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Biogas Production



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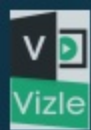
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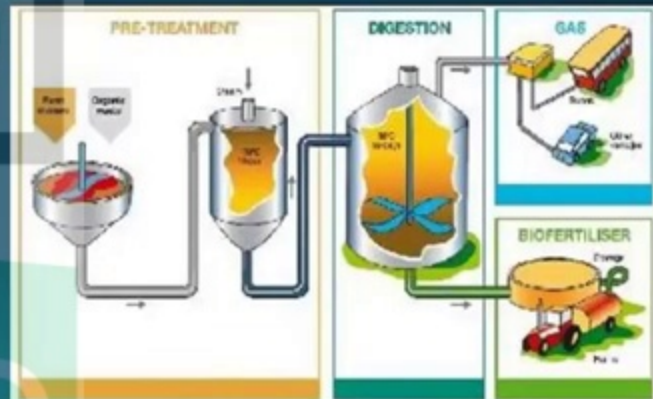
Biogas - Introduction

- When methane is produced by the fermentation of animal dung the gaseous products are usually referred as biogas and the installations are called biogas plant or bioreactor.
- Biogas is a flammable mixture of 50-80% methane, 15-45% CO₂, 5% water and some other trace gases.
- Biogas is produced by biomethanation and is self regulating symbiotic microbial process operating under anaerobic conditions and functions at temperature around 300C.

Organisms involved are all found naturally in ruminant manures. In such system the animal dung is mixed with water and allowed to ferment in near anaerobic conditions, under ideal condition 10Kg of dry organic matter can produce 3m³ of biogas, which will provide 3hrs of cooking, 3hrs of lighting and 24hrs of refrigeration with suitable equipment.

Biogas Production

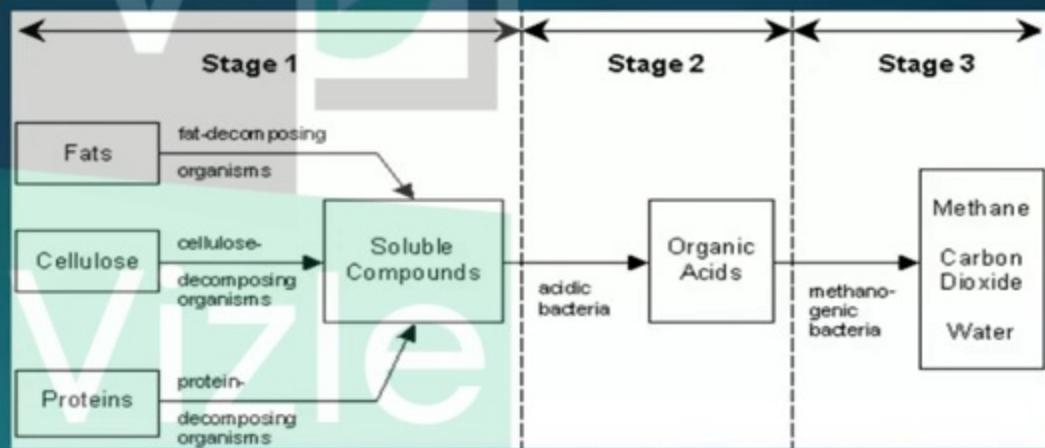
- Biogas is a mixture of gases produced from the anaerobic digestion of waste materials such as animal & plant waste.
- A biogas plant which uses only cow dung is called as the "**gobar gas plant**".
- The gas is used as fuel for cooking or lighting.
- Microorganisms involved in biogas production are a group of different Sps. which forms a consortium.
- Bacteria involved in the initial stages are not strict anaerobes.

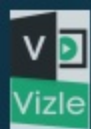


Stages of Biogas Production

Anaerobic Digestion is accomplished by three stages

- Solubilization
- Acidogenesis
- Methanogenesis.





Limitations

- Methane as an energy source may have economic value at local small scale production, but there is considerable doubt about the future of commercial large scale process for methane production. An abundance of methane occurs in nature, particularly in natural gas fields and oil field overlays.
- Methane production by gasification of coal is commercially more attractive.
- Microbial production of methane is more expensive than natural gas.
- Costs of storage, transport and distribution of gaseous fuels is not economical.
- Methane cant be used in automobiles.



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