

## Reaktor kompak trans-esterifikasi minyak nabati untuk biodiesel dengan penasan gelombang mikro

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=131498&lokasi=lokal>

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### Abstrak

A new microwave - based transesterification reactor for converting vegetable oils to biodiesel has been developed and tested. The reactor consists of a microwave generator, microwave, waveguide and reaction tube that are compacted in small space. The transesterification of biodiesel feedstocks is performed in the reaction tube that is spatially an extension of the microwave waveguide. Using this scheme, the microwave energy is accumulated in narrow space such that it can be efficiently absorbed by the biodiesel feedstocks. The prototype have been tested by performing the transesterification of biodiesel feedstocks, consisting of 80 % cooking oil, 20% of methanol and 1% of potassium hydroxide (KOH). We found that the physical properties of biodiesel product satisfies the SNI standard. The preliminary estimation of the electrical energy consumption yields a value of 0.04 kw/liter of biodiesel feedstock, or correspondingly 40% lower than that consumed by conventional method. Due to compactness of the reactor and low electrical consumption, we believe that this scheme can be further developed and applied for supporting the biodiesel industry in Indonesia. We therefore suggest the development of the microwave - based biodiesel pilot plant at a small to medium entrepreneur or home industry level.