



# Coolabah Water "The Water professors"

Rejuvenation of Media Filtration Systems  
Cleaning of Filters & R.O. Membranes

## About the Chemistry

**Triple 7 Colloidal Concentrate** is a low to moderate sudsing, highly concentrated organic release agent, comprised of a ternary, non-ionic surfactant system which is used in the most difficult cleaning situations for the removal of all hydrocarbon contaminants (petroleum derivatives, fats, oils, greases, lipids, proteins and sugars). **Triple 7 Colloidal Concentrate** is a homogeneous blend of colloids, sequesterants, surfactants and hyper-wetting agents that become Super Active when processed together. The cleaning action is unique and can only be related to the reaction of the atom in an atomic explosion where the ceaseless random movements of the atoms taking place in the product actually lifts, separates, and holds in separation the oils, greases, dirt, soils, etc. which have been penetrated by **Triple 7 Colloidal Concentrate**.

The mechanism behind **Triple 7 Colloidal Concentrate** depends upon the hyperactivity of minute particles called micelles, rather than caustics or highly volatile solvents. These micelles break the surface tension of water and in effect, cause dirt and oils to separate from the water.

This unique colloid cleaner, a water soluble technology, is attracted to oils, fats and greases, and will clean virtually any surface which can be exposed to water. **Triple 7 Colloidal Concentrate** simply penetrates into the grease or oil and lifts the dirt away without harming the cleaning surface. **Triple 7 Colloidal Concentrate** is gentle to metals, plastics, vinyls, rubber and fabrics and does not react with other chemicals to create hazardous conditions.

**Triple 7 Colloidal Concentrate** passes the Modified Sturm Test for ready Biodegradability and the Product may be combined with Aqueous Ozone (an excellent biocide chemical oxidant), for a most effective and environmentally friendly method of disinfecting and cleaning of surfaces.

### **Triple 7 Colloidal Concentrate is free of:**

- Petroleum derivatives
- Glycol ethers
- Terpenes
- Synthetics
- Builders & reagents
- Caustics
- Ozone depleting substances
- Volatile organic compounds
- Phosphates and Acetone.

## Unique Properties of Triple 7 Colloidal Concentrate

- No aromatics
- Readily biodegradable
- Doesn't react with other chemicals
- No measurable volatile organic compounds (VOC's)
- Non-Toxic
- Non-carcinogenic
- Temperature stable
- Doesn't separate over long storage life
- Harmless to sewer bacteria
- Eliminates odours
- Used with fresh or salt water
- No special storage requirements
- Safe for people, animals and the environment
- Non-flammable

## Applications

### Media Filter Systems

**Triple 7 Colloidal Concentrate** is used in media filter rejuvenation, without harming media or filter vessels. The product cleans pipelines, reduces BOD loadings and improves effluent quality to backwash flows, along with odour control in holding and effluent tanks.

**Triple 7 Colloidal Concentrate** clears blocked trickle filters and screen filters, and no residual carry over will adversely affect downstream treatment processes.

### Wet Scrubbers

**Triple 7 Colloidal Concentrate** and **Triple 7 Odour-Ex** combine to retard and destroy Sulphide and Nitrogen related odours in scrubber systems. Systems are kept free of organic loadings and the need for biocides and other related chemistries is reduced. Dilution rates are application specific and depend on air velocity, gas analysis, level of contamination and other site specific factors.





## Product Application Sheet – REJUVENATION OF MEDIA FILTRATION SYSTEMS

### Cleaning of Filters & R.O. Membranes

#### Product Description

TRIPLE 7 Colloidal Concentrate is a low to moderate sudsing, highly concentrated organic release agent, which can be used in the most difficult cleaning situations for the removal of all hydro-carbons soils, such as petroleum derivatives, fats, oils, greases, lipids, proteins and sugars. TRIPLE 7 Colloidal Concentrate is a homogenous blend of colloids, sequesterants and hyperwetting agents that become 'super active' when processed together.

TRIPLE 7 Colloidal Concentrate is recommended for use in media filter rejuvenation & filter cleaning because it simply penetrates into the grease or oil and lifts the contamination away without harming media, filter vessels and filters.

#### Backwash Cycles

TRIPLE 7 Colloidal Concentrate can be added to a backwash cycle using a low dilution of 50 to 200 parts per million.

#### Periodical Maintenance

Close off the system and recirculate a solution of 1 part TRIPLE 7 Colloidal Concentrate to 300 parts water for badly contaminated systems. Allow the solution to recirculate for 2 hours before discarding. A typical rejuvenation 4 x 48" filter system will require approximately 20 litres of TRIPLE 7 Colloidal Concentrate for full organic release.

Where systems have no separate backwash tank, or system layout limits recirculation ability, add TRIPLE 7 Colloidal Concentrate to the top of the filter bed and use an air spear to ensure adequate mixing. Close the backwash discharge valve and operate in the backwash mode to lift and resettle the bed. Leave for 20 minutes and open backwash valve to waste for final flush, prior to returning system to normal operation.

An added advantage when using the product to rejuvenate media filter is that TRIPLE 7 Colloidal Concentrate cleans pipelines and reduces BOD loadings without harming sewer bacteria. The quality of effluent backwash flows to effluent ponds can be improved along with a subsequent odour reduction in holding lagoons and effluent tanks.

#### Descaling R.O. Membranes & Filters

When decaling R.O. filters, mix a 20% solution of TRIPLE 7 EnviroScale with water. Set up a bath or re-circulating tank and immerse the filters. A rise in solution pH above 2.5 indicates that the cleaning is spent and more product must be added to reduce the pH below 2.5 if cleaning is not complete. Leave filters in the bath for 4–6 hours (or overnight) monitoring the pH and adjusting if required. If the solution becomes very contaminated with sludge or is badly discoloured, drain off and repeat the cleaning procedure.

Please note that a stronger solution of TRIPLE 7 EnviroScale may be needed for badly contaminated filters and the product may be used neat without damaging, filters, seals etc. Thoroughly rinse filters with clean water.



# Product Application Sheet – REJUVENATION OF MEDIA FILTRATION SYSTEMS

## Cleaning of Filters & R.O. Membranes

### Cleaning filters & R.O. Membranes

Clean filters using a backwash cycle and follow the cleaning procedure as for media cleaning.

#### Filter Media Rejuvenation – Case study 1.

**Client:** Water Corporation

**Filter type:** Dynasand DST150 Cone Shaped Open Top 6000 litre.

**Problem:** Every 2 days the filter was clogging up and was requiring attention. The procedure was to add chlorine to the sand filter, air sparge and then backwash.

**Solution:** Recommend to add 10 litres of TRIPLE 7 Colloidal Concentrate (1:600) to the sand filter, air sparge to enable the product to work through the media leave for 20 minutes, then backwash.

**Maintenance:** Add TRIPLE 7 Colloidal Concentrate either 2–3 monthly or as required. Alternatively, it may be added into the filter during the backwash cycle at a rate of 1 part product to 3000 parts water to reduce labour input and maintain the filtration system at optimum operating levels.

#### Why is TRIPLE 7 Colloidal Concentrate so effective?

Media filters block with organic build up. When chlorine is added to the backwash cycle it kills the organic congestant but does little to remove it from the media. TRIPLE 7 Colloidal Concentrate is a powerful release agent that cleans the media, bringing its effectiveness back to near new condition.

### Benefits of TRIPLE 7 Colloidal Concentrate Vs chlorine for decongesting media filters

TRIPLE 7 Colloidal Concentrate	Chlorine
> Safe handling, Non-toxic	> Dangerous goods
> Very effective, Reduces odour	> Toxic
> Improves effluent quality	> Ineffective
> Reduces loading on system	> Reduces effluent quality
> Reduces labour input	> Increases loading on system
> Reduces B.O.D. levels	> Labour intensive
> Does not harm sewer bacteria	> Increases B.O.D. levels
> Increases soil percolation	> Harmful to sewer bacteria
> Readily biodegradable	



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# Product Application Sheet – REJUVENATION OF MEDIA FILTRATION SYSTEMS

## Cleaning of Filters & R.O. Membranes

### Removal of Ferric Iron from media filter – Case study 2.

<b><i>Client:</i></b>	Major West Australian Irrigation Firm
<b><i>Filter type:</i></b>	Amiad 3"/30" Model 38-90-303-00 Media Filter
<b><i>Problem:</i></b>	Ferric Iron bacteria build up in media filter causing major reduction in through-put of filter. Ordinary backwash mode does very little to dislodge the bacteria congestant.
<b><i>Solution:</i></b>	Recommend adding 5 litres of TRIPLE 7 Colliodal Concentrate (1:600) ratio to the media filter, air sparge to enable the TRIPLE 7 product to work through the media bed, leave for 20 minutes then backwash.
<b><i>Result:</i></b>	A murky brown soup-like mixture was discharged and the iron bacteria in the system was removed.

#### **Why is TRIPLE 7 Colloidal Concentrate so effective?**

Iron bacteria builds up in thick layers, each forming a slime around the bacteria cells preventing disinfectants from penetrating beyond the surface cells. TRIPLE 7 Colloidal Concentrate cleans the media, restores its effectiveness and saves labour and replacement costs.



# Product Application Sheet – REJUVENATION OF MEDIA FILTRATION SYSTEMS

## Cleaning of Filters & R.O. Membranes

### Filter Media rejuvenation – Case study 3.

**Client:** Water Corporation / Waste water treatment plant

**Filter type:** Twenty five Amiad 48 Media Filters

**Problem:** The media filters were becoming congested or blocked and the backwash cycle throughput varied between 40–45 litres per second. The backwash cycle was also causing channeling, which resulted in effluent not being sufficiently filtered. The Water Corporation was faced with two options:

1. Replace the filter media or
2. Clean the filter media with TRIPLE 7 Colloidal Concentrate

**Solution:** Recommend adding 5 litres of TRIPLE 7 Colloidal Concentrate to each filter, air sparging to allow the product to work through the media and the solution allowed to work for 40 minutes before applying a backwash cycle.

**Result:** The throughput increased from 40–45 litres per second to 80–86 litres per second resulting in an increased performance of about 100%. The cost of cleaning compared to replacing and changing the media was approximately one-tenth.

It was recommended to dose TRIPLE 7 Colloidal Concentrate at a rate of 1:3000 in the backwash cycle to keep the media filter running at optimum levels. This greatly reduced the labour input. The frequency of the back-wash cycle reduced from every 3 hours to only once a day, saving energy and increasing daily output.

#### **What does an inefficient filtration system cost?**

- > Increased energy consumption
- > Increased wear on pumping equipment
- > Reduction in effluent quality
- > Reduction in the throughput of the treatment plant.
- > Increased backwash water.

> *Triple 7 Colloidal Concentrate reduces the build up of contaminants in the ultraviolet filters, pipework and valves.*

> *TRIPLE 7 Colloidal Concentrate serves in irrigation to solubilise soil elements, aid in plant nutrient uptake and increase soil percolation (refer to TRIPLE 7 Product application sheet – Golf courses).*

> *TRIPLE 7 Colloidal Concentrate will not deteriorate metal surfaces and may reduce the use of toxic additives such as Chlorine.*



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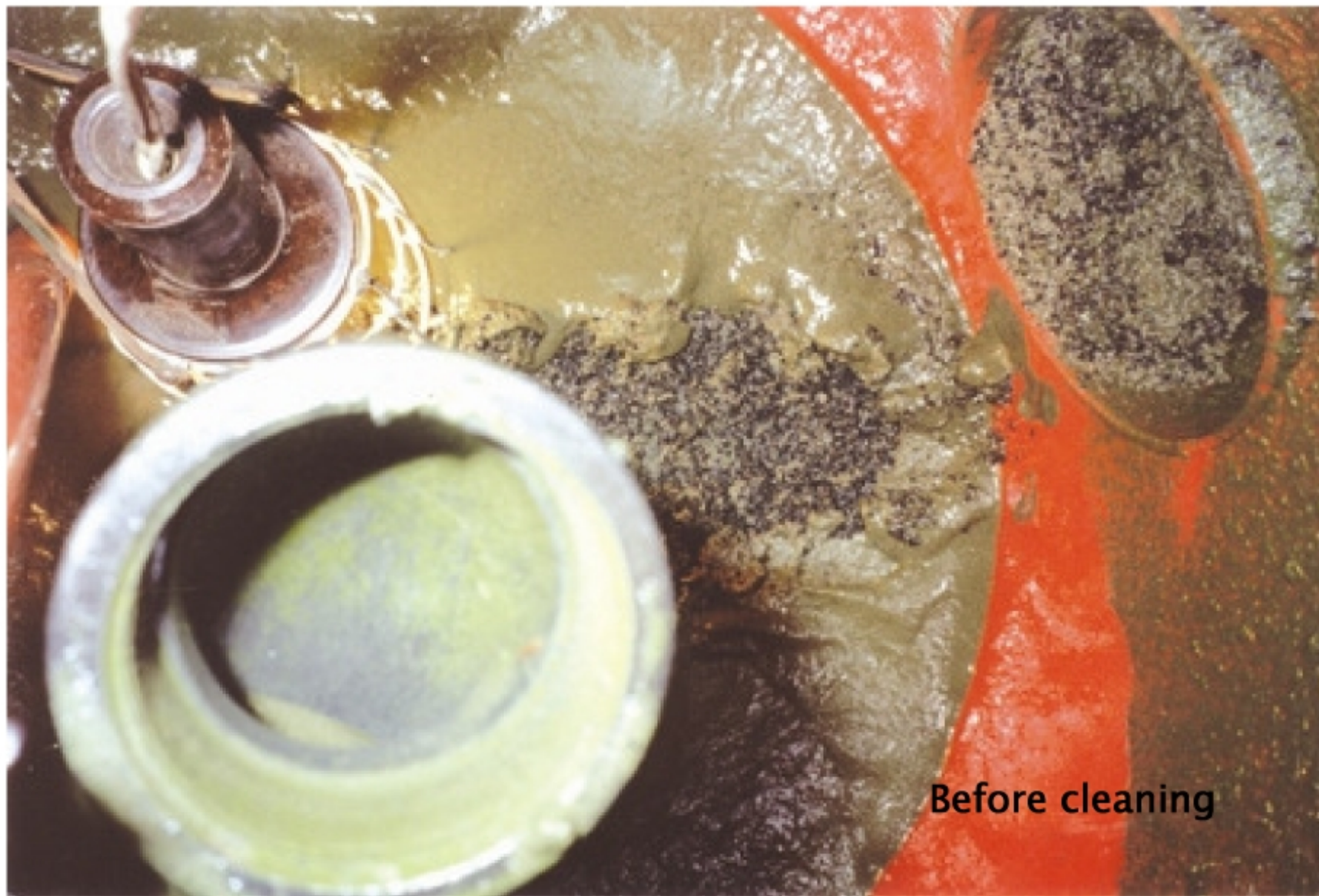
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# Product Application Sheet – REJUVENATION OF MEDIA FILTRATION SYSTEMS

## Cleaning of Filters & R.O. Membranes

### Filter Media Cleaning



This project was to remove sludge from the media filter at a remote tourist attraction, where the water is recycled and used for toilet flushing. The media filter unit is positioned after the sewerage treatment plant, filtering the water before it goes to the settling lagoons/wet lands.



To clean, TRIPLE 7 Colloidal Concentrate was added to the media filter, then the back-wash cycle was run constantly recycling for approx. 15 mins, then the water was dumped. The process was repeated twice.



# Product Application Sheet – REJUVENATION OF MEDIA FILTRATION SYSTEMS Cleaning of Filters & R.O. Membranes

## Media Filters



## Reverse Osmosis Filters



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