Bölüm 6

ALTERNATİF YAKITLAR

Chapter 6

ALTERNATIVE FUELS

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BÖLÜM İÇERİĞİ

DOI: 10.53478/TUBA.978-625-8352-00-9.ch06

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Özet

Günümüzde, biyo-rafinerideki termokimyasal, biyolojik veya katalitik yollarla çok çeşitli katma değerli kimyasallar, alternatif biyoyakıtlar ve çevre dostu polimerik malzemeler lignoselülozik biyokütle kaynaklarından üretilebilmektedir. Biyoyakıtların sürdürülebilir üretimi için, bol, kolay erişilebilir ve yenilenebilir biyokütle temelli hammaddeler, ulaşım sektörü için sıvı hidrokarbon yakıtların üretiminde kullanılan petrolün yerine ikamede sıfır karbon ayak izi ile önemli bir role sahiptir. Biyoyakıt, ağırlıklı olarak bu biyokütle temelli hammaddelerden elde edilen katı, sıvı veya gaz yakıtlar olarak tanımlanabilir. Bununla birlikte, ön arıtma, üretim ve arıtma prosesleri, hammadde tipine, kullanılan teknolojiye ve istenen yakıt tipine bağlı olarak büyük ölçüde farklılık göstermektedir. Bu nedenle, çelişkileri ortadan kaldırmak için günümüzde biyoyakıtlar birinci nesilden dördüncü nesil olacak şekilde sınıflandırılmaktadır. Bu bölüm, bu nesil sınıflandırmasını temel alarak üretim yöntemlerini, teknolojileri ve hammadde tiplerine ile birlikte birçok sıvı biyoyakıt türünü gözden geçirmektedir.

Anahtar Kelimeler

Biyoyakıtlar, Nesiller, Biyokütle, Biyoenerji, Biyodizel, Biyo-Yağ, Fotobiyolojik Güneş Yakıtları

Abstract

Nowadays, a wide range of value-added fine chemicals, alternative biofuels and eco-friendly polymeric materials can be produced from lignocellulosic biomass sources via thermochemical, biological or catalytic routes in the biorefinery. For the sustainable production of biofuels, abundant, easy accessible and renewable biomass based feedstock has an important key role to replace petroleum oil in the production of liquid hydrocarbon fuels for the transportation sector with a zero carbon footprint. The biofuel can be defined as the solid, liquid, or gaseous fuels which are predominantly obtained from these biomass based raw materials. However, the pre-treatment, production and purification processes differ greatly based on the feedstock type, used technology and desired fuel type. Thus, to eliminate the contradiction in terms, biofuels are classified from first-to fourth-generation at the present time. This chapter review the several liquid biofuel type along with production methods, technologies and feedstock types based on that generation classification.

Keywords

Biofuels, Generations, Biomass, Bioenergy, Biodiesel, Bio-Oil, Photobiological Solar Fuels

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