



Waste Water Treatment



***Effective water treatment and improved system performance
without using toxic chemicals.***

- > Removes odours
- > Improves oil / water separation
- > Enhances system performance
- > Reduces disposal costs

Cleaner Safer Greener

Product Application Sheet – WASTEWATER TREATMENT



triple⁷ water treatment solutions are bio based, non-ionic, linear alcohol surfactants, that have distinct advantages in waste water treatment and management areas. triple⁷ organic products are free of toxic and hazardous components and are a new direction in overcoming trade waste problems caused by traditional treatment chemicals.

Unique micelle action simply displaces long chain hydrocarbons to the surface of a water column without reacting with organic structures. This relatively short period is indicative of long chain C64 non-aromatic fatty alcohol surfactants which actually reduce overall total oxygen demand.

Primary Treatment Stage

triple⁷ Odour Control is ideal for use in organic waste streams because fats are easily solubilised and dispersed evenly across the surface, breaking fat balls and solid fatty mats down to individual molecular units. triple⁷ Odour Control will not cause emulsions to form but simply breaks-down fatty emulsions and separates complex fatty structures into their various components. When used at 0.001% (1:100) solution, the product separates hydrogen sulphide and related odours from organic solids.

Typical values for solids and BOD in municipal sewerage waste streams are approximately 50% carbohydrates, 40% protein and 1% fat. The pH can range from 6.5 to 8.0. triple⁷ surfactants solutions can lower BOD by as much as 5% in a typical domestic sewage treatment system and reduce the persistence of insoluble matter while helping to separate it out of solution with a consequent lowering of system COD.

In cases of industrial waste, eg; food processing or heavy manufacturing, these surfactants separate long chain hydrocarbons, floating them to the water surface and keeping them separated to prevent emulsion formation. In abattoirs where BOD normally ranges from 5 to 25 PE per animal, the BOD can be lowered dramatically by eliminating emulsion formation or oxygen encapsulation.

triple⁷ bio-based surfactants reduce clogging at grinders, along with improved grit, gravel and sand removal including elemental ion particles. Organic surfactants can improve flocculent or coagulator performance and may also help reduce the need for ferric chloride, aluminium sulphate or polyelectrolyte by more than 50% by effectively separating organics, based upon density and aromatic buoyancy. Overall sedimentation efficiency should increase by 3% to 5% using the surfactants at similar concentration while reducing traditional chemical usage.

Those systems using flotation rather than sedimentation can increase their efficiency from 75% to 88% using organic surfactants. Additionally, they speed the release of methane, carbon dioxide and ammonia and in the digester process, are able to reduce overall transit time (usually 10 to 30 days) by as much as 30%.

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In open digester tanks, triple⁷ Odour Control can be sprayed over organic sludge at the rate of 4 litres per (500m²) of surface area, to reduce or eliminate discharge odours.



Secondary Treatment Stage

This stage of treatment further reduces remaining liquid effluent to residual organic content using aerobic bacteria in the presence of oxygen, to convert matter to stable forms such as carbon dioxide, water, nitrates, phosphates and other organic materials. Organic surfactants continue to solubilise organic matter, accelerate gas release, buffer acid and separate remaining hydrocarbons. In alternative trickling filtration and activated charcoal systems, the products improve wetting, reduce fouling by organic solids and eliminate latent odours.

In the case of stabilisation ponds or lagoons, triple⁷ Odour Control at a 90/10 ratio at the rate of 4 litres per 500m² of surface area reduces pond odour without affecting aerobic performance.

Tertiary Treatment Stage

If the receiving body of water requires a higher degree of treatment than the secondary process can provide, or if the final effluent is intended for reuse, tertiary treatment may be necessary. In this process, other dissolved solids are removed. Breakpoint chlorination may follow and/or ozonation to eliminate bacteria for human applications. Numerous gases from water including carbon dioxide, methane etc. can be eliminated using organic surfactants.

Organic surfactants are used in septic tank systems to solubilise fats and float organic solids to the surface to improve aerobic action and soil penetration. Concentrations of 1:1000 parts water or higher are used to settle elemental sand muds without affecting aerobic action.

The use of triple⁷ Odour Control in existing waste water treatment systems reduces the costly maintenance of lift stations, pump cleaning and replacement. It also reduces odour, breaks down solids and minimizes blockages.

Lift Stations operate with less trouble

Using triple⁷ Odour Control in lift stations and pipelines will result in less build-up of greases and fats around the internal concrete pipes and pumps. Additionally, labour costs involved to continually scrape and clean wells can be gradually reduced over time.

Gravity systems will flow easier with less build up of solidified fats and greases if triple⁷ Odour Control is added, allowing degradability to commence sooner. The product continues cleaning from discharge point to the treatment facility.

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triple⁷ organic surfactants also retard hydrogen/sulphide formation. These products can assist in reducing the volume of effluent to be treated at the waste water plant. Product may be added to the system at the 'end runs' of lift stations via high pressure hoses, pump well cleaners or drip systems and no special equipment or handling procedures are required.

Benefits

- > triple⁷ Odour Control may be used to buffer acid solutions and emissions. The product is used for fuel spills in sewers to reduce vapours and hydrocarbon flammability curves to zero along with a major reduction in VOC's.
- > triple⁷ Odour Control is economical to use and requires no special storage facilities.
- > The product aids in corrosion control and carries more liquefied oils, greases and fats, preventing solidification and stopping them from going into solution until destroyed.

Suggested Dilutions

- #1** Initial purge of lift stations: use triple⁷ Odour Control at 1:600 or approximately 20 litres and agitate with high pressure water.
- #2** 'End Runs' that flow to lift stations may also be purged with approximately 4-5 litres upstream. This method will then flush all effluent into the lift stations and the entire system can be cleaned.
- #3** To clean lift stations and pumps, we suggest a 1:10 dilution via high pressure cleaners or well washers.
- #4** A drip injection of triple⁷ Odour Control into the system set at 1% to 0.01%, to flow volume of waste water is a recommended dilution for routine sewer maintenance cleaning.

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TRIPLE 7 ODOUR CONTROL AND WASTE WATER



triple⁷ Odour Control is used by water boards for sewer odours either in-line, at drying windrows or anywhere in between.

- > Dosing into problem points at 10-50 ppm.
- > Pouring/spraying into pump stations daily or weekly.
- > Spraying into windrows at drying fields when being turned or when needed.
- > Spraying into transit bins while filling with solid waste.

Benefits:

- | | |
|------------------------------------|----------------------------------|
| > Improved trade waste performance | > Odour control |
| > Efficient media systems | > Increased productivity |
| > Lower salt loadings | > Cleaner environments |
| > Cleaner production | > Reduced disposal costs |
| > Less corrosion | > Improved worker safety |
| > Reduced TDS, BOD and COD levels | > Improved fat & grease removal |
| > Better solids separation | > Retards emulsion mat formation |
| > Reduced grinder clogging | > Improved grit & gravel removal |
| > H ₂ S reduction | |

triple⁷ wastewater solutions are free of:

Phosphates & Caustics, Chlorine, Petroleum fractions, Glycol ethers & Sulphonics, Borates, Brighteners, Heavy metals, Salts, Ammonia, Terpenes & Phenolics, Silicones & Aldehydes, Metasilicates, Synthetics & Builders.

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Success stories

Filter Media Cleaning

triple⁷'s bio-based surfactant chemistries have been successfully used to clean filter media. At one Water Authority waste water treatment plant, the media filters were no longer being effectively backwashed and through-put was approximately 40-45 litres per second. The backwash was also causing channeling with inefficient filtering.

triple⁷ Odour Control was added to each filter at 1:600 and air sparged to help penetration. The solution was left for 40 minutes and then backwashed.

The result was a increase of almost 100% in through-put, at a cost approximately 10% of that to replace the entire media.

The use of triple⁷ bio-based chemistries saved time, effort and money which would have involved the replacement of the media.

Recycled Water Systems

triple⁷ solutions have been used to improve the function of self contained recycled water systems.

A National Park tourist facility had a recycle system that was odiferous and inefficient to the point of no water being recycled. Solids were not settling and emulsions were causing problems. The facility included a restaurant, laundry and amenities block.

triple⁷ bio-based products were used to treat the recycled system with a noticeable improvement within one week. Full system function was achieved by 3 weeks.

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Sewage Treatment Plant (internal shot)



Screening Plant



Sewage Treatment Plant (external shot)



Belt Press

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or

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