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Prag, 18.12.2003

# Measuring Report

No. 50157-03

## Investigation of Emission- and (Fuel) Consumption and Soot Reduction as well as Power Optimization of a Ceramic Lubricating Oil Additive

**Client:**.....

Wagner-Spezialschmierstoffe  
WABO-Schmiertechnik GmbH & Co. KG  
Speckbrodi 8  
D-86759 Wechingen

**Subject of  
Investigation:**.....

„Universal Micro-Ceramic-Oil“

**Purpose of  
Investigation:**.....

Reduction of Emission, Fuel Consumption and Soot as well  
as Power Optimization during the Use of the Ceramic  
Lubricant Oil Additive „Universal Micro Ceramic-Oil“ in a  
Motorcar Otto Engine



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## Investigation of the Reduction of Emission, Fuel Consumption and Soot as well as Power Optimization of a Ceramic Lubricant Oil Additive

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### Testing Vehicle, Testing Equipment and Test Procedure

#### Testing Vehicle

##### Technical Data:

Brand:	AUDI
Type:	A3
Engine type:	BGU
Capacity:	1595 ccm
Max. Power:	75 kW / 5600 min <sup>-1</sup>
Turbocharging:	No
Pollutant Class:	Euro 4
Fuel:	Super lead free (95 Oktan)
First Registration:	Dec-08-03
Mileage:	985 km
Equivalent Centrifugal Mass:	1360
Absorbed Power at 80 km/h:	8.4 kW

#### Testing Equipment:

Roller Brakes:	Schenck	364/GS56
Acceptance System:	Horiba	CVS 7300 T
Gas Analyzers:	Horiba	MEXA 7200 HTR

#### Test Procedure:

Measurement of Emission and Fuel Consumption acc. to ECE 83.05 and ECE 101 ( EURO 3/4):

Power Measurement:

Date of Test: Dec-16-03

According to the reference measurements the ceramic lubricant oil additive **Universal Micro-Ceramic-Oil** was added to the engine oil according to manufacturer data with 10 %.

#### Measuring Results:

With the adding of the ceramic lubricant oil **Universal Micro-Ceramic-Oil** a significant reduction of the emission values, the soot discharge as well as the fuel consumption and a power increase could be achieved. Remarkable is the fact that a brandnew vehicle with pollutant class Euro 4 was tested. Thus error sources can be excluded in any respect.

Prag, Dec-18-03

Dipl.- Ing. Pavel Štrba  
Manager of Testing Laboratory

Dipl.- Ing. Josef Píbyl, CSc.  
Manager of Engine Division

## Measuring Protocol

### Emissions: Testing Cycle ECE 83.05 (Euro 3/4) at warm engine

Test	km	CO			HC			NO <sub>x</sub>			HC+NO <sub>x</sub>		
		1.Ph	2.Ph	Ø	1.Ph	2.Ph	Ø	1.Ph	2.Ph	Ø	1.Ph	2.Ph	Ø
AUDI A3	985	0.000	0.021	<b>0.013</b>	0.027	0.005	<b>0.013</b>	0.069	0.019	<b>0.037</b>	0.096	0.024	<b>0.050</b>
Micro-Ceramic-Oil	1166	0.015	0.016	<b>0.016</b>	0.020	0.003	<b>0.009</b>	0.019	0.013	<b>0.015</b>	0.039	0.016	<b>0.024</b>
Difference	%	+n/a	-24	<b>+23</b>	-26	-40	<b>-31</b>	-72	-32	<b>-59</b>	-59	-33	<b>-52</b>

Remarks:

- all results are in g/km
- the first phase is the simulation city traffic, the second phase is the simulation country traffic.
- the first phase corresponds to a distance of 4,05 km, the second phase corresponds to a distance of 6,96 km
- CO = Carbon Monoxide, HC = unburned Hydrocarbons, NO<sub>x</sub> = Nitrogen Oxides

### Power Measuring:

Test	km	Speed of Rotation U/min	Power in KW	Difference %
AUDI A3 untreated	985	3660	46.5	-
		4420	55.8	-
		5450	59.4	-
With the Micro-Ceramic-Oil Treatment	1166	3680	46.4	+0
		4520	55.9	+0
		5480	60.4	+2

Remark:

The given values are calculated values that were determined under consideration of the atmospheric pressure, the tire pressure, the engine temperature and the air temperature in the intake channel.

### Fuel Consumption and CO<sub>2</sub> Emission acc. to ECE 101 (at warm engine)

Test	CO <sub>2</sub>			Consumption		
	1.Ph	2.Ph	Ø	1.Ph	2.Ph	Ø
AUDIA3	256	139	<b>182</b>	10.8	5.9	<b>8,35</b>
Micro-Ceramic-Oil	252	138	<b>180</b>	10.6	5.8	<b>8,20</b>
Difference %	-2	-1	<b>-1</b>	-2	-2	<b>-2</b>

Remarks:

- Consumption in Ltr./100km, for CO<sub>2</sub> g/km
- the first phase is the simulation city traffic, the second phase is the simulation country traffic.
- the first phase corresponds to a distance of 4,05 km, the second phase corresponds to a distance of 6,96 km
- Fuel density 0.748 kg/dm<sup>3</sup>