

# Dust, Gas, and Climatic Hazards Workroom

- + **Monitoring of the working environment, including:**
  - Air composition and concentrations of hazardous gases
  - Workplace microclimate conditions
  - Employee energy expenditure (metabolic rate)
- + **Investigation of gas content** within the rock mass
- + **Ventilation and climatic measurements** in underground mine workings
- + **Measurement of air parameters and analysis of thermal transformations of air**
- + **Fan measurements**, including performance evaluation and operational assessment with regard to ventilation safety and cost efficiency.





## The workroom and in situ testing

One of the key research areas of the Mining Aerology Department is **the assessment and forecasting of gas hazards in underground mines**. This requires comprehensive testing carried out at the Dust, Gas and Climatic Hazards workroom, which includes:

- + Sampling of **gases from downhole boreholes** and **collection of mine air samples**,
- + **Analysis of gas composition** in collected samples **using gas chromatography**,
- + **Direct measurement of concentrations of hazardous gases** and **gases harmful to health in underground workings** using portable gas detectors.

The workroom is equipped with **modern gas chromatographs, including Agilent 7890A and Agilent 8890**. These instruments enable accurate and precise analysis of individual components of gas mixtures, including:  $\text{CH}_4$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_2\text{H}_6$ ,  $\text{C}_3\text{H}_8$ ,  $\text{C}_4\text{H}_{10}$ ,  $\text{CO}$ ,  $\text{CO}_2$ ,  $\text{H}_2$ ,  $\text{H}_2\text{S}$ ,  $\text{O}_2$ ,  $\text{N}_2$ .

Gas hazard assessments in underground mines are carried out under the authorisation of a certified expert of the State Mining Authority (WUG), holding qualifications for mine operations in Group XV – methane and dust hazards.

### Contact us

Dust, Gas, and Climatic Hazards  
Workroom

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