GAS PRODUCTION

Theoretically, the biogas production at $25^{O}C$ and one atmospheric pressure is 0.38 m^3/kg of COD removed. However, the effective gas collection in UASB reactor may be only 0.1 to 0.3 m^3/kg of COD removed, because only a part of biogas generated can be collected for energy generation and rest of the biogas remain dissolved in wastewater and pass out along with effluent. The biogas has about 70 to 80% methane content and in energy terms 1 m^3 of biogas with 75% methane content is equivalent to 1.4 kWh of electricity [Bal and Dhagat, 2001].

Mixing carried out by generated biogas greater than 2.17 m3/m3 reactor per day may prove to be detrimental for granule formation, when this gas generation rate is present during initial days of start-up [Ghangrekar 1997]. It is reported that, high percentage of biogas about 75%, can be obtained for gas generation less than 1.5m^3/m^3 reactor per day. At a loading below 3kg COD/m^3.d. For higher gas generation rate the percentage of methane in biogas is reported as 63 to 70%.