

REDUCTION OF CAROTENE FROM CRUDE PALM OIL USING CERAMIC MEMBRANE FOR IMPROVEMENT OF BIODIESEL AS FUEL ENERGY

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Biodiesel product from crude palm oil (cpo) have been attracted in a few ayears ago but biodiesel product from esterification process still exist glycerol by side product. Cpo have contained much carotene compound it was follows burning un effectively.

In other words, carotene compound is additive supplemented vitamine a for body and antioxidant, it was used for additive raw materials in food industrial, beverage, cosmetics products.etc.

For improvement high values biodiesel product have used separation process. With ceramic membrane and finally have two product bioidiesel without carotene and carotenes concentrated. Separation of carotene process could be distilation molecular process with temperature range 400 – 500 °c. The technical separation like this could be ineffectively, much energy consumption and high temperature degree. Thus, needs high operation cost and carotene compound useless.

For improvement of biodiesel energy with separation process for carotene compound separately from cpo uses low energy consumption and low cost operation and high optimal product

Keywords: biodiesel, carotene compounds, glycerol

ETHANOL-IN-WATER CONCENTRATION AND ITS REFRACTIVE INDEX AND SPECIFIC GRAVITY: A CORRELATION

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The primary aim of this study is to determine the relationships of concentration of ethanol by mass with its refractive index and concentration of ethanol against its specific gravity. Specifically, this study answered the following objectives: (1) To determine the refractive index of 10 %, 20 %, 30 %, 40 %, 50 %, 60 %, 70%, 80 %, and 90 % (by mass) ethanol-in-water solution using refractometer; (2) To determine the specific gravity of 10 %, 20 %, 30 %, 40 %, 50 %, 60 %, 70%, 80 %, and 90 % (by mass) ethanol-in-water solution using hydrometer; and (3) To present the graph and determine the correlation coefficients and model equations of the following relationships: Ethanol-in-water concentration with refractive index; and Ethanol-in-water concentration with specific gravity. The research design used in this the study was descriptive-correlational. The data were gathered through laboratory experimentations using 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80% and 90% ethanol by mass. The solvent used was distilled water. Hydrometer was used to determine the specific gravity of the mixture whereas refractometer was used to determine the corresponding refractive index of the mixture. The mean was used to find out the values of refractive indices and specific gravities. Correlation of variables and curve fitting analyses were used to determine correlation coefficient (R-squared) and the appropriate equation. The trend/regression type used is polynomial to the sixth degree. The data gathered revealed the following findings: (1) there is refractive index reading for every concentration; and (2) there is specific gravity reading for every concentration. Based on the findings, the following conclusions are offered: (1) the ethanol concentration is partially related to its refractive index but not linearly; and (2) The ethanol concentration is inversely related to its specific gravity but not linearly.