

## ON-BOARD REAL LIFE AMMONIA MEASUREMENTS FOR VEHICLES WITH RECENT EMISSION CONTROL TECHNOLOGY

**G.A. Lenaers, M. Van Poppel**  
*Energy, Vito, Mol, Belgium*

Ammonia emissions of modern petrol fuelled cars are of raising concern especially in the city. As to heavy duty (HD) diesel vehicles the possible use of urea in the Selective Catalytic Reduction (SCR) of nitrogen oxides can result in ammonia slip. In the development or evaluation of vehicles equipped with recent or new emission control technology an on-board measuring system capable of determining ppm level emissions of ammonia is used. This system features the latest in laboratory grade Tunable Diode Laser (TDL) analysers. The simultaneous retrieval of engine and vehicle parameters together with the measurement of regulated exhaust emissions allow for a quick link to relevant parameters of the emission control system. The system consists of a novel Norsk Elektro Optikk TDL analyser with the transmitter and receiver mounted on the opposite sides of a compact measurement cuvet. This system is mounted on the exhaust piping measuring under full flow conditions. Extensive testing in the laboratory and on-board a HD test vehicle yielded sub ppm zero stability and detection limit. A real life on-board evaluation is executed on a SCR and particulate trap equipped city bus. The ammonia slip is found to be dependent on engine, urea dosing and catalyst parameters.

Keywords: ammonia, emissions, on-board, real life, SCR