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SIMPLY WASTE ?

A monthly newsletter on waste

SOURCE : CANVA

IN THIS ISSUE

800+
Biogas plants installed

22,995
Tons of CO_2 offset every year

547
Tons of LPG substituted every year

28.8
Lakh liters of organic manure generated every year

Green Connect®
Resource Management Solutions
ISO 9001:2015

SLR Energy: Transforming Waste into Energy and Sustainability

In the heart of Neyveli, Tamil Nadu, SLR Energy has been leading the charge in sustainable energy solutions since its inception in 2017. Specializing in the manufacturing of gas generators, gas producers, and bio-organic fertilizers, SLR Energy has become a beacon of innovation in the renewable energy sector.

Bio-CNG (compressed natural gas) is produced through the anaerobic digestion of organic waste materials, primarily agricultural residues, food waste, and other biomass. The process involves the breakdown of organic matter by bacteria in an oxygen-deprived environment, leading to the production of biogas. Biogas is primarily composed of methane, carbon dioxide, and trace amounts of other gases. The key difference between biogas and Bio-CNG lies in the refinement process. While biogas is a raw mixture, Bio-CNG undergoes a purification process to remove impurities and increase its methane content, making it comparable to conventional natural gas. This purification allows Bio-CNG to be used as a vehicle fuel.The plant boasts a daily capacity of 7000 cubic metres, a testament to their commitment to harnessing the power of waste for a cleaner future. Operating at full tilt, SLR Energy fills an impressive 4 to 5 casket cylinders daily, utilising a diverse range of inputs including pressmud, sugarcane waste, milk waste, and cow dung. It handles a lot of waste every day, around 40 to 80 tons, and at the same time, it gets 12 to 16 tons of slurry for processing.

What sets SLR Energy apart is their meticulous and eco-friendly biogas production process. The waste is fed into the plant, creating a homogeneous mixture that undergoes hydrolysis. Over a span of 45 days, 10% to 12% solid digest is inserted into anaerobic digesters, yielding biogas. This gas undergoes a rigorous purification process, removing CO2, moisture, H2S, N2, and O2 before being stored in caskets.

Bio-CNG Production Process:

Step 1: Biomass Collection

Gather organic waste materials such as agricultural residues, food waste, or animal manure.

Step 2: Pretreatment

Remove any impurities or non-biodegradable materials from the collected biomass.

Step 3: Anaerobic Digestion

Place the pretreated biomass in an anaerobic digester, a sealed container without oxygen. Bacteria break down organic matter into biogas through fermentation.

Step 4: Biogas Upgradation

Biogas typically consists of methane, carbon dioxide, and trace gases. Use a gas upgradation system to separate methane from carbon dioxide and other impurities, producing purified biogas.

Step 5: Compression

Compress the purified biogas to increase its density, making it suitable for use as a vehicle fuel.

Step 6: Storage

Store the compressed biogas in tanks for future use.

Step 7: Distribution

Transport the Bio-CNG to fueling stations where it can be distributed to end-users.

Step 8: Utilization

Use the Bio-CNG as a clean and sustainable fuel for vehicles, replacing traditional natural gas.

The transformation doesn't stop there. The residual slurry metamorphoses into organic fertilizer, a product that SLR Energy proudly sells, further contributing to the circular economy. However, the journey has not been without its challenges. SLR Energy has faced hurdles in the marketplace, navigating obstacles to create awareness among the people. Despite the struggles, the company remains steadfast in its mission, not only for its own success but also for the greater environmental benefits derived from effective waste management activities. SLR Energy stands as a symbol of sustainable progress, turning challenges into opportunities for a greener and cleaner tomorrow.

Saveetha Institute Takes a Green Leap with Green Connect Biogas Plant

In a visionary move towards sustainable practices, Saveetha Institute of Medical and Technical Science in Kanchipuram has recently embraced a green initiative by installing a cutting-edge Green Connect Biogas Plant. The installation, designed to process 500 kg of food waste daily from the institute's canteen, has become a beacon of environmentally conscious energy solutions.

Motivated by a commitment to fostering a conducive learning environment while reaping NAAC benefits, Saveetha College sought out eco-friendly alternatives, which led them to Green Connect. Recognizing the potential for positive change, the college swiftly moved forward with the installation of the biogas plant.

Green Connect introduced it's new model biogas plant made of FRP, an eco-friendly solution for organic waste treatment in large-scale industries. The digester, designed for uniform waste distribution, ensures leak-proof anaerobic bacterial digestion. Capable of treating 10-1000 kg of organic waste, the system incorporates high-pressure biogas burners, a gas holder made of durable fibreglass, and a robust gas piping system for minimal pressure loss. The gas pressure gauge and control valves facilitate precise regulation, while thebiogas metre tracks daily consumption, aiding in accurate record-keeping and potential carbon credit earnings. With features like a slurry collection tank for nutrient-rich organic manure and an industrial pulper for efficient waste digestion, our biogas plant is a sustainable choice for waste management.

What makes this undertaking even more remarkable is the specially designed high-pressure model, overcoming challenges typically associated with biogas plant installations.

Saveetha College is now proudly utilizing this sustainable energy source, marking a significant stride in alternative energy and waste management. The institute stands as a shining example of how educational institutions can lead the way in creating a greener, cleaner future. This eco-conscious endeavor not only aligns with global sustainability goals but also sets a precedent for other institutions to follow suit in the pursuit of a harmonious coexistence with the environment.

JSW Steels manages its food waste with a Biogas Plant

In 2018, JSW Steels Limited in Salem installed a biogas Plant, to treat its food and vegetable waste generated in its canteen. Recognizing the need for alternative energies, the company collaborated with Green Connect, discovering innovative solutions and embracing the benefits of biogas in their pursuit of environmental stewardship.

Green Connect responded by introducing a cutting-edge biogas model, the high-pressure biogas plant, tailored to JSW's needs. The results were impressive – the plant successfully processed 75 kg of food waste daily, yielding a remarkable 8 cubic meters of biogas. To put this in perspective, it's equivalent to 4 kg of LPG, a substantial contribution to their energy needs.

A biogas plant comprises crucial components for efficient gas generation and utilization. The digester, the central chamber for anaerobic bacterial digestion, ensures uniform waste distribution. Inoculum jumpstarts biogas production, and a fiberglass gas holder stores the generated was with corrosion resistance. Intricately designed gas piping minimizes pressure loss, and a moisture separator prevents clogging. Automation, including booster automation and a smart flow meter, enhances operational safety and enables real-time gas consumption tracking.

To optimize performance, users must adhere to guidelines, including gradual waste feeding, regular maintenance, and avoiding overloading for sustained functionality and efficiency. In the last six years, JSW had a problem only with their biogas flow meter, which measures how much biogas is produced. Green Connect's service team promptly addressed and resolved the issue.

JSW is not only benefitting from an eco-friendly energy source but also making significant strides in waste management. The success of the high-pressure biogas plant model has left JSW Steels Limited satisfied, and they continue to receive efficient and prompt servicing from Green Connect.

Revolutionizing Environmental Sustainability: Green Connect's Transformation of CavinKare's Effluent Treatment Plant

In 2021, Green Connect, embarked on a transformative journey to revamp CavinKare's Effluent Treatment Plant (ETP). This endeavour aimed not only at upgrading the existing infrastructure but also at redefining the standards of environmental sustainability in the manufacturing industry. CavinKare, originally established as CHIK India Private Limited in 1983, has evolved into a formidable player in the market with 13 FMCG brands and 2 salon chains. Operating a dairy products manufacturing unit in Bhavani, Erode, the company found itself at the intersection of production and environmental responsibility. The effluent generated during the dairy manufacturing process necessitated a robust Effluent Treatment Plant to mitigate its impact on the environment.

Understanding the ETP Process

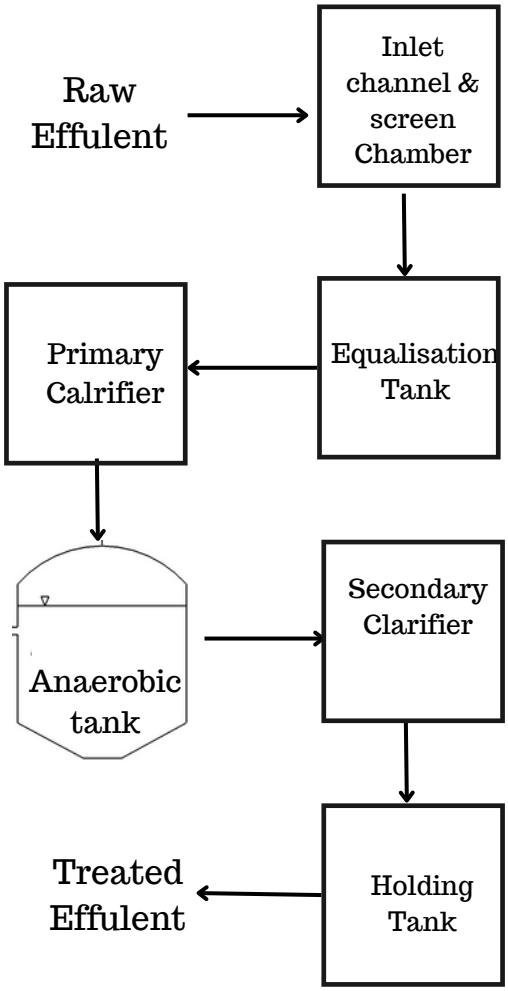
Before delving into the transformative work executed by Green Connect, let's comprehend the intricate Effluent Treatment Plant (ETP) process.

The Effluent Treatment Plant (ETP) process involves a series of tanks designed to treat wastewater systematically. It begins with the Collection Tank, where raw wastewater is gathered for initial processing.

From there, the water moves into the Screening Chamber, where large debris and solids are filtered out to prevent damage to downstream equipment. Subsequently, the water enters the Oil and Grease Removal Tank, specifically targeting the separation of oils and greases from the wastewater.

The Dosing Tank comes next, serving the purpose of adding chemicals or agents that aid in the treatment process. Following this, the water enters the Equalization Tank, where the pH is corrected to ensure optimal conditions for subsequent treatment stages.

Continuing through the process, the water then passes through the Primary Clarifier, facilitating the settling of suspended solids. To enhance the efficiency of the anaerobic digestion process, a Buffer Tank is



introduced after the Primary Clarifies. The Buffer Tank ensures a regular interval flow of effluent into the Anaerobic Digester, promoting the breakdown of organic matter in the absence of oxygen and producing biogas.

Moving on, the water then enters the Secondary Clarifier, where further separation of solids from the treated water occurs after biological treatment. Finally, the treated water is collected in the Outlet Tank before its ultimate discharge, ensuring compliance with quality standards.

Insight into CavinKare's ETP Plant

CavinKare, recognizing the importance of environmental stewardship, diligently follows the standard ETP process. The company's unique focus lies in its Anaerobic Digester, known as the GLS ETP plant. This innovative digester efficiently segregates gas, liquid, and solid components of the effluent. The gas produced in this process is harnessed to run a Genset, contributing to the company's energy sustainability goals.

The liquid component undergoes a series oftreatments, starting with the aeration tank, where the environment is conducive to stabilizing wastewater during the initial stages of treatment. This is crucial for the removal of soluble contaminants, toxic chemicals, and harmful pathogens. Subsequently, the liquid is directed to a Clarifying unit, followed by a Sandy filter and carbon filter for further purification. The purified water, now free from environmental pollutants, is channelled into a holding tank within the facility, serving a dual purpose by supporting gardening activities.

The solids generated in the anaerobic digester are collected in a dry bed. Subsequently, these solids undergo a transformative journey in a solar bed designed explicitly for drying purposes. The dried substance emerging from this process is not merely waste; it metamorphoses into an excellent fertilizer with rich nutrient ontent. This eco-friendly fertilizer, a byproduct of the effluent treatment process, finds purpose in nurturing the greenery within the facility.

ETP revamp by Green Connect

Green Connect team replaced mild steel materials inside the anaerobic digester with stainless steel, enhancing the durability and efficiency of the infrastructure. To optimize functionality, a pipeline was established from the holding tank to the garden area, creating a seamless connection for water usage.

Nine pumps, including 2 submersible pumps and 7 mono block pumps, were replaced with a new set, ensuring a reliable and efficient pumping system. Fifty diffusers for the aeration tank were supplied and installed, a critical component in maintaining optimal conditions for wastewater treatment.

The media within the Sand and Carbon filters, responsible for removing larger particles and organic compounds, respectively, underwent a comprehensive upgrade. The gas holder in the digester was fully refurbished, and features like a moisture trap and H2S scrubber were introduced to filter moisture and H2S from the gas, ensuring the environmental safety of the generated gas

The Gen set, a vital component powered by the produced gas, underwent a thorough repair and service. Additionally, the solar dry bed, utilized for drying the sludge, was fully constructed, and a burner was supplied and installed to expedite the sludge drying process.

The oil trap, another critical element in the ETP process, underwent servicing to ensure its continued functionality. In a remarkable expansion, a 1.5 lakh liter anaerobic digester made of mild steel material underwent a comprehensive refurbishment, further enhancing CavinKare's capacity for efficient effluent treatment.

To complement the revamp, Green Connect supplied essential accessories like diffusers for the aeration tank and agitators for the clarifying unit, contributing to the seamless operation of the 1.5 lakh litre anaerobic digester.

Green Connect's transformative work at CavinKare's Effluent Treatment Plant stands is a good example of harmonizing industrial production with environmental responsibility. The meticulous upgrades and strategic replacements implemented by Green Connect have not only enhanced the efficiency of the plant but have also set new benchmarks for sustainable practices in the manufacturing sector. As industries worldwide grapple with the imperative of environmental stewardship, this collaboration between Green Connect and CavinKare serves as an inspiration, showcasing the tangible impact of conscious choices in promoting a greener and more sustainable future.

Green Connect December'23 Update

Service:

- KH Exports Pvt Ltd, Ranipet, TN - Visited for service of biogas plant.
- Our Existing customer Sanjay, Salem, TN- Biogas Crusher service work.

Accessories Delivered:

- KH Exports Pvt Ltd, Ranipet, TN - Biogas Analog Flow Meter have been supplied and installed.

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