

Vehicle inspections in Mexico City with the nanoparticle measuring system testo NanoMet3



Combustion engines in focus

With a population of more than 20 million, Mexico City is not just one of the largest cities in the world. Thanks to its inner city traffic and geographic position in a basin, the Mexican capital is also top in air pollution. Ever since the local environmental authority SEDEMA 1993 introduced an exhaust gas test in the framework of the half-yearly technical vehicle inspections, the situation has been slowly

improving. In July 2018, a further SEDEMA regulation for improving air quality came into effect. It stipulates that the particle number must also be measured in these periodic inspections. After all, due to their small size, nanoparticles can penetrate deep into the organism causing damage to health.



The challenge.

The over 2 million diesel vehicles in Mexico City annually emit not only gaseous pollutants, but also more than 3,000 tonnes of particulate matter – fine dust particles which are often less than 100 nm in size, and therefore cannot be recorded by the conventional measurements of PM10 or PM2.5 fractions.

The new SEDEMA regulation requires local inspection facilities, the “verificentros”, to simultaneously measure exhaust gas and particle number concentration in two operational stati at differing loads. The nanoparticle measuring technology that was sought for this purpose needed not only to be easy to use, but also to be able to be operated permanently at low cost, and to be serviceable and calibratable on site. The testo NanoMet3 was chosen.

The solution.

With the testo nanoMet3, SEDEMA had a complete solution, and with GIMIM, the experienced Testo distribution partner for emission applications, competent support directly on site.

In only six months, Testo was able to adapt the hard and software of the portable testo NanoMet3 to the integrated stationary solution in the “verificentros”, and to validate it. The testo NanoMet3 was integrated into every test stretch at the facilities, parallel to the existing exhaust gas measurement technology and using the same sampling and sample preparation. Neither the operators nor the customers notice any difference in the test procedure, which takes place on rolling-road test benches, is automatically evaluated by computers and whose results are directly sent online to SEDEMA’s computer centre.

With the help of the inspections, the vehicles are divided into four groups:

1. Vehicles which, due to their bad measurement results, must be taken out of circulation
2. Vehicles whose radius of activity must be considerably restricted
3. Vehicles whose radius of activity need only be slightly restricted
4. Vehicles which can be used without restriction

The advantages at a glance.

Thanks to the automatic use of the testo nanoMet3, the operation without the need for further operating materials, and the reliability of the measurement technology, every particle measurement, with the operational expense incurred, costs less than 1 US dollar.

In the first phase of the project, 135 of a total of 263 test benches were already equipped with testo NanoMet3. The calibration laboratory necessary on site for a smooth functioning of the particle measurement technology was installed at Testo’s partner of many years, GIMIM. This ensures technical support for the facility 24 hours a day, 7 days a week.

- Automated, easy measurements
- No further operating materials necessary
- Less than 1 dollar extra costs for particle measurement
- Local calibration laboratory with 7/24 service

More information.

Do you have questions on nanoparticle measurement, or would you like individual support? Find out more at www.testo.com.



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