

## **ABSTRACT**

The oil palm production process produces abundant waste in the form of shells, fibers and empty bunches. Most of the palm oil industry waste is piled up and is usually only used as a road drain or simply burned. Thus to reduce palm oil waste, this biomass drying process is carried out, where the biomass drying process aims to make palm oil waste as a renewable energy source.

The drying process of oil palm waste biomass in the form of shells, fibers, and empty bunches using conventional microwave ovens and ovens. The biomass drying process is carried out to determine the reduction of water content, mass flow rate, constant constant rate and decreasing constant rate on shells, empty bunches, and palm fiber.

From the results of research on drying of shell, fiber, and empty bunches of oil palm waste, it was found that shells had the highest density compared to fibers and empty bunches, so that shells had the lowest mass flow rate compared to empty fibers and bunches, this was also influenced by proximate, properties of material, shape and temperature. The biomass drying process using a microwave oven will be faster than conventional ovens, so the constant constant value will be even greater, as well as the decreasing constant value.

**Key words:** Biomass drying, microwave ovens, conventional ovens, shells, fibers and empty bunches.