Press Release

Setting the oxidation stability of FAME safely

Berlin, 13. Juni 2022 – Sufficient oxidation stability is essential for the safe use of biodiesel. For stabilisation, antioxidants are needed that can be used without interaction with diesel fuel and other additives. In the successfully completed no-harm test round for oxidation stabilisers for biodiesel, three antioxidants passed the challenging tests and can thus be used safely.

Due to their chemical structure, fatty acid methyl esters (FAME, biodiesel) are partially prone to oxidation processes. The double bonds of unsaturated fatty acids react with oxygen, which can lead to the formation of acids and polymer structures. These ageing products can lead to damage through soap formation or deposits. Sufficient oxidation stability is therefore essential for safe use and storage.

To ensure this oxidation stability, the addition of antioxidants have proven to be useful. Besides natural antioxidants and the still widely used standard butyl hydroxytoluene (BHT), there are currently countless different oxidation stabilisers available on the market.

In cooperation with the mineral oil industry, a so-called no-harm test was developed in the past to ensure the safe additivation of biodiesel (fatty acid methyl ester, FAME) with antioxidants. When using additives, special care must be taken to avoid negative interactions with the fuel and its additives.

In the test procedure, in addition to the standard requirements for pure biodiesel, several specific tests are carried out, such as an interaction test, a filtration test and an engine oil dilution test. The relative efficiency to BHT and the engine test with a standardized XUD-9 engine are also part of the tests. This makes the no-harm test the most demanding test for oxidation stabilisers for biodiesel worldwide.

In the current no-harm testing round, three additives were able to pass all the demanding tests. The following additives were included in the No-Harm List for antioxidants: OXIBIOL-1 (ECOS METIQUE, S.L), AO1285 (Rodanco BV) and BioStableTM 735 (Innospect Ltd).

Further information on the no-harm test as well as the no-harm list with all successfully tested products can be found on the AGQM homepage www.agqm-

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biodiesel.de/en. Information on the next no-harm test round for the testing of oxidation stabilisers is available on request at info@aggm-biodiesel.de.

Die Arbeitsgemeinschaft Qualitätsmanagement Biodiesel e.V. (AGQM) bietet auf nationaler und internationaler Ebene ein Maßnahmenkonzept zur Qualitätssicherung von Biodiesel an, das die gesamte Produktions- und Vermarktungskette umfasst. Der Verband engagiert sich in Forschungsprojekten für die unterschiedlichsten Anwendungsoptionen von Biodiesel und dessen Nebenprodukte.

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