AIR QUALITY QUANTITIES

In the area of air quality we are limited to low (immission) concentrations of pollutants, for which legislation prescribes the monitoring ambient air quality. In principle we perform two types of calibration: fixed point calibration and comparison calibration with reference standards using a stable source of gas mixture. The laboratory performs the calibration of calibrator outflows and the measurement of source concentrations (gas bottles), which serve as transfer etalons in calibrations within the measurement network. It has a developed range of methods for determining typical properties of measuring instruments for ambient air quality parameters (response time, stability, humidity influence, interferences, measuring of nitrogen oxide converters efficiency via gas titration…).

The laboratory ensures traceability through regular calibrations of selected reference materials at Czech Hyderometeorlogical Institute (CHMI) and through participation in intercomparison measurements organized by the European Commission at JRC Ispra for national reference laboratories. Fixed points are prepared according to the method of static manometer dilution by mixing of primary reference materials (direct to the SI units traceable concentrated mixtures with various components prepared) and zero air. Redundant traceability is ensured via National metrology Institutes and traceability of pressure and temperature instruments to national level. Traceability of ozone calibration is ensured via a standard reference photometer of the accredited CHMI laboratory.

The laboratory deals with following pollutants: carbon monoxide, nitrogen oxides, sulphur dioxide and ozone. Traceability is also ensured with certified material for benzene, toluene and xylene. The laboratory cooperates with the Chemical-Analytical Laboratory in measuring particulate matter PM10 and PM2.5, with traceability of measurements being ensured via the calibration of microbalances for weighing filters, calibration of internal flow- meters of own reference instruments and performing field comparisons between reference instruments and measuring instruments in the measurement network.

Measured quantity	Range
Gas mixtures	
CO concentration	0.3 -15 ppm
SO_2 concentration	3 – 500 ppb
NO concentration	2 – 500 ppb
NO_2 concentration	4 – 500 ppb
O_3 concentration	6 – 500 ppb
Analytic instruments – monitors	
Analyser CO	0 - 13.7 ppm
Analyser SO_2	0 – 380 ppb
Analyser NO (NO_x)	0 – 427 ppb
Analyser O_3	0 – 500 ppb

Scope of accreditation is available at Slovenska akreditacija web site:
http://www.slo-akreditacija.si/?s=lk-006&post_type=lpacreditation