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Application Guide: FlocBlocs

Product description

DamClear FlocBlocs provide a simple and convenient method for applying flocculant polymers to water requiring clarification.

FlocBlocs consist of fine granules of powder grade flocculant dispersed in a non-toxic and readily water soluble binding polymer.

As water flows over the Bloc, flocculant is released which combines with the sediment, causing the sediment particles to agglomerate so they settle rapidly, leaving behind clear treated water.

Which product?

Two grades of FlocBlocs are available. Both are well suited to sediments and clays.

- **DamClear FlocBloc FB-4308**
  Best suited to applications where:
  → water pH is relatively neutral (7–9)
  → the salinity is low (conductivity <500 µS/cm)
- **DamClear FlocBloc FB-4058**
  Best suited to applications where:
  → water pH is acidic (<6.5)
  → where the salinity is starting to rise i.e. conductivity >500 µS/cm
  → where chemical pretreatments such as alum or PAC are applied prior to the FlocBlocs
  → saline water and dams contaminated with ground water

Normally both DamClear FB-4308 and FB-4058 will work equally well, but for some applications only one of the two products will work satisfactorily.

The main determinate for either product working on a particular application is the surface chemistry of the clays and solids dispersed in the water.

The best way to determine which grade is the most effective is to undertake separate jar tests on a water sample using both grades.

For new applications, we recommend jar testing or trialing both products on the water to be treated first before full-scale deployment.

Application instructions

1. **Treatment of dam water inflow**

   Position FlocBlocs in a wire mesh cage at entry point to the dam or upstream from the dam, at a area of turbulence that will ensure contact with most of the water flow. You may need to create a area of turbulence if none exists. For large water flows, 3–4 FlocBlocs can be placed in a wire mesh cage which is secured in place.

   The FlocBlocs should be positioned so that they are immersed in water during storm events, but not in contact with water when water is not flowing. This can be achieved by suspending a cage containing the FlocBlocs above the dry weather water level, but positioned low enough to be in contact with water during a storm event.

   Two application points in the drain leading to the dam can often be beneficial

2. **Treatment of a full dam**

   Water in a full or partially full dam may be clarified by recirculating water from one end of the dam to the other and placing FlocBlocs at the re-entry point. A pump suitably sized to give a rapid turnover of the total dam volume should be used.

   FlocBlocs are best applied by discharging the return water into a tank of about 1,000 litres. Use a proportionately larger tank if the water flow rate is >100 kL/h. The tank should be positioned near the dam at the re-entry point so that treated water overflows from the tank back into the dam.

   FlocBlocs should be secured in a cage which is positioned in the tank. Tangential flow in the tank will aid mixing and water clarification. The water should be recirculated long enough to turn the entire dam volume over once. Solids flocculation should be visible in the tank and water clarity will slowly improve across the entire dam as pumping continues. Flocculated solids will settle in the dam.

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Answers to common questions…

1. FlocBlocs should not be left in still water as they will swell to form a gel and will become less beneficial.
2. Simply placing a FlocBloc in a dam will not clarify the water.
3. FlocBlocs should be removed from their plastic containers before use.
4. Applying FlocBlocs at 2 points in a water stream usually improves solids agglomeration (i.e. flocculation) and the treated water clarity.
5. Partially used FlocBlocs can be stored in their original packaging if required.
6. For small flow rates, the FlocBlocs can be broken into small chips and placed in a pipe or overflow weir.
7. DamClear FlocBlocs do not affect the pH or salinity of the water.
8. Flocculation of sediment and suspended solids occurs almost immediately. A portion of the flocculant polymer may carry forward in the water to re-flocculate the solids. This is of benefit when natural turbulence is excessive as these conditions may degrade the flocs.
9. Flocculation is affected by water temperature and water solids content. Cold water (<8 °C) usually requires more mixing than warm water (>15°C). Low solids water requires more mixing than water with high solids content.
10. The active ingredient in FlocBlocs has been used for over 50 years in applications such as dam water clarification, drinking water purification, pollution minimisation, industrial wastewater treatment, mining, paper making and sewage treatment. The active ingredient is safe and is widely used to minimise pollution from many industrial and mining applications. It has a very low order of aquatic toxicity, and when used according to this Application Guide, is safe for most aquatic environments encountered in normal use.
11. Jar tests can be used to establish the best FlocBloc grade for a particular application. Jar tests compare the rate of solids settlement, floc size and water clarity when equal quantities of FlocBloc are added to equal volumes of water. Tests are typically undertaken with 500 mL samples of water in a measuring cylinder.
12. Typical application rates are:
    0.5–10 mg/L, or
    0.5 kg–10 kg per megalitre of water.
13. Do not overdose. Avoid overdosing by using only the appropriate number of FlocBlocs suited to the volume of water for treatment.

Difficult to treat waters

On those occasions where the clay suspension is ultra-stable, the water can first be treated with one of the DamClear Clarity Aid products, and then passing this treated water over FlocBlocs.

This treatment regime of applying a coagulant first (the Clarity Aid) followed by the addition of a flocculant (the FlocBloc) will give the highest quality water possible from a chemical treatment process, and depending on the choice of Clarity Aid, it will work on almost any water source.

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