



SHRIJEE BIOGAS



GERMAN TECHNOLOGY MADE FOR INDIA

Revolutionizing Organic
Waste through CSTR
Semi-Dry Fermentation
for Biogas Generation



SHRIJEE GROUP

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Shrijee has strategic technology cooperation with reputed German company J&F Biogas to provide comprehensive biogas plant solutions. Our turnkey plants are crafted to meet client specifications, with a legacy of over 35 years of European and international experience with diverse organic feedstocks, featuring cutting-edge German technology for power generation or BioCNG production.

CSTR SEMI-DRY FERMENTATION PROCESS

There are various types of anaerobic digestion technologies which are used for digestion of various organic feedstocks. Choosing the right technology for a specific substrate is very important for the successful operation of a biogas plants.

J & F Biogas has developed CSTR based semi dry fermentation process which is specifically suited for organic waste with high Dry matter. The process can handle organic waste up to 30-35% DM without additional water for dilution. Special mixing system was developed for handling high viscosity inside the digester and for handling feedstock with high dry matter.



- **CSTR Semi-Dry Fermentation Technology:** Designed for agro wastes like paddy straw, press mud, cane trash, Napier grass, poultry litter and more.
- **Over 100 Operational Plants in Europe:** Demonstrating the technology's success and widespread use.
- **Developed by Dr. Friedmann:** Co-founder of J & F Biogas, the technology originated in 2002-2003.
- **Space and Cost Efficiency:** J&F's process-based digester reduces digester footprint and ground work costs.
- **Reduced Internal Power Requirement:** Digesters consume only 50% of power compared to other technologies.
- **Repowering Opportunities:** Existing plants can be improved through process optimization.

INTEGRATION OF PURIFICATION PROCESS

Shrijee-J&F provide purification solutions to purify raw biogas and upgrade them to the required utility standards. Desulphurization or Biogas cleaning is done by competitive technologies such as chemical scrubbing, adsorption or biochemical scrubbing depending upon the sulphur load in the incoming biogas. The Biogas upgradation systems are designed for a methane capture of >97 % with suitable technologies such as membrane or pressure swing adsorption.

35+ years of experience in designing and engineering biogas plants in international markets

Feedstocks for Biogas Plants

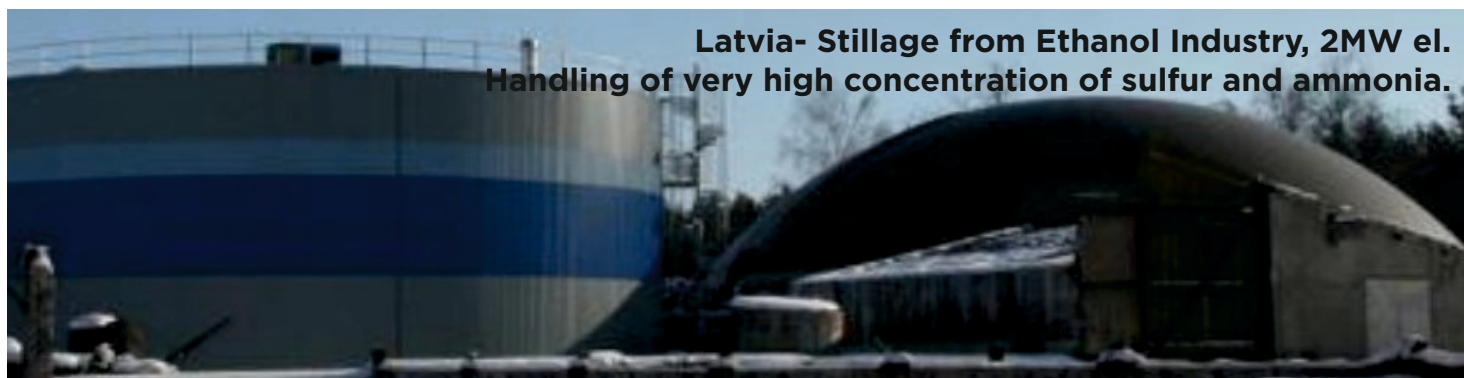


100+ biogas plants using CSTR semi-dry fermentation process

Comparison of CSTR Semi-dry Fermentation VS other technologies

Parameters	CSTR Semi Dry fermentation	Other technologies
Size of digester (m ³)	3600 m ³	7000 to 10,000 m ³
Operational costs	Due to lesser number of digesters/ agitators and containerized feeding system the power required will be 50% of other technologieis	Number of agitators required will be two times CSTR Semi dry process and multiple pumps will be required for pumping slurry at various stages
Water/slurry required for feed stocks with 30% solids and 70% moisture	0	1:1 ratio
Dry matter % (digestion capacity)	Up to 35%	10-12%
Co-digestion with Multi feed stocks	Greater flexibility with co-digestion with other feed stocks such as straw, poultry liter etc.	Lesser flexibility for co-digestion with feed stocks with higher dry matter. More water will be required for dillution
Liquid effluent/slurry generated post digestion	Minimal liquid slurry generation due to higher viscosity inside the digester	Liquid slurry generation will be higher
Operational and maintenance	Low (Agitator life time of 8 + years)	Medium (Agitators will require regular maintenance)

Plant References



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