



Biodiesel blending at the OMV tank farm at Lobau, Austria

**Prozessmessungssystem:
DPRn 427 I, evaluation unit mPDS 1000 I,
API Petroleum Software**



B-R Controls Pty Ltd

ABN 52 003 175 102

Unit 3, 95 Hunter Street
PO Box 121
HORNSBY NSW 2077
Australia



Foto OMV

Biodiesel – a valuable additive for conventional diesel

The tank farm at Lobau is run by the Austrian petroleum corporation OMV and covers an area of more than 1 km². This makes it the largest tank farm in Austria, with storage facilities for approximately 1.63 million m³ of crude oil, additives, semi-finished and finished products. The finished products are blended on site and loaded into truck tankers, railway tank wagons, ships or transported by pipeline.

Since 1st October 2005 between 4.4 % and 5 % biodiesel is added to conventional diesel in Austria following an EU guideline which states that the proportion of biofuel in diesel has to be 2% by 2005 and 5.75 % by 2010.

Diesel fuel with added biodiesel is tax privileged by 0.5 Euro Cent per liter, whereas

the taxes for conventional diesel have been increased by 2.3 Euro Cent.

The added biodiesel FAME (= fatty acid methyl ester) can be produced from rapeseed oil, other vegetable oils, waste oils or animal fats and oils.

At present, a large amount of biodiesel is purchased abroad because the Austrian supply cannot meet the demand. From 2006 a third of the Austrian demand for biodiesel will be covered by a new biodiesel plant at the Viennese oil port of Lobau. Around 95 000 tons of biodiesel will be produced there annually.

Blending unit for diesel fuels

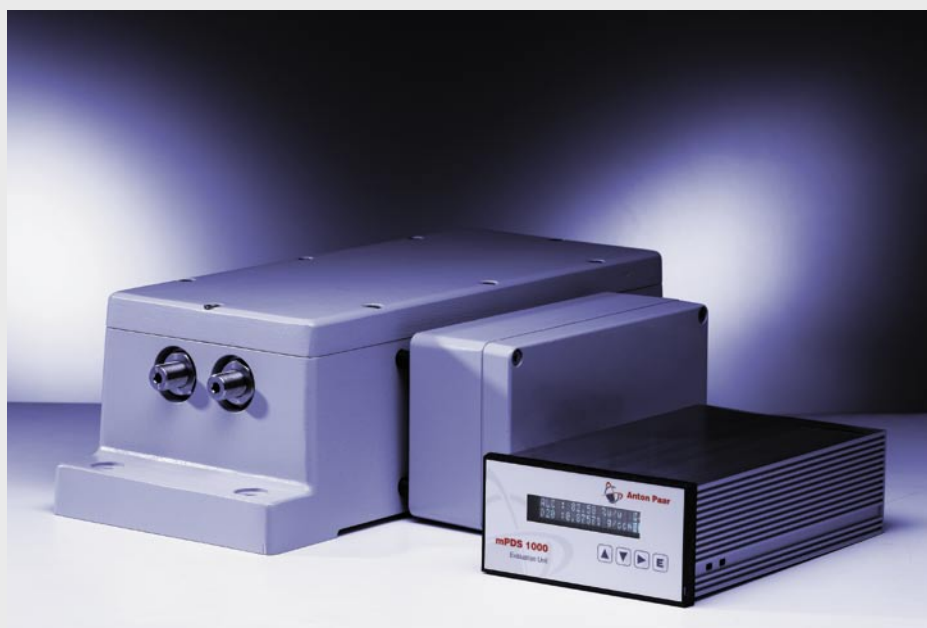
Conventional diesel and diesel with biodiesel content are produced alternately in the blending unit. The maximum production capacity is approximately 1400 m³/h.

Conventional diesel is produced from different mineral oil components, which are supplied by the refinery and stored at the tank farm at Lobau.

The recipes for the blending program are integrated in the optimization computer. The production planning department selects the amounts of components, the component tanks and the storage tanks for the finished products.

Before and after the addition of FAME the density of the diesel is measured continuously with an intrinsically safe density transducer DPRn 427 I and an evaluation unit mPDS 1000 I from Anton Paar. The results are recorded automatically. A bypass with a pump leads the diesel from the product pipeline to the nearby analyzing station, which houses several measuring instruments. Each blending batch is documented with a complete online analysis certificate, including the density value compensated to 15 °C. Thus, density measurement from Anton Paar is an essential contribution to the quality assurance of these diesel fuels.

The finished products are stored in tanks, from where they are pumped to the loading facilities. At the loading stations the density of each product (diesel, diesel with added biodiesel, export diesel, two types of premium gasoline, regular gasoline and extra light heating oil) is measured again. At the truck loading facility and the tank wagon loading facility, process density meters from Anton Paar with type approval for fiscal metering are in use to guarantee correct clearing according to the regulations.



Prozess density measuring system from Anton Paar

Density measuring systems from Anton Paar

An oscillating U-tube inside the DPRn 427 I transducer is forced into harmonic oscillation using an electronic circuit. The resonance frequency of the U-tube filled with liquid sample and the temperature of the sample are measured and transmitted to an mPDS evaluation unit where the data is processed.

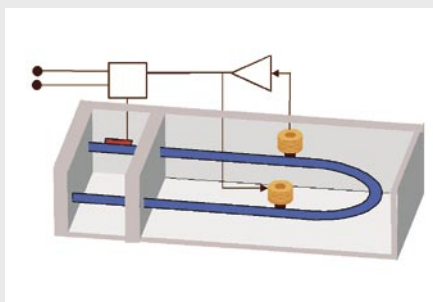
Due to the outstanding accuracy and versatility of this „U-tube measuring principle“, which was introduced in the 1960s by Anton Paar, this method has become established as the standard density measurement method worldwide. Anton Paar provides highly accurate laboratory and process instruments and is known for its high quality measuring solutions for industry and research.

DI Irita Opara
Product Manager Process Density
Anton Paar GmbH | 02/2006



Foto OMV

Truck loading facility at the OMV tank farm Lobau



Measuring principle

System configuration

- ▶ DPRn 427 I density transducer (intrinsically safe)
- ▶ mPDS 1000 I evaluation unit
- ▶ API petroleum software

Technical data	
Prozess density sensor DPRn 427 I	
Measuring range	0 to 3 g/cm ³
Accuracy repeatability	Density 0.00005 g/cm ³ 0.00001 g/cm ³
Temperature of the sample	-25 to 80 °C
Intrinsically safe according to EExia IIC T6	
PTB type approval for fiscal measurements	optional
Evaluation unit mPDS 1000 I	
Input/output	2 Analog outputs 4-20mA 2 Alarm relays 1 Analog input 1 Digital input RS 232 interface Profibus DP (optional)
Ambient conditions	Temperature: 10 to 40 °C Protection class: IP54
API petroleum software (according to ASTM D1250)	
Measuring values	Density at reference temperature, specific gravity, API number at 15 °C or 60 °F for the product groups A, B and D