

# Transport of Biodiesel

Biodiesel or FAME consists of fatty acid methyl esters of different chain lengths. In addition to storage, the transport of biodiesel has a decisive influence on its quality.

Due to the chemical-physical properties of FAME (polarity, functional groups, saturation), consistent compliance with simple quality assurance measures should be ensured so that the quality of biodiesel is not adversely affected by transport.

This leaflet is intended to give you information on legal regulations, transport regulations and the handling of biodiesel on the transport route.

## Classification, Labelling and Packaging - CLP<sup>1</sup>-Regulation

The classification, labelling and packaging of substances and mixtures has been regulated in a uniform manner throughout Europe by Regulation (EC) No. 1272/2008 (CLP Regulation) since the end of the transition periods on 1 June 2015. There is no classification from the CLP regulation and therefore no specific identification for biodiesel. Biodiesel is classified as water hazard class 1 (WGK 1).

According to the REACH Regulation (EC) No. 1907/2006, fatty acid methyl esters are likewise not classified as hazardous. As a result, the substance information does not necessarily have to be made available in form of a safety data sheet (SDS).

Nevertheless, manufacturers usually provide their customers with substance information on chemical-physical properties, toxicity, degradability and

water hazard via voluntary safety data sheets.

## Transport routes and naming

Regardless of the transport route, in any case, an identification of biodiesel with the official name is required. For land transport (ADR/RID)<sup>2 / 3</sup>, inland transport (ADN/ADNR)<sup>4 / 5</sup> and sea transport (IMDG)<sup>6</sup> and air transport (IATA DGR)<sup>7</sup>, the official name for carriage of biodiesel is **FAME (biodiesel)**. Due to the high flash point of at least 101 °C (EN 14214), biodiesel is classified under consideration of other safety-relevant characteristics neither as a hazardous substance nor as a dangerous good for land transport or by shipping (Pollution Category Y).

For the transport of biodiesel by land, tank vehicles, carrier vehicles for attachment tanks and battery tanks <1000 l as well as vehicles for the transport of tank containers and rail tank cars can be used. As a minimum standard, the vehicles should also have a valid type approval, an ADR/RID approval and an examination in accordance with §29 StVZO (Road Traffic Licensing Regulation). For materials that are suitable for the transport of biodiesel, please refer to the leaflet *Tank and Storage*

## Caution

Even low levels of contamination or mixing with products with a low flash point such as gasoline, diesel or methanol can lower the flash point significantly below 100 °C, which results in a classification as hazardous or dangerous goods.

<sup>1</sup>CLP: Classification, Labelling, Packaging

<sup>2</sup>ADR: European Agreement on the International Carriage of Dangerous Goods by Road

<sup>3</sup>RID: Regulation governing the international carriage of dangerous goods by rail

<sup>4</sup>ADN: European Convention on the International Carriage of Dangerous Goods by Inland Waterways

<sup>5</sup>ADNR: European Convention on the International Carriage of Dangerous Goods on the Rhine

<sup>6</sup>IMDG: International Maritime Code for Dangerous Goods

<sup>7</sup>IATA DGR: Dangerous Goods Regulations of International Air Transport Association



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The measures for quality assurance in the transport of biodiesel are geared to ensuring that no residues of systems and, above all, no product residues from previous loads lead to a mixing and thus a deterioration of the biodiesel quality or a change in the safety-relevant properties. Inadvertent filling of tanks with other fuels can be avoided by appropriate labelling.

## Handling biodiesel during transport

During transport, problems may arise due to contamination with other fuels or through the entry of water. Special attention should therefore be placed on transport vehicles and containers. The following measures and points should therefore be particularly noted:

- The entry of water into the product must be excluded at every point in the transport chain by appropriate measures (eg. covered filling stations). When delivering the goods to the gas station, the dome shaft must be free of water. Unnecessary refilling operations should be avoided.
- Non-ferrous metals or their alloys should be avoided throughout the transport system. Even galvanized tanks or containers are not suitable.
- Inadvertent mixing of biodiesel with mineral fuel must be excluded.
- For tank trucks with a full hose system, flush the system including the test section before loading with a sufficient quantity of biodiesel. The control of this measure takes place via the receipt printing, which can be used in case of a complaint to prove the correct procedure.

- Transport containers or vehicles in which previously acids or alkalis (also as mixtures), chemicals, oxidizing substances, glycerol, vegetable oils or products with a flash point  $<60\text{ }^{\circ}\text{C}$  (flammable liquids Cat. 1-3) were transported must be thoroughly cleaned before loading with biodiesel. If cleaning is not possible, a loading must always be rejected for safety reasons.
- In the case of ship transports, particular care must be taken to ensure that no remains of subcharge, water or solid impurities are present in the tanks. If necessary, an independent inspector should be consulted here.
- The chambers/tanks of the transport device must not contain water or any contamination. This also applies to the chambers/tanks, which should not be filled.

For taking reference samples when loading biodiesel, please refer to the leaflet "*Taking Retain Samples*".

### Note

These recommendations are a summary of the accumulated experience of the AGQM and its members. They have been put together to the best of our knowledge and are intended to facilitate the handling of the product biodiesel, but do not claim to be complete or correct.

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