

Making the invisible visible



AVL DITEST SMOKE 2000

The high-sensitivity opacity
measurement device

FUTURE SOLUTIONS FOR TODAY



On the chase after particles – Stop Smoking

Photo: Thinkstock/M. Hasanov

AVL DITEST SMOKE 2000 – NEXT-GENERATION OPACIMETER

Low-emission zones, vehicle free zones and particulate matter pollution – diesel vehicles have been the subject of much discussion in recent times. New engine technologies and exhaust aftertreatment systems are technical solutions to approach this particulate problem. These technologies require periodical monitoring. Testing devices and methods must be adapted to these low emissions. Using our new highly sensitive opacimeter – the AVL DITEST Smoke 2000 – even minimal soot particle emissions can be detected. With our device, you will be optimally equipped for current and future requirements in exhaust gas measurement.

THE TECHNOLOGY OF TOMORROW – TODAY

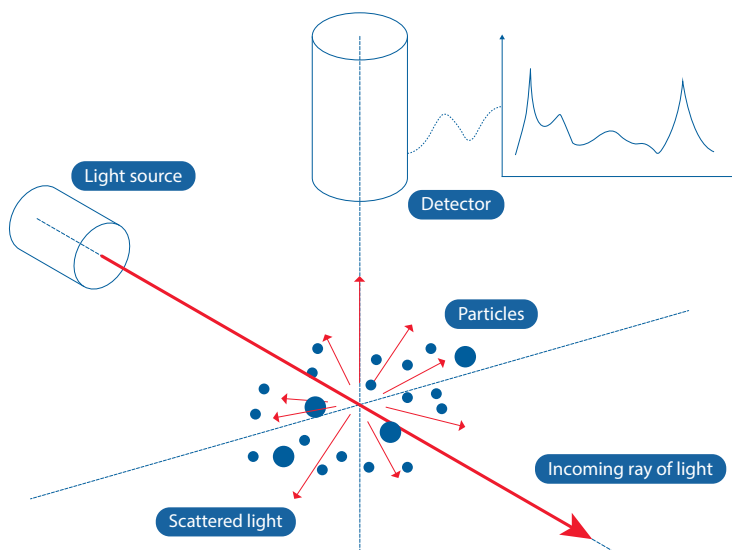
The principle of the opacity measurement which is currently used in emission testing systems originates from the 1980s, when diesel vehicles emitted visible smoke. Modern generations of diesel engines still produce a considerable amount of soot, but, due to the high injection pressures, it is finely dispersed and invisible. The size of these fine particles is between 10 and 400 nm. Particle filters pick up these respirable particles, which are then combusted as part of a regeneration process. It is no longer possible to measure the opacity in these modern vehicles equipped with exhaust gas aftertreatment systems using conventional opacimeters. Defective or incorrectly operating exhaust gas treatment systems are no longer detected with the measuring technology used in emission testing.

This is where the new measuring technology comes in, 100 times more sensitive than the devices currently used in the field. The new technology, based on light scattering, measures the particle mass concentration highly accurately and reliably. In the current EU legislation, the specifications for diesel exhaust gas limits are given as opacity (%) and/or absorption coefficient (m^{-1}). Hence the AVL DITEST Smoke 2000 was developed to display the absorption coefficient, as well as the particle mass concentration. Therefore you are also ideally equipped for future legislation.

ADVANTAGES OF THE AVL DITEST SMOKE 2000

- Suitable for all diesel vehicles in the field
- 100x more sensitive than conventional opacimeters
- Highly sensitive light scattering measuring cell – resolution $0.001 m^{-1}$
- No cross-sensitivity to NOx
- Compatible with DiX, MDS and CDS
- USB, RS 232, and Bluetooth interface
- Measurement chamber with stable metal housing and rubber protection – suitable for workshops
- Robust, handy and lightweight
- Future-proof, as additional measurement variables also available, e.g. mass concentration

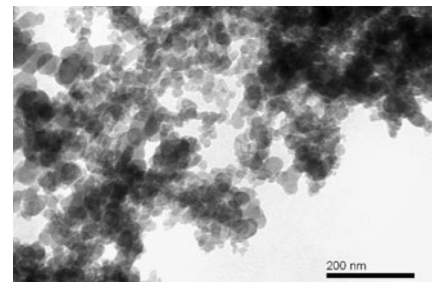
THE LIGHT SCATTERING METHOD



Light scattering measuring cell



Soot particles pollute the environment



Soot particle under a microscope

AVL DITEST SMOKE 2000 – TRIED AND TESTED IN INTERNATIONAL STUDIES

| | |
|--|------------|
| UBA-Study | 2010–2011 |
| TEDDIE | 2011 |
| ÖAMTC-Study | 2011–2014 |
| BAST-Study | 2012–2013 |
| Roadworthiness Test Investigations of Diesel Particulate Filters (TNO) | 2012–2013 |
| ENV 02 | 2011–2014 |
| Emission 2020 | Start 2013 |

For more accessories, measuring aids and technical data, visit www.avlditest.com



AVL AND AVL DITEST

Using synergies masterfully, securing technical versatility, creating future-oriented perspectives.

Success is contagious. Incomparable technologies capture the vehicles. The dynamic interaction of all pulses and signals is decisive. And the constant development. Because the technical change has never been as dynamic. Speed is important right from the start and correct results will win the race. Our top-priority objective – perfect movement, over the course of the entire life of a vehicle. In this, our weakness for technologies enabling us to masterfully master all requirements is our strength.

PERFORMANCE MOVES.

The systematic research trip into the technical world of automobiles started more than half a century ago. AVL is founded in Graz, Austria. The company is focused on the development of engines, as well as testing and measuring technology

on a grand scale. With the claim of perfection and pole position worldwide. It is understandable that AVL in Graz is the central contact partner for all renowned automobile manufacturers.

FROM THE AVL'S POINT OF VIEW.

Observing the automobile world as a whole – the complete development of a vehicle and the process of securing the error-free, daily use. Within the framework of this guideline, AVL DiTEST takes on the challenge of equipping workshops and test centers with high-tech diagnostic systems on the fast track of technical standard. The result – ideal performance with individual service on the basis of the ground-breaking AVL technology. Know-how from more than 50 years of passion for technology results in unparalleled precision this way.



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