

Low Temperature Adapted Methanogenesis (LTAM) Process

Sustainable biological treatment of wastewater at low temperatures

Anaerobic treatment of sewage can theoretically yield more energy (2.1 kwh/m³) than is needed for its treatment (0.25-0.5 kwh/m³) creating an impetus for STPs to adopt energy positive anaerobic technologies over aerobic technologies. Though most of the sewage treatment plants of the world operate at liquid temperatures ≥ 18 °C, treatment is difficult at lower temperatures. In Kanpur, Delhi, Ghaziabad, and Saharanpur, the sewage temperature ranges between 15 to 25 °C, causing several STPs to underperform. Sewage treatment in tourist destinations like Shimla, Nainital, Srinagar had been under the ire of pollution control boards for being 'over utilized and underperforming'.

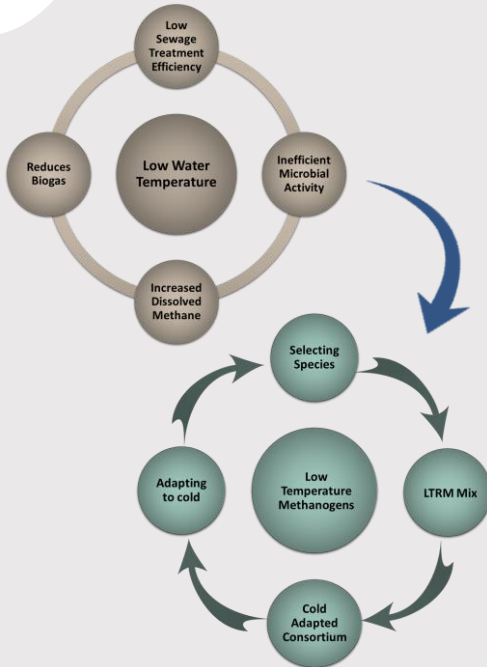
CSIR NEERI has developed a solution to mitigate the impact of low temperature on anaerobic sewage treatment. Through years of R&D, lab & pilot-scale trials a process know how has been developed for Low Temperature Adapted Methanogenesis (LTAM). The know-how consists of boosting the growth of low-temperature resilient methanogenic (LTRM) population in the native microbial flora using periodic and calculated dosing of inducers called LTAM mix. The know-how does not require use of psychrophilic methanogenic inoculum for start-up.

Salient features

- Performs at liquid temperatures 1-20 °C
- Boosts the growth of native, self-granulating, low-temperature resilient microbial population (**LTRM**)
- Granular LTRM biomass enhances resilience of microbes at lower temperature
- No external heating required
- No cost of aeration
- No special externally added inoculum needed
- Lower foot print area
- COD removal efficiency > 80%
- Applicable for sustainable sewage treatment at Himalayan and sub-Himalayan regions of India.

Applications

- For cultivation of self-granulating LTRM biomass
- As secondary treatment unit of centralized STP
- As an integral component of decentralized Him-STP



KNOW HOW

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