Biofuels – Sunfuels – Synthetic Fuels: Who makes the run?

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Abstract

The different terms for alternative transport fuels are quite confusing: Green fuels-biofuels-renewable fuels-synthetic fuels. The overall goal for all these fuels is the same: low environmental impact, high reduction of green house gases. Traditional biofuels like bio-ethanol and biodiesel have been well established within the last 20 years all over the world. Because of limitation of agricultural areas as well as food vs. fuel discussion the use of advanced biofuels using non-food feedstocks like waste or lignocellulosic material has become more and more interesting. In medium and long term perspectives synthetic fuels with tailor made fuel properties are challenging. These products either do not contain any carbon, like hydrogen produced out of water, or are produced via synthetic routes out of other carbon sources like coal or natural gas or directly out of CO_2. Renewable synthetic fuels are using renewable feedstocks and renewable energy. Such products like power to x fuels could be Fischer Tropsch fuels, alcohols or synthetic natural gas. The presentation gives an overview on different technological options, but also focuses on economic and environmental issues. The challenges and drawbacks of future transportation systems will be discussed.

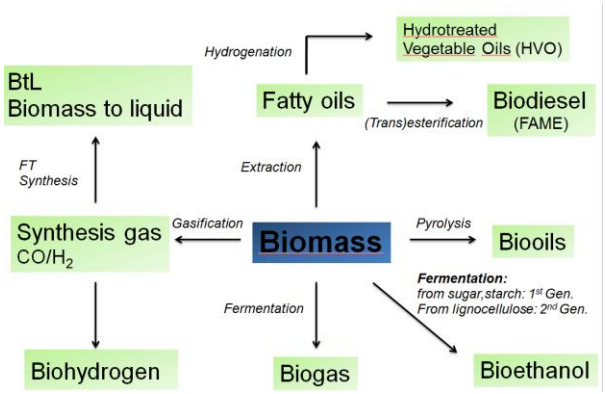


Figure 1: Different types of biofuels

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Martin Mittelbach is a leading scientist in the field of biodiesel since over 30 years. Since 1993 he is head of the working group: „Chemistry and technology of renewable resources“ at the University of Graz, Austria. He is the author of over 110 scientific publications in reviewed journals, editor and author of several books on biodiesel and he is inventor of several patents on biodiesel production technologies. He has had cooperations and projects on biodiesel with numerous national and international research organisations, he was invited for key presentations or guest professorships at bioenergy conferences and research organisations around the world. In 2015 he received the European Lipid Technology Award from the European Federation for the Science and Technology of Lipids.

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