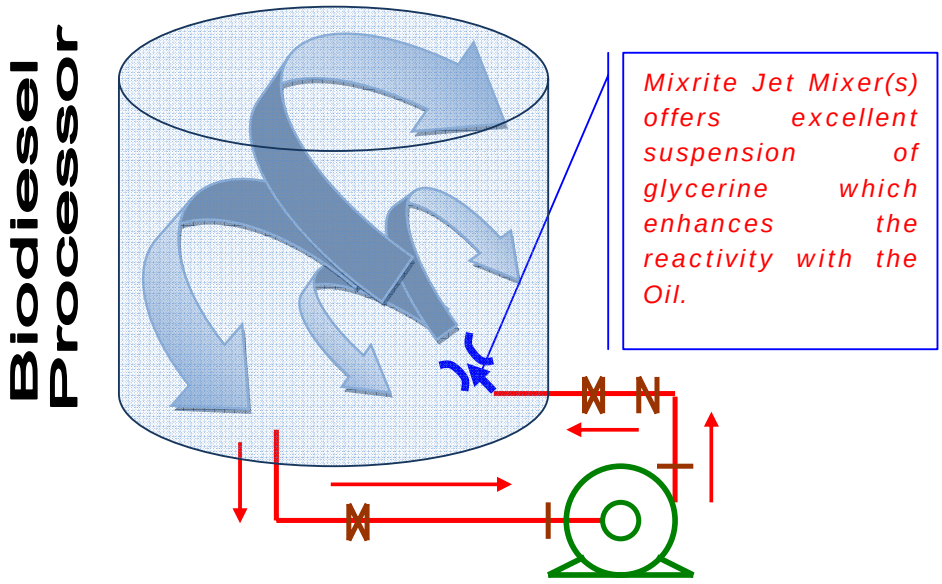
MIXRITE

Bio Diesel

Case Study

PROBLEM

The NT clear water Pumps are often used and offer good mixing pumps for smaller volumes up to about 33 cubic feet. However it is the lack of mixing within the tank that results in poor quality fuel. This can be compensated by increasing the methanol ratio from about 20% to 22% to be able to make high quality fuel. Methoixide also has to be added slowly to get an even distribution inside the tank. There are a number of solutions to improving mixing. Adding a bigger pump can works, but then the power comnsumption increases substantially.



SOLUTION

Glycerin has tendency to stick together forming balls which attract methanol and lye. When these balls of glycerin become big enough , they settle down at the bottom of the tank. Mixrite Jet Mixers are designed

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specifically for the above application to enhance the top to bottom tank turnover and turbulence within the tank. These Jet]n Mixers are e tailor made to suit existing installation. Jet Mixers in this case are designed taking into account the specifications of existing Recirculation Pump so that no major modification have to be done to existing installation. The Homogenization time of storage tank can be reduced by 50% with Jet Mixer when applied on recirculation discharge line. Jet Mixers keep glycerin in suspension in biodiesel/oil mix which facilitates better mixing of glycerin with oil and biodiesel.

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:

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

CONCLUSION

Mixrite Jet Mixer designed for Biodiesel application enables excellent mixing thereby preventing the glycerin from settling down the tank bottom.

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