

BIO-CLEAN[®]

The Friendly Bacteria Waste Eliminator



BREWERY CHALLENGES & TREATMENT

It is common for craft breweries to create five to ten times more wastewater than the beer they package and sell. The impact of this on a wastewater treatment plant can be equivalent to 10,000 – 20,000 people. For most small towns, the municipal plant is not designed to handle that much load. Municipalities are faced with the difficult decision of supporting growth in a local business or imposing fines to cover the cost of treating this high strength wastewater. On the other hand, if a brewery is not connected to municipal services, they are constrained by regulation of onsite treatment in order to discharge their waste water back to the environment.

Generally speaking, brewery wastewater has a few common characteristics:

- High water-to-beer ratio
- High in sugar
- High in alcohol
- Potentially high in solids
- Low pH
- Limited space for treatment equipment

** The terms 'high' and 'low' are relative to regular domestic wastewater that most municipal treatment plants were designed to treat.*

Together, the sugar and the alcohol create high BOD: biochemical oxygen demand. If you are not familiar with the term, think of it as food, or nutrients. These nutrients need to be consumed by bacteria before they are allowed to be discharged back into the environment. High BOD wastewater costs breweries on their own system money. Primarily, the cost shows up due to faster sludge buildup in pipes, tanks and fields can require expensive maintenance. If connected to municipal systems, the impact on a wastewater treatment plant can be the equivalent to 10K – 20K people. This forces municipalities to choose between supporting growth in a local business or imposing fines to cover the cost of treating this high strength wastewater. Nobody wants to pay in this situation.

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Solids (TSS) are also a problem for your system. Solids will build up in your drains and end up as sludge. This sludge slows drains and ends up in your tank requiring you to pump. The more often you need to have drains cleaned and tanks pumped; the more money spent. Contributors to these problems can be lauter tun rinsing, hop back rinsing, etc.

Brewery wastewater can also be corrosive, both to your equipment and to any equipment the municipality owns if you are connected to their system. There are 2 issues going on here, high or low pH wastewater as well as hydrogen sulfide gas. Brewery wastewater is naturally acidic, usually tending to stabilize at pH 4.5 or so. However the wastewater can also be as high as 12 during CIP cycles in the brewery. The pH will lower as the water sits due to wild yeast and bacterial metabolic activity. Many breweries have discharge limits imposed on them by their municipality in regards to pH. Some will be generous with limits between pH 5.0 to 11.0. Others will be tight, for example 6.0 to 8.0. You might be lucky and have no limits but it's not likely or soon to change with ever stricter environmental regulations. The other corrosion issue is H₂S, hydrogen sulfide gas. In the presence of water vapor the H₂S creates sulfuric acid. In time, this eats away at concrete, pipes, pumps and any other equipment it comes in contact with.

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SO HOW CAN BIO-CLEAN HELP?

Bio-Clean helps remove solids, sugars, yeasts, phosphorus and nitrogen. This results in:

- BOD reduction up to 95%
- Solids reduction up to 95%
- Sludge reduction over 85%
- Total Nitrogen reduction over 85%
- Hydrogen Sulfide reduction up to 95%
- Total Phosphorus reduction up to 95%
- pH regulation
- Odor reduction up to 90%
- Operating Costs reduction (no need to side stream trub, spent yeast and waste beer to truck off site)

HOW BIO-CLEAN ACHIEVES THESE RESULTS

We blend high potency enzymes with specially selected, natural microbes that are not native to the domestic waste stream. The enzymes immediately begin breaking down volatile organics. This process makes the waste dramatically more digestible for the bacteria. In addition, our microbes are chosen for their ability to eat waste far faster than native organisms. The aerobic organisms in Bio-Clean will break proteins down and use up nitrogen quickly for replication. By the fast digestion of waste (organics, solids and sludge) before it turns anaerobic, we eliminate ammonia production, H₂S production, odor production and achieve pH stabilization from added stabilization components in Bio-Clean's proprietary formula.

Most importantly, there are no handling precautions as Bio-Clean is 100% harmless to all living organisms and NSF certified for use in food prep and production areas.

For consultation please contact us.

APPLICATION

Application is daily for best results and is applied by premixing the determined dosage in powdered form to water at the specified ratio.