

Bacta Cult

MLSS - Debulking

Bacta Cult (MLSS Debulking) is a product which has to be added in Extended Aeration tank or Aeration tank when one is facing the problem of SVI (Sludge Volume Index) Bulking of Bacteria or which simply means the bacteria had become weak or have an increase in its mass (bulking). The One way of measuring MLSS at site condition is by taking known quantity of MLSS on a filter paper and measures its weight, so we get a weight in mg/L or ppm, this is the Laboratory method of measuring. Another method is that we take effluent in a 1000 ml graduated cylindrical beaker and allow the effluent to settle and hence the Biological sludge is allowed to settle within a period of 20-30 minutes, this method is the Volumetric method. By the end, we get clear supernatant on the top and the Bio logical sludge had settled down at the bottom of the graduated cylindrical beaker. This Settling of the sludge is its natural property of bacteria and is solely dependent on the health of the bacteria.

If we look at the bacteria in a microscope, they are rod shaped or circular in physical look. However, due to lack of food or lack of oxygen these bacteria gets transformed into bulky bacteria and its efficiency goes down. By weight it is the same i.e. mg/L or ppm but by Volumetric test i.e. the second method of taking effluent in a cylindrical beaker, the MLSS reached upto 500 ml of the beaker i.e. 50% or 60% or sometimes even 90%. So this is a clear indicator of Health of the bacteria, when the health of the bacteria is poor, sludge bulking happens

So, the main reason for sludge bulking is the rapid growth of filamentous bacteria. The filamentous bacteria are the same bacteria which were present in the system before however they have developed Cilia or Flagella on their body. When you look at it in a microscope it has got developed into a wire -mesh or network kind of structure, which means the surface area of the bacteria has increased and hence it has become bulky.

There are only two ways of removing the Filamentous bacteria from the system, one by killing the Filamentous bacteria and other by introducing fresh species of healthy and strong bacteria into the system. Killing the Filamentous bacteria is a difficult preposition since the effluent contains healthy + Filamentous bacteria and hence it becomes a very skilled job. Sodium hypo chloride is normally used to do this since it is a disinfectant.

So, the other way around is, instead of killing the filamentous bacteria we introduce strong species of new heterotrophic and healthy bacteria into the system. These strong heterotrophic bacteria will eat away all the COD & BOD in the system and will starve off the Filamentous bacteria.

The Filamentous bacteria who have become bulky and less efficient will not be able to compete with these strong heterotrophic bacteria for food (COD & BOD) and hence will die down a natural death. After introduction of the new species, the MLSS level drops down to 50 - 60 % from 90 % within 15-20 days by Volumetric method, further which will drop down to 30 -35% over a period of time.

MLSS Debulking will also help reduce Sludge generation. Reduction in Sludge will happen because the type of bacteria which we are adding to the system is strong Heterotrophic bacteria. Strong Heterotrophic bacteria have a very low body mass conversion ratio. Which means they will consume 1 Kg of COD and will only generate 0.15 % of total mass? In other words, for 1 Kg COD consumption the sludge generation is 150 grams. Bulky Filamentous bacteria will generate 50% of Bio sludge and this way will help in reduced sludge generation.



“MLSS - Debulking” Product will improve the settling properties thereby ensuring excellent wastewater quality from the secondary clarifier. Fast settling biomass results in fast settling in the secondary clarifiers, which in turn ensures that the treated water quality is far more superior. This can be achieved by dosing Bacta Cult – MLSS Debulking in the Aeration tank for a period of 45 days.

Area of Applications:

- Aeration tank, SBR, MBR, MBBR, Extended Aeration.
- Industries where effluent quality changes on weekly basis.
- Plants where actual BOD is lower than Design BOD.
- Plants where actual flow is lower than Design flow.

Benefits Of Using Bacta cult Bio-Culture.

- Suppresses growth of filamentous organisms.
- Increases settle ability & compact ability of MLSS.
- Stops development of pin flocs & fluffy light weight flocs.
- Promotes growth of “glycocalyx” – extracellular polysaccharide required for healthy Floc formation.

PHYSICAL PROPERTIES

❖ Appearance:	Off-white colour
❖ Physical State:	Powdered form.
❖ Odour:	Odourless
❖ Moisture content:	7-8%
❖ Mesh Size	0.5mm

PERFORMANCE PROPERTIES

❖ Best before:	2 years.
❖ Temperature range:	5-45 ° C
❖ Reactivation rate:-	98% on addition to water
❖ Concentration:-	Highly concentrated