Sugar Industries

Treatment of beet sugar wastewater in series of 6, 30, 200, and 800 m^3 plants has been reported by Pette *et.al.,* [1980]. Originally, the 200 m^3 reactor was constructed to treat approximately one quarter of the plant's wastewater flow. The reactor was able to treat the sugar-beet waste at organic loadings as high as 16 kg COD/m^3.d (influent COD concentrations equal to 4200 mg/L), and at a hydraulic retention time of 7.1 hours. Removals as high as 90% were achieved, and the decision was made to construct an 800m^3 reactor at the plant site. Importance of maintaining a high (30-40 kg/ m^3) concentration of active methane forming sludge in the reactor, which makes the system highly resistance regarding fluctuations in COD loadings was further reported. With operational data from 1978, it was found that the 800 m^3 reactor was capable of treating organic loadings as high as 10 kg COD/ m^3.d at a hydraulic retention time of 4 hours, with a purification efficiency of 80%.

In another attempt of treatment of sugar beet waste in a UASB reactor at 20-25 kg COD/ m^3.d organic loading rate with 92-95% COD removal efficiencies were claimed at 28-32^{0}C and 4 day hydraulic retention time. A modified UASB reactor was proposed by Hong Yucai *et..al*., [1988], for the anaerobic treatment of beet sugar molasses. In the experiment, a UASB reactor with a new type of gas-liquid-solid separator device was investigated. This new system was applicable at very short liquid retention time under conditions of high organic space loads and high treatment efficiencies. A pilot study on a one m^3 UASB reactor was undertaken by Ramjewon *et.al.,* [1995], to demonstrate its potential for treating sugar-cane wastewaters in Mauritius.