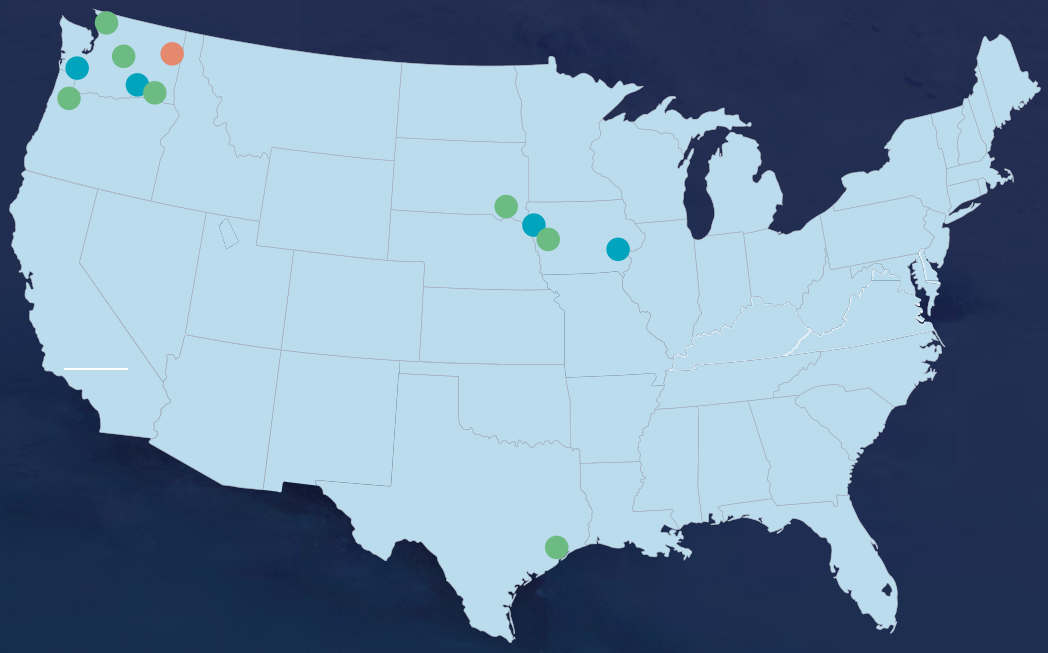
800-331-3314

Corporate Office:
- **Spokane, WA**

Based in Spokane, Washington, IER primarily services the Pacific Northwest and Upper Midwest with plant locations in Sioux City, Iowa; Muscatine, Iowa; Centralia, Washington and Pasco, Washington.

Operations:
- Pasco, WA
- Centralia, WA
- Sioux City, IA
- Muscatine. IA

Sales/Technical Support Staff:
- Wenatchee, WA
- Sumas, WA
- Walla Walla, WA
- Denison, IA
- Gaston, OR
- Houston, TX
- Sioux Falls, SD



We pride ourselves in being a **wastewater treatment partner**

We take pride in providing high-quality products, technical credibility in the applications of water, process water, and wastewater treatment, dedicated delivery specialists and equipment, and proactive on-site technical service.

A global supply network

Owned by Calix, an Australian company with global operations, IER brings 20 years of experience working with plant engineers and operators to offer the most cost-effective solutions for their specific needs.

www.calix.global/IER

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