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**AGQM – COMPETENCE IN
QUALITY ASSURANCE,
TECHNOLOGY, AND SERVICE**

Association Quality Management Biodiesel e.V. (AGQM)



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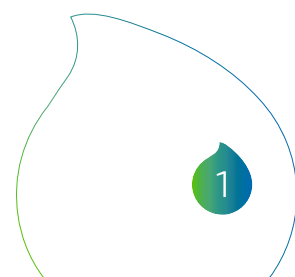
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ABOUT AGQM

AGQM – quality is our drive

Association Quality Management Biodiesel e.V. (AGQM):
We provide competent quality assurance for the market,
our members, and the future of biodiesel.

As new policies aim to reach climate targets and reduce greenhouse gas emissions, various alternative drive systems and fuels have come up for debate. Diesel engines, in particular, have fallen under scrutiny.

Now more than ever, biodiesel producers and trading companies must demonstrate the operational readiness of their products. Superior quality is imperative for both current requirements and future challenges.

In this situation, biodiesel quality must be verified and continuously communicated. These are the guiding principles of AGQM. Founded in 1999 by biodiesel producers and traders to promote quality assurance, AGQM has evolved into a modern service

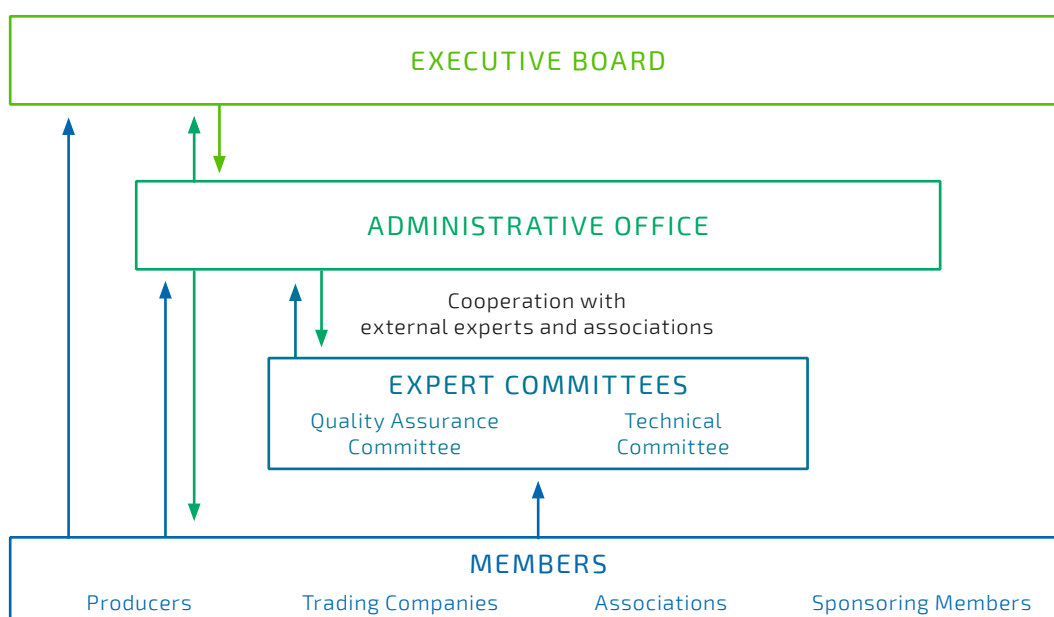
provider covering all key topics related to this alternative fuel. Together with our members, we have made great strides in improving the widespread acceptance and use of biodiesel in the German market thanks to our quality management (QM) system. It covers the stages of biodiesel production from raw material selection to production processes, storage, loading, and logistics.

Parallel to the ongoing development of this strict QM system, AGQM initiates several activities to reinforce and improve the excellent position of biodiesel on the German market.

Our organization – from the industry, for the industry

AGQM gives members targeted, effective opportunities to represent the interests of trading companies and producers.

AGQM emerged from the industry and works to advance industry interests. Our members produce around 75 percent of Germany's biodiesel, making us a strong force and a market-relevant voice in the industry.





QUALITY ASSURANCE

AGQM biodiesel – our quality pledge

Comprehensive quality services from AGQM –
for an industry that depends on quality.

To ensure proper quality assurance for biodiesel,
AGQM relies on independent analysis, strict standards,
and secure data.

■ Independent analysis

When it comes to fuel quality, the biodiesel industry applies the highest standards. Over the past 20 years, AGQM has stepped up to continuously verify these standards and their implementation. All AGQM members – producers and warehouse operators alike – submit to at least three unannounced on-site checks. An independent lab analyzes and documents the biodiesel samples in line with DIN EN 14214. The findings are published in an annual quality report. The results may be shared with customers or customs officials to demonstrate fuel quality and a regular, neutral analysis. Producers and warehouse operators can also submit the report during official audits to support their credibility, since German customs authorities recognize analytics reports initiated by AGQM.

■ Quality above and beyond the standard

The results of a QM system can only be convincing to business partners, authorities, and the general public if they are based on strict requirements. That is why AGQM decided, together with its members, to create more stringent limits in its QM system for the parameters of water content, total contamination, and CFPP. These limits exceed the requirements of DIN EN 14214. We adopted this approach with the goal of ensuring the highest possible quality of biodiesel in the market.



■ Data security and anonymous evaluation

At AGQM, the same rigor that goes into our quality testing is used to guarantee the secure handling of member data. All sample results are rendered anonymous and kept strictly confidential at all times. AGQM members can rest assured that the testing process will not lead to unfair competition or a negative impact on the market.

■ Detect problems. Isolate the cause. Develop solutions.

Unfortunately, nobody's perfect. Even the best producers are not immune to mistakes. Sometimes a sample will contain anomalies or violate limit values for the parameters we test. In such an event, we will inform you immediately and support you in troubleshooting and finding a solution. That is how we help our members continuously raise the bar on quality.

■ Biodiesel: Communicating the facts on a future-ready fuel.

Biodiesel will continue to be a vital fuel in the future. We provide hard facts to support this claim. Thanks to years of sample data from our members, we have a substantial database that we use to promote the standardization and technical advancement of biodiesel. We are proactive in applying new methods and determining the actual content in the field. With these findings we demonstrate the operational viability of biodiesel. The results provide an excellent basis for discussions with the automotive industry and manufacturers of fuel injection systems.



Round robin tests – unique worldwide

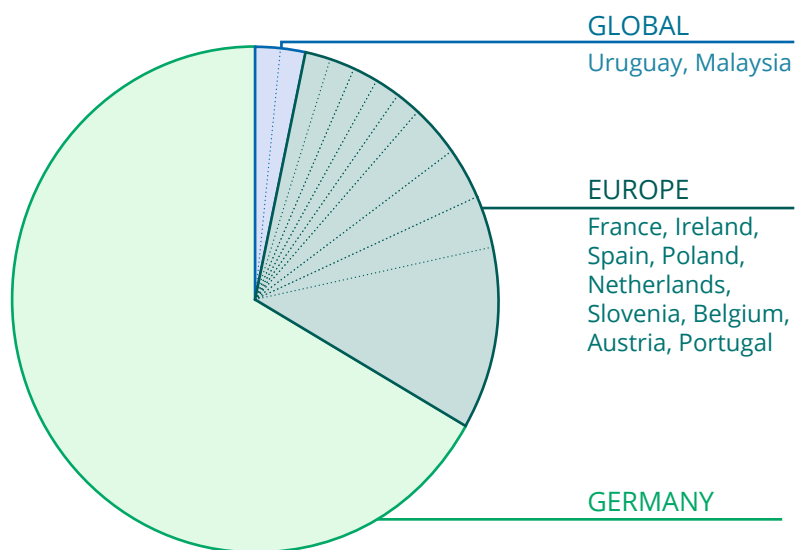
In cooperation with DIN FAM, AGQM organizes exclusive round robin tests to enable comparability with more than 50 international laboratories.

■ Analysis of FAME, vegetable oils, and used cooking oils

Every year, AGQM collaborates with the Mineral Oil and Fuel Standardization Committee within DIN (FAM) to conduct a round robin test (RRT) for the analysis of fatty acid methyl esters (FAME) as well as vegetable and used cooking oils – the only one of its kind in the world. Participants can compare their analytics results with those of 50 participating laboratories around the world to test and improve their QM systems. Participation in RRTs is mandatory for AGQM members as a means of demonstrating measurement capability to customs authorities. The RRT FAME Part 1 includes all parameters of DIN EN 14214, which are specified in the 36th regulation for the implementation of the Federal Emissions Control Act in Germany (BImSchV).

FAME Part 2 contains additional parameters such as methanol content and cetane number. The third part of the RRT checks the analysis of oils, which is part of incoming goods inspections, for example.

ORIGIN OF PARTICIPANTS IN THE 2019 ROUND ROBIN TESTS



■ Accurate benchmarking, practical workshops

After independent and anonymized evaluation of the test results, participants receive an anonymized report containing all data as well as a certificate with their own results including a Z-score evaluation. AGQM also offers a free workshop on the round robin tests, where lab specialists can discuss the challenges, risks, and opportunities of the test methods implemented. This approach enables us to identify potential error sources together and keep our RRTs fit for the future.

A WORTHWHILE INVESTMENT		
	Members	Non-members
FAME Part 1	Free of charge, mandatory	€ 675
FAME Part 2	€ 365	€ 365
Vegetable & used cooking oils	€ 675	€ 675

■ Pharmaceutical glycerol in focus

Our focus extends beyond our members' main product. Each year, we also organize a round robin test for pharmaceutical glycerol, a by-product of biodiesel production. The goal is to verify measurement capability as well as the reliability of internal checks performed by participating laboratories. We test various parameters specified in the European Pharmacopoeia as well as current fuel standards. DIN FAM evaluates the results.

COST OF RRT PHARMACEUTICAL GLYCEROL	
Germany	International
€ 590	€ 645



Quality checks – maximal measurement quality

Avoiding unnecessary errors is crucial to any successful business. AGQM offers dedicated materials to assess your measurements and standardized tests.

■ Inspections are good, but flawless performance is even better.

To check their measurement performance and rule out any systematic errors, companies rely on reference materials, also known as quality check (QC) materials.

Jointly with Analytik-Service Gesellschaft mbH (ASG), AGQM offers multi-reference QC material for various FAME parameters in DIN EN 14214. We also provide specially bottled materials for testing methanol content and the oxidation stability of FAME, as well as our QC material for pharmaceutical glycerol. These QC materials are made from the respective RRT samples.

■ Prevent errors, save costs.

When you validate your measurements regularly through standardized internal checks, you help increase the measurement accuracy of your lab and pinpoint and reduce internal errors – economically speaking, a sensible long-term investment.

COST OF QC MATERIAL	
QC material	Cost
Multi-reference (MR)	€ 100
Oxidation stability (OS)	€ 170
Methanol content (MeOH)	€ 170
Pharmaceutical glycerol (PhGly)	€ 100




Member audits – verified product quality

Enjoy first-rate product quality even without ISO certification – thanks to AGQM.

■ Superior quality management for your business

AGQM’s quality management system follows the basic structure of ISO 9001 – with one important difference: the sole focus of our work is on quality assurance processes in the lab and in production. For members not certified in accordance with ISO 9001, AGQM conducts an annual audit to verify the performance of our own QM system. Each year, the audit focuses on a different topic, such as sampling or incoming goods inspections. This allows us to help you to continuously improve your processes while supplying convincing evidence of the superior quality of your products. Our members are always welcome to use the audit reports in communications with their customers and suppliers.

ISO 9001-certified members simply need to submit a valid certificate as proof of conformity with the AGQM quality management system.



TECHNOLOGY



AGQM biodiesel – standardization

Standards play a key role in the harmonization and quality of products as well as production and measurement methods. In the world of biodiesel, DIN 14214 (B100) and DIN EN 590 (B7) are the two main seals of quality.

■ Always up-to-date

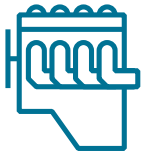
AGQM participates in various national and international committees that define requirements for liquid fuels, FAME, heating oils, and marine diesel. We head the FAME Task Force and provide the project manager in charge of determining total contamination. Moreover, we are active members in various working groups (WG 24 “Fuels”, WG 34 “Cold Operability and Correlation”, WG 38 “Alternative Fuels”). Thanks to our efforts in these areas, we are always up to date on the latest developments, and so are our members.

■ Rooted in theory, driven by practice

Standardization activities support both harmonization and the adaptation of requirements to fit current needs and new measurement capabilities. At the same time, they can help prevent unfounded or overly strict rules. AGQM advocates for technically sound standards that can be developed further on a practical level. For that purpose, we combine representative sample data from our members with our expertise. We then collaborate with our members and other specialists to refine our conclusions.



The resulting standards define measurement methods and a fundamental level of product quality. Companies can then ensure trouble-free operation in the field and, should issues or disputes arise, refer to their prior compliance with these standards. Conversely, a lack of compliance may result in problems and make a product unsuitable for use.



Research and development – for the future of biodiesel

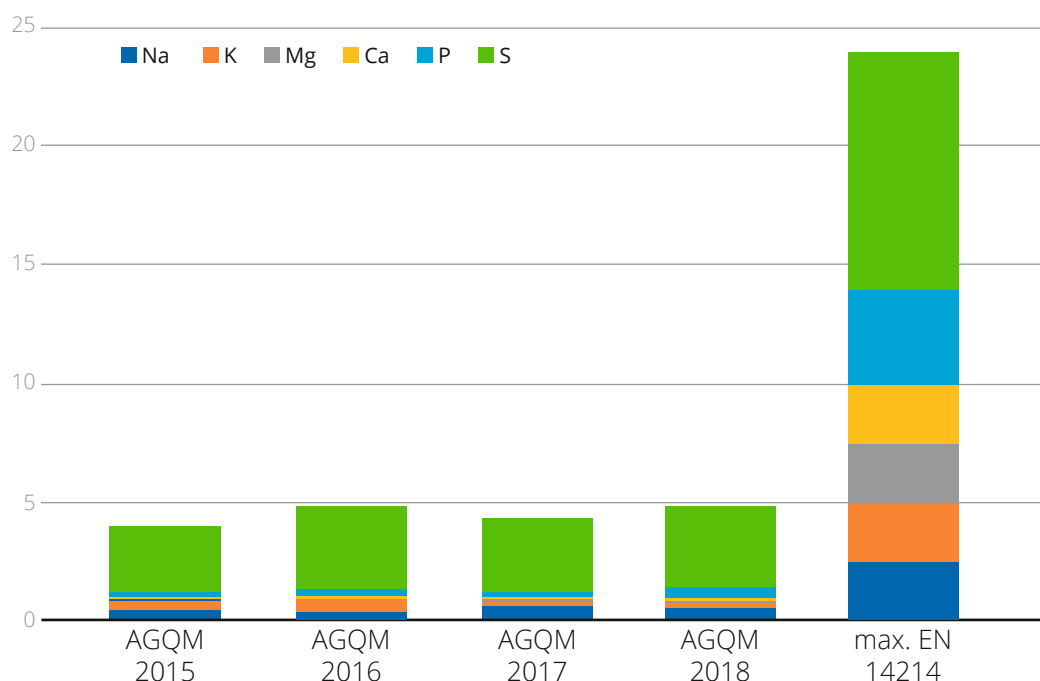
Solid research and development will pave the way for biofuels, which is why AGQM is actively involved in various R&D initiatives.

■ At the forefront of our field, today and tomorrow.

AGQM regularly supports projects and committees engaged in R&D activities concerning modern fuels and application technologies. These projects often tackle ground-breaking topics relevant to both the present and future – topics like hybridization, fuel stability/compatibility, performance tests, synthetic fuels in the current fuel mix, exhaust gas after-treatment systems, and others. Our contributions in these areas range from the provision of products and financial support to technical consulting.

ELEMENT LOAD OF EXHAUST GAS AFTER-TREATMENT SYSTEMS

Annual mean values [mg/kg]



■ Keeping biodiesel on the agenda

AGQM works to keep the topics of sustainability and the operational suitability of biodiesel in the public eye. We initiate projects that demonstrate the excellent capacity of biodiesel to handle current technological and climate-related challenges. Because we are convinced that biodiesel can – and will be – a crucial element in an intelligent mobility strategy for tomorrow.

Biodiesel reduces greenhouse gas emissions by 83% on average (source: BLE), making it an effective measure to protect the climate and conserve fossil resources. Produced from a wide range of raw materials (e.g., vegetable and used cooking oils), biodiesel is also available in a sufficient quantity – and quality – to support the development of a more sustainable transportation sector. Current approval lists from commercial vehicles and marine engines also show that even in its pure form, biodiesel is compatible with the latest exhaust gas after-treatment systems and approved for use by engine manufacturers.



The background of the top half of the page is a photograph of the European Union flag, featuring twelve yellow stars in a circle on a blue field, waving against a clear blue sky. A large, dark blue teardrop-shaped graphic is overlaid on the left side of the image.

SERVICE



REACH compliance: Are you correctly registered?

The current and valid registration of chemical substances is a prerequisite for your market activities. AGQM supports its members with updates and new registrations.

According to European chemicals legislation, all producers and importers in the European market are required to register their chemical substances with ECHA. Moreover, for every substance, either a factsheet or a safety data sheet (SDS) must be made available. As a registrant, you must keep all dossiers, REACH IT accounts, and SDSs up to date.

If the registration is incomplete, the substance may not circulate on the market; outdated registrations lose their validity.

■ REACH with the support of a reliable partner

AGQM assists registrants with the registration of new substances, updates to existing dossiers, and the creation of safety data sheets (SDSs). Thanks to our decades of experience, we possess sound and wide-ranging expertise on REACH topics such as fatty acid methyl esters (FAME) and biodiesel by-products. We actively inform you in the event of important changes to chemicals legislation. On request, we offer continuous monitoring and updates for your REACH IT account and SDS data. Comprehensive support is available with our REACH Care Contracts, which include a newsletter for interested parties. At present, 28 companies from the fuel industry take advantage of REACH consulting from AGQM – a testament to the quality of our services.

COSTS FOR REACH SUPPORT	Members	Non-members
REACH support	€ 680	€ 1190
12 newsletters per year	€ 240	€ 400
SDS support	€ 120	€ 120
SDS creation	€ 550	€ 600



Additive compatibility – no-harm tests ensure safe use

Which oxidation stabilizers and flow improvers offer a seamless, stable fit for your biodiesel? Our no-harm tests for additives provide reliable answers to your questions about their use.

■ Internationally recognized no-harm tests

Our specially developed no-harm tests are a combination of various methods used to assess additive performance and detect any unwanted interactions of oxidation stabilizers and flow improvers. For each class of additives, AGQM offers an annual no-harm test in which additive manufacturers can enroll their products for testing. Experienced specialists conduct the analysis in two separate, accredited labs. All additives that pass the test are published on AGQM's respective no-harm list.



■ Reducing the risk of new products

AGQM tests the behavior of new additives for use in FAME and diesel blends. Should problems occur, our best-case scenario is always to detect and contain them prior to launch – because incompatibilities can negatively impact the entire market. Selecting additives that appear on our no-harm list helps you reduce the risks that come with new products.



Analytics seminars – imparting know-how

Knowledge is a valuable resource – and we share ours on a regular basis.

■ Continued education tailored to your needs

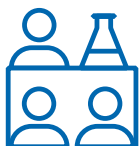
In cooperation with the Analytik-Service Gesellschaft mbH (ASG), AGQM offers two annual seminars on biodiesel analytics, one in English and one in German. The seminar focuses on the laboratory-scale production of biodiesel. We also demonstrate and explain the analytical methods outlined in DIN EN 14214 in the well-equipped labs of our partners at ASG.

During our seminars, participants have the opportunity to discuss current problems in the area of biodiesel analytics as well as anomalies in unique cases. Our analytics seminars are especially suitable for onboarding new employees in the biodiesel industry – or for the continued education of Quality Managers, laboratory staff, or other interested parties in your company. And they keep your internal capacities freed up.

COST OF ANALYTICS SEMINARS

Course fee: € 1990





Lab coaching – targeted sessions for in-house biodiesel analytics

In-house labs play a key role in internal analysis. AGQM provides extensive support so that you can test and optimize your lab.

■ Customized coaching in your lab

For biodiesel producers and trading companies who operate an in-house lab for biodiesel analytics and who wish to improve their performance in this area, AGQM offers individual lab coaching.

Depending on your needs, the procedures you would like to discuss, special requirements, and the overall scope of coaching (one to several days), we send independent experts with long-standing experience in biodiesel analytics to your lab. The results from a previously submitted comparative sample are then evaluated on-site. Potential problems are identified and, whenever possible, eliminated. Participants receive a report and a certificate of participation.

COST OF LAB COACHING	Members	Non-members
Day rate	€ 1500	€ 1700
Additional day	€ 1100	€ 1200



BECOME A
MEMBER

20 years of experience in quality assurance, technology, and service

Draw on our expertise – for high-quality biodiesel today
and tomorrow.

■ Become a member

We've impressed you with the benefits of an AGQM membership – and you're ready to take the next step? Visit us online at www.agqm-biodiesel.com to download and fill out our membership application. Or scan the QR code below:



Questions? Always feel free to contact us. Simply send us an email or give us a call.

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