

Preliminary data of evaporation characteristics for an open pond in East Malaysia

Abstract

Evaporation is being considered as an alternative dewatering process of an increasing number of wastewater treatment applications and algae harvesting for biodiesel production. For simplicity, this paper presents work on modeling the performance of solar evaporation ponds. It will provide useful new technology towards commercial production of algal biodiesel. Evaporation is the combination of two phenomena involving the change of the phase from liquid into vapor, and the transfer of vapor. In open ponds, passive solar energy is used to the change of the phase from liquid to vapor. The ability to transfer vapor particles of open ponds in the air is a function of the relative humidity, wind speed, air temperature, water concentration, vapor pressure of air on water surface, pond size, water depth, among other things. The evaporation rate of an open pond of similar dimensions to modified class-A evaporation pan was measured over 15 days under typical East Malaysia climactic conditions. The experimental result is compared to the Penman evaporation method.