– MIXRITE –

Digester

Case Study

PROBLEM

The Conventional Mixing System installed in Digester invariably has a lot of issued related to inadequate/improper mixing , dead zones and settlement of heavy deposits in the Digester. This results in very poor efficiency of the Digester.

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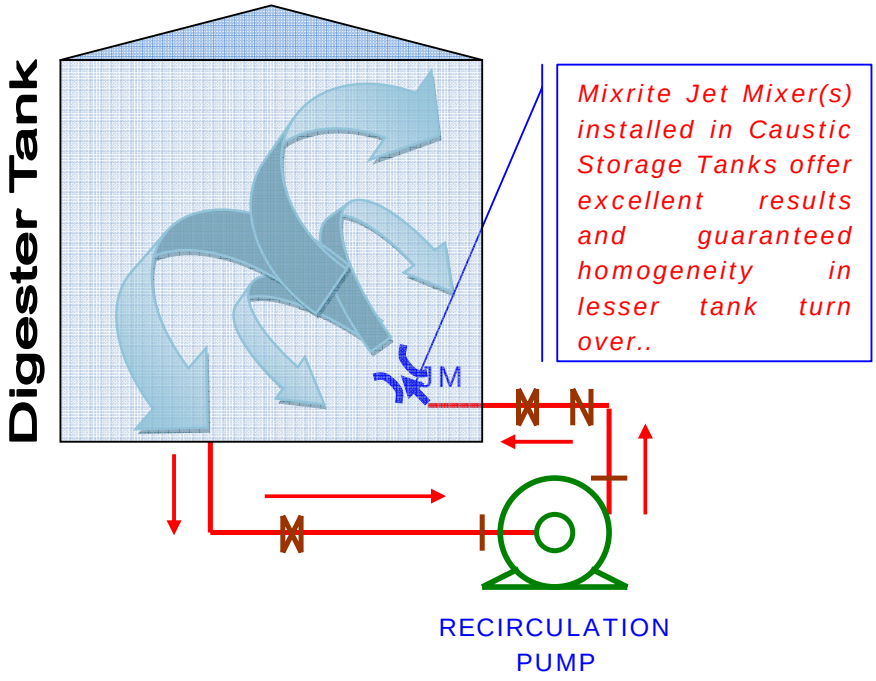

Mixrite Jet Mixer(s) installed in Caustic Storage Tanks offer excellent results and guaranteed homogeneity in lesser tank turn over..

MIXRITE MIXING SYSTEMS
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SOLUTION

Mixing is one of the most important operation for successful anaerobic digestion plant. This applied not only to the Digester but also applies to inlet tanks, separation system, blending tanks and post digestion storage. In order to achieve good yield from Digester , it is essential to ensure that a good intimate contact is established between feedstock and microbes, Stratification is avoided and, Solid Build up at bottom is minimized. If all these factors are well within control, Digester will yield maximum gas production and good quality digestate. It is rather difficult to accomplish all these criteria with conventional Rotating Agitator. Jet Mixers work very well on this application as there is a lot of flexibility possible for addressing all the above needs. Due design considerations are given to handle the solids present in the Digester.

HOW IT WORKS

The velocity difference between the jet and the secondary liquid creates a mixing layer of jet boundary. This mixing layer grows in the direction of jet flow, entraining / mixing the bulk liquid into the jet. The Recirculation Pump Discharge is pumped through a header into one or multiple jet mixers submerged within the tank depending on the tank geometry. The static pressure at the entrance of the nozzle is converted into kinetic energy by allowing the fluid to flow freely through a convergent type nozzle. As the operating fluid exits the nozzle, it entrains liquid from the tank through the suction chamber.
The operating liquid along with entrained liquid then undergoes thorough mixing in the parallel section of the diffuser. The divergent portion of the diffuser helps in converting the velocity head to pressure head at the discharge end of the mixer. The discharge flow continues the mixing action of the liquid and imparts uniform mixing throughout the tank.

SALIENT FEATURES:

1. Simple And Compact In Construction.
2. Low Capital And Operating Cost As Compared To Conventional Agitators.
3. No Moving Parts And Hence Maintenance Free.
4. Easy To Install.
5. High Energy Efficiency.
6. Designed To Have Practically No Dead Spots In The Tank.
7. High Degree Of Operational Safety.
8. High Degree Of Mixing Per Unit Of Expended Energy.

CONCLUSION

Mixrite Jet Mixer designed for Digester application delivers excellent level of homogeneity and prevents stratification and solids from settling at the bottom. This not only results in good gas yield but also gives very good quality of digestate. The mixers have no moving parts and hence require minimum attention once they are installed. These Mixers are most ideal selection for other applications like Aeration , Equilization, Chemical Oxidation, Flash Mixing, Flocculation , Mixing Storm water tanks etc.

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