



Fast and Firm on Fuel: Biodiesel QC with Anton Paar

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In the biodiesel industry, product quality is closely linked to measurement quality. Accurate, reliable process and quality control equal optimised product output. Anton Paar provides high-precision instruments for just that purpose: the determination of all biodiesel quality parameters you need – in next to no time.

The Task

Biodiesel quality control brings about a distinct set of challenges. Reliable product output is an absolute essential, as is the adherence to norms and standards such as EN 14214 and ASTM 6751. Complete control and oversight of the entire production process are of rising importance, in direct response to ever-growing market demands. Applied biodiesel quality and process control calls for a measuring solution of outstanding accuracy and reliability, matched with economy, accessibility and ease-of-use.

The Goal

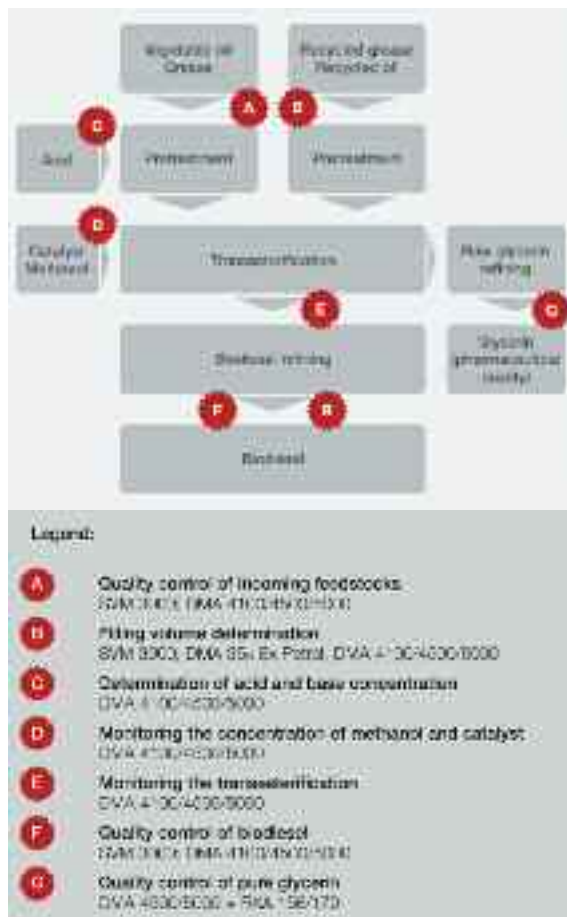
The consistent quality control of incoming feedstocks with high-precision measuring instruments ensure the optimal regulation of the production process. Monitoring the process parameters enables the controlled use of expensive substances. On-site concentration measurement allows the exact dosage of raw materials.

The Solution

Numerous biodiesel producers speak of Anton Paar measuring solutions in their process and quality control with great satisfaction. The reasons for this partly stem from their time-proven high measuring quality, but also from the fact that Anton Paar make it their goal to specifically outline and configure their instrumentation to meet distinct application requirements.

The measurement quality of Anton Paar DMA density meters, RXA refractometers, and SVM 3000 viscometers are one thing. But there is more to the deal. Anton Paar density meters are universally applicable: With a single instrument only, the density (g/cm³), Specific Gravity, concentration of water, oil, acids, bases and glycerin are determined.

Density-, viscosity-, and refraction index measurements from the same source guarantee consistency. And let's not forget the often overlooked, practical factor of robustness: biodiesel, not exactly a mild substance per se, cannot damage top quality material such as PTFE, highly resistant steel, borosilicate glass, Hastelloy or titanium – the very materials Anton Paar measuring instruments are made of.



The Instruments

The DMA 4100 and DMA 4500 density meters from Anton Paar are unrivalled in accuracy, repeatability and robustness, and offer way more reliability, speed, and sample economy than any pycnometer or hydrometer. A winning modular combination is formed by a DMA and an RXA refractometer. With this combination, both the density and the refractive index can be measured simultaneously - both instruments are filled in a single step and operated via the DMA display alone. An all-in-

one solution, as accurate as ever, used throughout the whole purification process, i.e. controls of glycerin contents or glycerin purity. The refractive index is demanded by Pharmacopoeia for pharmaceutical glycerin and gives more detailed information.

The most hands-on solution for quick, on-site quality checks is the DMA 35N Ex Petrol, a mobile, hand-held density meter – for process control directly at the tank and controls at the loading station. A biodiesel-resistant special housing again guarantees robustness.



The SVM 3000 viscometer surpasses all glass capillary viscometers in its economy, practicality and speed. The space-saving, compact tabletop unit provides essential viscosity values for pumping-, stirring-, and mixing procedures, only taking up a fraction of operators' valuable time. On top of that, it also provides a density reading with an accuracy better than 3 digits in order to determine kinematic viscosity. This density value is also sufficient for the determination of filling volumes, for instance.

In the final stage of production, quality control in accordance with all applicable standards is essential: The purity of biodiesel and its byproduct glycerin, the right concentration of all acids and bases used in process, the perfect lubrication behavior and droplet size – it is this exceedingly high raw material and product quality, determined by Anton Paar density meters and viscometers, that turns the yellow gold golden.

Beyond the Limits - Expanding the Analytical Performance of WDXRF with Novel Developments

Today's analytical scientists face more challenges in elemental analysis regarding analytical performance, ease of use and cost of ownership than ever before. Often a single instrument has to provide full analytical flexibility and performance for all applications in industry, research and development, fulfilling future demands for higher product quality and decreasing limit values for regulated elements. Bruker AXS (Germany) offers the WDXRF spectrometer S8 Tiger, with its innovative, optimised X-ray optics and user interface matching these needs.

While the S8 Tiger's new high-intensity X-ray tube excites the sample even more efficiently, the combination of the tube with the shortest beam path leads to the highest possible element sensitivities. Novel analyser crystals of the "XS" series significantly improve detection limits, precision and resolution for a number of elements and specific applications. The versatile beam path and wide selection of different crystals and collimators provide advanced analytical flexibility even for the most demanding applications.

The high analytical performance of the S8 Tiger WDXRF system is made even more powerful with leading-edge analytical software and its integrated analytical intelligence. A uniquely designed XRF expert system, actively guiding users in creating methods, checking performance criteria and running evaluations, enables even inexperienced users to achieve accurate, reliable analytical results.

