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ANALYTICAL CHALLENGE FOR THE CHARACTERIZATION OF OXYMETHYLENE ETHER (OME) AS A FUEL FOR DIESEL ENGINES

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Power to X (PtX) is a catch phrase that is discussed a lot. The principle meaning of PtX is to transfer electrical energy into liquid energy for storage reasons. Oxymethylene ether (OME) is such a potentially renewable diesel fuel which can be produced from carbon dioxide and hydrogen. Recent research work on the exhaust emissions of diesel engines fueled with OME showed significant emission reductions. Beside that the principle technical suitability as fuel could be shown as well. At the moment a lot of research work has been started in the automobile industry and on universities to understand how OME behaves as a fuel and how to secure an optimum use. The OME is imported from China at the moment and the quality is not as good as it needs to be for fuel application. Usually there is too much water and formaldehyde present and - depending on the synthesis process - too much C-C bonds are detectable. Beside that compounds are in the OME that need to be controlled as well. The typical diesel fuel according to DIN EN 590 needs to fulfill a certain amount of limit values. For OME there is no EN standard so far because it is still a fuel under research and not in the market for consumers to buy. But it is necessary that the research work that is going on will be done with comparable and well defined OME batches. For this reason a good analytical characterization is needed. The analytical methods need to be developed and discussed in cooperation with the relevant interested parties



Figure 1: Chromatogramm of OME-Mix

Biography

Hendrik Stein is responsible as fuel expert for the testing fuel department of ASG Analytik-Service GmbH in Neusaess (Germany). He is a chemist and studied chemistry at the university of Braunschweig and the university of Wales Swansea. During his PhD he investigated the non limited – especially particle - exhaust emissions of diesel engines fueled with different renewable and conventional fuels.

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