

---

---

---

# Air Quality Management Laboratory



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



# Air Quality Management Laboratory

## (Laboratorija za upravljanje kvalitetom vazduha)



### Laboratory activities:

Air quality management:

- 1) Ambient air pollution testing - continuous monitoring,
- 2) Pollution testing at emission sources,
- 3) Workplace air pollution testing,
- 4) Purifying systems efficiency testing.
  - A. Research related to scientific research and development projects,
  - B. Research related to doctoral dissertations preparation,
  - C. Research related to preparation of studies, analysis, etc.



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



# Air Quality Management Laboratory

## (Laboratorija za upravljanje kvalitetom vazduha)



### 1) Automatic - continuous monitoring

- Monitoring of criteria pollutants in ambient air (immission concentrations): SO<sub>2</sub>; CO; NOx, NO<sub>2</sub>, NO; O<sub>3</sub>; PM<sub>10</sub>; PM<sub>2,5</sub>; aromatic hydrocarbons, etc.
- Measurement of meteorological parameters – creating wind and pollution roses.
- Ambient air pollution testing – related to plant and equipment accidents with hazardous materials.
- Establishing protection zone for evacuation of people during plant, equipment and transport accidents with hazardous materials.



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



# Air Quality Management Laboratory

## (Laboratorija za upravljanje kvalitetom vazduha)



## 2) Pollution testing at emission sources

- Emissions testing from energy sources of pollution: SO<sub>2</sub>, CO, NOx, NO<sub>2</sub>.
- Emissions testing from technological sources of pollution: ammonia, organic solvents, aromatic hydrocarbons, alcohols, esters, ketones,... (50 components).



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



# Air Quality Management Laboratory

## (Laboratorija za upravljanje kvalitetom vazduha)



### 3) Workplace air pollution testing:

- Measurement of workplace air pollutants (75 substances).
- Measurement of microclimate parameters in the workplace.
- Measurement of concentrations of flammable and explosive gases and vapors in indoor and outdoor air.



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



# Air Quality Management Laboratory

## (Laboratorijs za upravljanje kvalitetom vazduha)



### 4) Purifying systems efficiency testing

- Testing of the equipment for applying coating materials from the aspect of the emission of vapors and aerosols in the workplace air.
- Testing and analysis of the operating parameters of ventilation systems.
- Testing and determination of the operating parameters of gases and vapors purifiers - degree of purification.



Laboratorijs za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



# Air Quality Management Laboratory

(Laboratorijs za upravljanje kvalitetom vazduha)



## List of main instruments/equipment in the Laboratory:

- Airpointer® air quality monitoring station – Recordum,
- GC955 BTEX analyser - Syntech spectras,
- DX-4000 portable FTIR gas analyzer – Gasmet Technologies,
- DX-4040 FTIR gas analyzer – Gasmet Technologies,
- CEL-712 Microdust Pro Dust Monitor – Casella,...



Laboratorijs za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu





# Airpointer® - Basic Job Description



The airpointer is the air quality monitoring solution for criteria pollutants:

- $O_3$
- CO
- $SO_2$
- NO/NO<sub>2</sub>/NO<sub>x</sub>



and for further pollutants of interest like PM<sub>10</sub>, PM<sub>2,5</sub>, H<sub>2</sub>S, Meteorology,...



# Airpointer® - Flexible Use in Various Applications



Road Side, Traffic Management Support,...



Hot Spots, Cities, Public Information,...



Industrial Fence Line Monitoring, Oil Platforms,...



Our Airpointer on site, at toll booth Nais on highway E75



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



# Airpointer® - Data Access



Data Access over Web-Browser



Use the Device of Your Choice



Global Availability



Environmental Protection Requires Environmental Monitoring.  
Air Quality Monitoring by MLU  
Pollution

Air Quality

Moderat

Current Air Quality  
Nis, Carnojevica 10a

Pollutants  
27.4.2017.

Current Values

Pollutant	Value	Unit
CO	0,61	[mg/m <sup>3</sup> ]
NO <sub>2</sub>	6,44	[µg/m <sup>3</sup> ]
TSP	52,6	[µg/m <sup>3</sup> ]

LIVE ON AIR

The airpointer® is the first and worldwide only compact system for measuring air pollutants according to the European standards.

10:13:58

MLU



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



# GC955 BTEX analyser

- Built for the measurement of benzene, toluene and xylene isomers in ambient air,
- approved according to EN 14662-3,
- high specific sensitivity for benzene and aromatic hydrocarbons,
- standard industrial PC, running under Windows,
- user-friendly software stores all the chromatograms on hard disk,
- data can be interpreted easily with this intuitive software, and transferred by network and modem connection,
- simple operation, good reliability and low maintenance cost,
- consumable parts are economically priced,
- it is possible to measure up to 40 components.



# GASMET DX4000 FTIR Gas Analyzer



- ALL-IN-ONE portable gas analyzer
- unique portable certified FTIR multigas monitoring system,
- one of the most powerful tools available for emissions and process gas analysis,
- proven reliability,
- precise measurements,
- low operating costs and rugged construction,
- quick to set-up and easy to use.



The Gasmet DX4000 is used with a standard laptop computer and Calcmet software, which provides visualization of results, IR spectra and time trends. It controls the gas analyzer and sampling unit, and has support for analog and fieldbus I/O. All measured data is stored on the laptop computer and recorded spectra can be re-analyzed later.



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu





# GASMET DX4000 FTIR Gas Analyzer

- Can detect up to 50 gases simultaneously in hot, wet, corrosive sample streams, providing validated results in less than a minute,
- sampling system is easy,
- DX4000 operates continuously,
- measuring time-weighted averages of user definable length from 1 second to 5 minutes.



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu





# GASMET DX4040 FTIR Gas Analyzer

- Designed for on-site measurements of different compounds (both organic & inorganic) at low concentrations in ambient air,
- typical usage areas include industrial hygiene and emergency response situations,
- one of the most powerful instruments available for gas analysis,
- provides a very cost-effective, easy-to-use solution for multi-component gas analysis in ambient air,
- quick to set-up.



Gasmet DX4040 is standard equipped with an IP67 rated PDA and Calcmet Lite software. Large touch screen buttons and keypad are easy to use even in demanding field conditions. All measured data is stored on the PDA and can be sent as e-mail messages with the built-in 3G modem and Wireless LAN adapter.



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



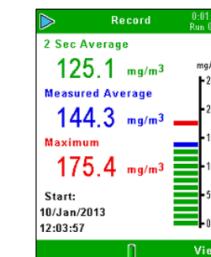
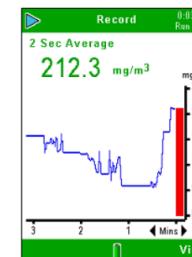
# GASMET DX4040 FTIR Gas Analyzer

- Can detect up to 25 gases simultaneously providing validated results in 25 seconds,
- analyzer can be connected to a laptop PC for extended analysis capability (in out case another 25 compounds),
- measurement is easy,
- user friendly,
- analyzer runs in continuous mode,
- measuring time-weighted averages of user definable length from 1 second to 5 minutes.



# CEL-712 Microdust Pro Dust Monitor

- Rugged, hand-held, data logging instrument for the real-time detection of airborne dusts, fumes and aerosols,
- real-time graphical display of dust levels,
- simple user interface,
- extensive range: 0,001-250 g/m<sup>3</sup>,
- unique removable sampling probe,
- rugged design for harsh environments,
- sampling for total, respirable, PM<sub>2,5</sub> or PM<sub>10</sub> with optional adaptor,
- unique on-site calibration insert.



# CEL-712 Microdust Pro Dust Monitor



- For site operation (for area monitoring, or boundary monitoring applications) we have an environmental enclosure,
- gravimetric & real-time dust data can be obtained,
- ideal for site surveys,
- ease of operation,
- operates up to 13 hours,
- samples for PM<sub>10</sub>, PM<sub>2,5</sub> and respirable fractions,
- no external power supply required,
- ideal for remote locations,
- Indoor/Outdoor applications.



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu



**Thank you**  
**for your attention!**



**Air Quality Management Laboratory**

<http://www.znrfak.ni.ac.rs/>



Laboratorija za upravljanje kvalitetom vazduha  
Univerzitet u Nišu, Fakultet zaštite na radu u Nišu

