

Wastewater Solutions

Novozymes BioQuick™ 5140

Application Sheet

BioQuick 5140 is used during the start-up or restart of a biological treatment system to enhance floc formation and settling. BioQuick 5140 provides attachment sites for bacterial growth, microorganisms, and micronutrients to help accelerate the development of the microbial community. As this community develops, BioQuick 5140 also helps to protect the system from low pH during the start-up period.

Benefits

During start-up or recovery of a biological treatment system, a well-settling floc can be hard to achieve due to the time required for the growing bacteria to form a sufficient floc size. Importing a seed sludge may not always work efficiently due to acclimation time, which may also disrupt the floc characteristics, and the quantity which may be required. To overcome the poor settling and the presence of fine particles in the effluent, polymer is often added as a clarification aid.

BioQuick 5140 is used principally during start-up or restart of a biological treatment system to enhance the microbial community. Added to an activated sludge system, it provides a medium for biological growth and accelerates the development of the microbial community. Since it has a carbonate base, BioQuick 5140 can also help neutralize acidic wastes, maintaining a pH balance.

By producing better-settling floc, BioQuick 5140 can eliminate or minimize the need for seed sludge and help minimize or eliminate the use of polymer for solids settling. Due to the improved floc, there can also be less concern over shear forces from aeration causing floc disruption.

The attached biological growth decreases the time for full recovery of the biological oxidation to meet treatment requirements. The enhanced settling results in increased efficiency of the system clarifier and better retention of biological solids. More efficient separation in the clarifier means less attention to the clarifier operation and chemical additions. With increased retention of biological solids, the sludge retention time can be sufficient for even slow-growing nitrifiers to attach to BioQuick 5140. This allows quicker recovery of nitrification to reduce effluent ammonia.

Performance

When used with Novozymes BioRemove products, BioQuick 5140 not only enhances settling, but also helps increase biological treatment efficiency, including nitrification. By providing a growth medium, the treatment system is also better able to withstand shock loads.

The owner of an industrial wastewater treatment system experiencing a hydraulic and pollutant overload was adding 200 tons of talc per week to remove suspended solids. By replacing the talc with a dosage of 100 kg (50 lb) of BioQuick 5140 per week, better suspended solids removal was achieved, as shown in Figure 1.

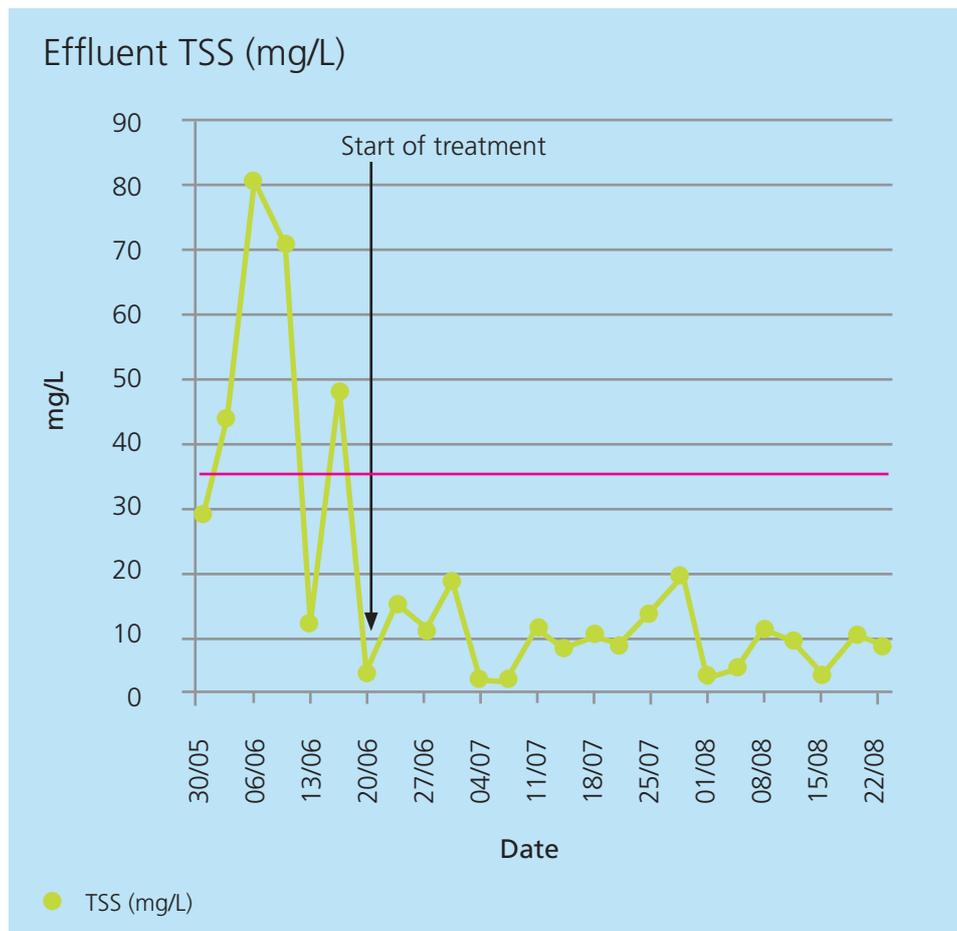


Fig. 1. Effluent solids.

Recommended use

BioQuick 5140 is manually dosed directly into the aeration section of the treatment system. It can be used alone or in conjunction with BioRemove products added according to their instructions.

For the first week of usage, the addition of BioQuick 5140 depends on the volume of the aeration basin, but it is typically 50–200 g/m³ (0.4–1.5 lb/1,000 gal) of water volume.

After the first week, the addition depends on the sludge wasting rate. Typically, BioQuick 5140 is added at 100–400 g/m³ (0.7–2.9 lb/1,000 gal) of sludge wasted per week.

Product characteristics

BioQuick 5140 comes as a whitish powder which quickly disperses in water.

Safety, handling, and storage

The product must be stored in a dry place. Reseal the package after using the product to maintain dryness. After handling, wash hands with soap and water (this is a simple precaution; the product is neither toxic nor corrosive).

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