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Application Guide: Water Treatment For Farms

Introduction

Environmental Warehouse has a range of products that are suitable for removing sediment from water used for both drinking and non-drinking applications around the home on farms and rural properties.

Treatment method steps

A process using 2 separate tanks, one after the other is best. Most people use 10,000–20,000 litre tanks.

1. Determine the type of chemical to use

The first time a chemical treatment is undertaken on your water, the type of chemical best suited to your situation should be determined.

This is best done by undertaking “jar tests” on water samples using several water treatment chemicals. There are a wide variety of soil and sediment types and significant variations in water chemistry across Australia. These have a significant impact on selecting the most appropriate water clarification chemical for an application. Once the best chemical is determined for a particular situation, it generally doesn’t change over time.

Some basic jar tests will take about 1 hour to undertake, and will save a lot of time later, particularly if the wrong product is used or applied at the wrong rates. The other benefit of undertaking jar tests is that you become familiar with the process of water clarification and can easily monitor the full tank treatments and make appropriate adjustments to mixing conditions and application rates to ensure good water clarification each time.

The products to consider for testing are:

A. DamClear FlocBlocs FB-4308 & FB-4058

These products are polymer flocculants that give fast solids removal in most applications, and require very low application rates of just a few milligrams per litre of water. They have minimal effect on treated water quality such as salinity and pH.

- **FlocBloc FB-4308** is suited to water that has low salinity and a pH in the range of 7–9.
- **FlocBloc FB-4058** is suited to water that has medium salinity and a pH in the range of 5–7.

B. DamClear Clarity Aid PD

Clarity Aid PD gives relatively fast solids removal rates in most applications, and requires only low application rates of between 1–20 milligrams per litre of water. It has minimal effect on treated water quality such as salinity and pH. Easy to apply to a tank treatment process.

C. DamClear Clarity Aid CL

Clarity Aid CL is good for very fine clays that are generally very stable if untreated. Application rates range from 80–200 milligrams per litre. Easy to apply to a tank treatment process.

D. DamClear Clarity Aid PA

This product is good for difficult to treat clays and for coloured water that is affected by naturally occurring tannins that are typical of swamp and highly forested areas. Application rates range from 50–200 milligrams per litre. Easy to apply to a tank treatment process.

2. Determine how much chemical to use

Once the most appropriate chemical is selected, the application rate required to clarify the water needs to be established.

Even though the chemical type for treatment has been established, the other variables that occur are particle size and solids concentration. These will vary over time. These are the 2 variables that determine how much chemical is required to clarify a tank of water.

If the application rate is too low, than the water may not clarity at all, and it is always best to avoid application rates that are too high.

Using the selected chemical, add various amounts to 500 mL samples in clear bottles, and monitor and record the effect.

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The amount of chemical that gives good water clarity, without overdosing is the application rate to apply to the tank.

3. Chemical addition

The chemical best suited to the application and the appropriate quantity are added to the first tank during a filling stage. The water is left undisturbed for a few hours or overnight to allow the solids to settle and thicken at the bottom of the tank.

4. Clean water pump out

Clean water is then transferred to the second tank, which acts as the clean water storage tank.

The bottom outlet of the first tank can not be used, as it will be contaminated with settled solids. Pumping from just under the surface using a float to hold the suction hose in place is the best option to minimise disturbance of the settled solids.

5. Water disinfection

If disinfection of the water is required, then the disinfectant product should be added during the filling cycle of the second tank.

6. Settled solids

Once the clean water is transferred from the first tank, the settled solids in the first tank should be removed from the tank via the bottom drain.

We have products available for every type of water clarification situation.
Visit our website for more information, www.envirowarehouse.com.au