Universidade Estadual do Centro-Oeste
Guarapuava – PR
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PROGRAMA DE PÓS-GRADUAÇÃO EM BIOENERGIA

NOME:_____DATA: 31/10/2016

TESTE DE PROFICIÊNCIA EM INGLÊS APLICADO PELO PROGRAMA DE PÓS-GRADUAÇÃO EM BIOENERGIA DA UNICENTRO 2016/2

INSTRUÇÕES:

Em anexo a esta prova você tem um texto em inglês que deverá ser utilizado para responder as questões das seções 1 e 2, utilizando-se de um dicionário e seguindo os seguintes critérios:

Seção 1: É composta de duas questões dissertativas, as quais visam avaliar a habilidade de compreensão e de localização de informação. Nesta seção é importante incluir nas respostas informações extraídas do texto que efetivamente demonstrem a existência de compreensão. Evite respostas baseadas apenas em conhecimento prévio sobre o assunto.

Questões da seção 1 *(Responda as perguntas a seguir, de acordo com o texto)*

1) De acordo com os autores quais são os fatores que determinam o efeito corrosivo do biodiesel em componentes metálicos?

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2) Quais são as técnicas citadas pelos autores que podem ser usadas para o estudo da corrosão de materiais metálicos e degradação de materiais poliméricos promovidas pelo biodiesel?

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Seção 2: É composta de duas questões que visam à avaliação da compreensão detalhada de trechos extraídos do texto. Para tanto, é solicitado que o trecho selecionado seja reescrito em português. A decodificação palavra por palavra deve ser evitada, pois tal estratégia freqüentemente resulta em textos sem sentido quando lidos em português.

2.1) *"There are different methods used to assess the degree of oxidation of biodiesel (in long-term storage tests) or to see how susceptible it is to oxidation. For both cases, the following methods have been reported: analyzing the iodine, peroxide and acid values;the thiobarbituric acid test; the methyl ester content; the oxidative stability index; infrared spectroscopy; thermogravimetry; differential scanning calorimetry (DSC); and nuclear magnetic resonance (NMR) spectroscopy, among others..*

Tests such as those that analyze the iodine, peroxide and acid values, and the thiobarbituric acid test evaluate the development of substances formed during the degradation of biodiesel (primary or secondary products of the reaction). These tests have been adapted from oxidation tests performed on fats and oils in the food industry.

The iodine value is a measure of the amount of unsaturated fats and oils and is expressed in terms of the number of cg of iodine absorbed per g of sample.The iodine value is determined by iodometric titration, in which a sample is dissolved in an organic solvent and mixed with a solution of iodine monobromide (IBr) or iodine monochloride (ICl) in glacial acetic acid (the Wijs or Hanus reagent). After a specific time, potassium iodide and water are added and the liberated iodine is titrated with a solution of sodium thiosulphate."

2.2) *"*As well as metallic materials, biodiesel can also affect some polymers and elastomers. To analyze the behavior of polymeric materials exposed to mixtures of fuels, many studies have used continuous immersion tests.The results of polymer degradation are established from structural changes, mass gain, mass loss, dimensional changes and a variation of mechanical properties such as hardness, tensile strength, bending, etc. All of these changes and variations take into account that the absorption of the fuel and the extraction of soluble components such as plasticizers and additives are different for each type of elastomer.

Haseeb *et al.*94 investigated the impact of palm oil biodiesel on the degradation of nitrile rubber (NBR), polychloroprene and Viton Type A, using static immersion tests for B0 (diesel), B10 (10% biodiesel) and B100 (100% biodiesel) at room temperature and 50 ^{o}C for 500 h. After testing, the degradation of these elastomers was analyzed by mass, volume, hardness, tensile strength and elongation change. The authors found that after immersion in biodiesel, tensile strength, elongation and hardness of nitrile rubber (NBR) and polychloroprene were significantly diminished, while the changes in Viton A were negligible. The mass and volume for polychloroprene were reduced by 17.9 and 19.20%, respectively. The tensile stress and elongation of NBR before immersion were 10.4 MPa and 750%, respectively, while after exposure to biodiesel, they decreased to 8.7 MPa and 646%, respectively. A decrease in tensile strength and length from 3.9 MPa and 225.6% to 2.3 MPa and 216.6%, respectively, were also observed."

2.1)

2.2)