

$$\text{Boiler Thermal Efficiency } \eta_{th} = \frac{\text{Energy to Steam}}{\text{Energy from fuel}}$$

$$\text{Thus } \eta_{th} = \frac{M_s (h_2 - h_i)}{m C_v}$$

where

m = mass of fuel used in a given time.

M_s = mass of steam formed in the same time.

C_v = calorific value of the fuel

h_2 = specific enthalpy of feed water.

h_i = specific enthalpy of feed water

Equivalent Evaporation, E_e is given by

$$E_e = \frac{M_s (h_2 - h_i)}{h_{fg}}$$

where h_{fg} = specific enthalpy of evaporation.