

BIOGAS FORMATION USING SPENT WASH AND FILTER MUD FROM PELWATTE SUGAR INDUSTRIES LTD

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The Pelwatte Sugar Industries Ltd (PSIL) is located in the Moneragala District of Uva Province and was incorporated in Sri Lanka in 1981. The estate lies on the boundary of the intermediate and dry rainfall zones of Sri Lanka, immediately south-east of the central mountains. The primary objective of the company is to cultivate sugar cane and manufacture sugar, as this provides a socio economic environment favourable to the development of the area surrounding the estate.

PSIL has Sri Lanka's largest and most technologically advanced sugar factory with a capacity to produce 50,000 tons of cane sugar per year as an extensive sugar cane plantation. The factory, which converts sugar cane into sugar, is the heart of the company. The converting process has been designed in an environment friendly manner. During the sugar Manufacturing process a lot of solid, liquid & gaseous emissions are discharged and company has taken many of remedies to control them. These control systems consist of a biological wastewater treatment plant, and a compost fertilizer manufacturing unit using solid waste (filter mud). However the control of emissions such as flue gas, fly ash etc., which are discharged through a stack is restricted due to its limited height.

Molasses and filter mud are among by-products of sugar manufacturing which can cause environmental concerns and at present molasses is used for manufacturing alcohol at the distillery, while filter mud is used for compost filter manufacturing. Spent wash is a waste product of Alcohol manufacture and has high Bio chemical oxygen demand (BOD) and Chemical oxygen demand (COD). A small quantity of the spent wash is used for manufacturing compost fertilizer and a small amount is used to spray for gravel roads. The bulk of the spent wash is discharged without treatment into a nearby pond. During the rainy season, these spent wash with a large content of hazardous materials flow into the river and thus enters drinking water sources again, and a small portion of filter mud is used for compost fertilizer manufacturing while the bulk of the filter mud is dumped at nearby land.

This paper describes the results of a study conducted with the aim of producing biogas using a mixture of spent wash and filter mud as a way of minimising the environmental impact of these by-products and waste products.