

Advances In Steel Structures: Proceedings Of The National Symposium On Advances In Steel Structures,

The institution of engineers (India) aligarh local centre
Z. H. college of engineering and technology, A.M.U., Aligarh
All India Seminar on Advances in Environmental science and Technology
(February 15-16, 2008)
STATUS OF UASB TECHNOLOGY: CURRENT SCENARIO

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ABSTRACT:

UASB technology is being widely used for the treatment of domestic sewage and a variety of industrial wastewaters throughout the world during recent years. It offers a number of advantages over conventional aerobic and anaerobic treatment systems. Anaerobic treatment of biodegradable waste results in both energy generation and reduction of various green house gases. It is a well known fact that there is a great potential of energy production from various industrial effluents in India, but the technology is yet to be fully implemented throughout the country on a large scale. This paper reviews the status of the applications of UASB technology and its modifications for the treatment of domestic sewage and a variety of industrial effluents for effective pollution control .

INTRODUCTION:

Application of conventional aerobic wastewater treatment technologies are not economically feasible in developing countries due to high capital and running costs, lack of skilled staff for operation and maintenance. Therefore, the research in the field of waste treatment technology was directed towards low cost, appropriate and reliable technologies which are easy to construct, operate and maintain. This research led to the development of a number of retained biomass reactors known as high rate or advanced anaerobic reactors namely anaerobic contact reactor, anaerobic filter, up-flow anaerobic sludge blanket reactor, anaerobic fluidized / expanded bed reactor, down flow stationary fixed film reactor and expanded granular sludge bed reactor.

These modern high rate anaerobic reactors are based on some mode of bacterial sludge immobilization concepts (Hulshoff Pol et al. 1986) such as:

- concept of bacterial sludge attachment to stationary packing e.g. anaerobic filter, down flow stationary fixed film reactor.,
- concept of bacterial sludge attachment to particulate carrier materials e.g. anaerobic fluidized / expanded bed reactor.
- concept of bacterial sludge aggregation /granulation e.g. upflow anaerobic sludge blanket reactor / expanded granular sludge blanket.

UASB technology is expected to play a very prominent role, not only in the proper management of waste water but also it has got great potential to reduce the levels of the green house gases and to generate renewable energy and that is why it has enjoyed world wide popularity.

Only in recent years it has been realized worldwide that the sustaining and assimilative capacity of the biosphere, though tremendous is not after all, infinite. The system has operated for millions of years, but now it has begun to show the signs of stress primarily because of the impact of humans upon the environment. One such sign (tremendous increase in levels of green house gases) has got complete global attention in 2007 and Nobel prize for Peace in the area of global warming has been given to two environmentalists, fortunately one recipient, Dr. R. K. Pachoury is of Indian origin associated with IPCC.

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