

## **Research work on steam accumulator in palm oil mill**

### **ABSTRACT**

A field investigation was done in a typical palm oil mill, the Tanah Merah Palm Oil Mill, Malaysia. There had been previous report of pressure fluctuations and losses of steam especially at boilers and back pressure vessel when sterilisers were operating at normal steam load condition. Field trips were undertaken for this investigation. The field works study was aimed towards studying fluctuation in the overall steam supply and demands in the mill. This study on variations in energy availability and steam distribution to various parts in the mill was initiated to provide a bottom-line understanding of the mill current operating situation and identify steam losses and fluctuation problems. The total steam consumption and losses in the mill could be then determined. Total fuel (press fibre and shell) produced for each tonne of FFB processed, fuel consumption by the boiler operation and performance of the sterilisation process were also considered during field investigations. The relevant data at various sites collected on the field trips were used to verify mass and energy balances on the steam system, identify critical problems in steam demand fluctuation and develop mathematical model for representing the process operation at referred areas in the palm oil mill. The study also attempted to review the possibility to install a steam accumulator in the mill to stabilise the steam pressure fluctuations especially at the demand sides.

**Keyword:** Back pressure vessel; Field work; High pressure steam; Palm oil mill; Steam accumulator