

STUDENTŲ ĮTRAUKIMO Į MOKSLINĘ VEIKLĄ SKATININAMOJO KONKURSO TEMA

<p>Temos pavadinimas: Prototype of Reactor for converting nonreusable plastic waste into pyrolysis oil</p>
<p>Tikslas: To design and experiment in the laboratory with the reactor for pyrolysis oil for nonreusable plastic waste</p>
<p>Trumpas temos vykdymo aprašymas (ne daugiau kaip 2000 ženklų):</p> <p>In a world grappling with mounting plastic waste and a growing need for sustainable energy sources, the pyrolysis process emerges as a promising solution at the intersection of environmental conservation and energy production. Pyrolysis technology offers a practical solution to recycling of waste plastics by converting it to liquid fuel oil as main product with high marketing values. It creates environmental benefits and economical benefits at the same time. The innovative technology of converting waste plastics into valuable fossil fuels via pyrolysis—a thermochemical decomposition method.</p> <p>In this project, the reactor is made up of 4th-class alloyed stainless steel with a thickness of 2mm sheet metal. For the heating, the LPG is used initially to start up the reactor.</p> <p>In this process, there are 3 steps to get the result.</p> <p>Primary steps:</p> <ul style="list-style-type: none"> • Cleaning and segregation • Shredding • Reactor <p>Pyrolysis oil is the oil obtained from biomass, however, in this project, we use nonusable plastic waste.</p> <p>The availability of plastic and biomass waste streams as feedstocks for pyrolysis-based biorefineries, since recycling is not currently very efficient, especially in developing countries. The gases produced from pyrolysis of some nonusable plastic waste such as PVC are toxic, and therefore pyrolysis emission treatment technology has to achieve maximum environmental benefits. The pyrolysis oil obtained from various plastic types needs to be cleaned significantly before it is used in any application, to ensure minimal environmental impact. The high aromatic contents of the pyrolysis oil is good and some aromatic compounds such as benzene and styrene can be refined and sold in the market. However, some of the aromatic hydrocarbons are known carcinogens and can cause serious human health and environmental damage.</p>
<p>Temą siūlantis mokslininkas/dėstytojas: doc. dr. Kristina Baziene</p>