

## STANBC Technical update



### Lab-based calibration workshop of filter-based absorption photometers using PTI and EMS reference instruments

METAS, with the support of STANBC partners and stakeholders, organized a workshop at METAS lab facility calibrating filter-based absorption photometers with reference PTI and EMS instruments using different aerosol mixtures, including bare and coated soot particles, inorganic salts and mineral dust to mimic fresh and aged soot particles under different environmental conditions.

So far, calibration of filter-based absorption photometers has primarily been performed for aerosols with relatively low single scattering albedo (SSA) (fresh soot). During the METAS workshop, the calibration procedure was extended to include aerosols with SSA in the range between almost 0 up to 1. This step will allow traceable measurements to be performed at monitoring stations in different types of environments.



Lab-based calibration workshop at METAS (24/04-24/05/2024)



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The EMPIR 16ENV02 Black Carbon and 18HLT02 AeroTox projects have greatly contributed to the development and characterization of novel aerosol instruments (including a soot generator, the oxidation flow reactor known as OCU, and the photo-thermal interferometer PTAAM-2 $\lambda$ ). These were employed in the calibration procedure for filter-based absorption photometers either as reference aerosol sources or/and as reference measurement method.



During the METAS campaign, a 1-day training workshop (25.04.2024) was organized at METAS for consortium members and stakeholders, focusing on the generation of reference carbonaceous aerosols with emphasis in the use of the OCU oxidation flow reactor.



## BC standardization requirements survey

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In the framework of the STANBC project, a survey was conducted among the stakeholders to identify the metrology needs for black carbon determination. The surveyed audience included governmental bodies, instrument manufacturers, and environmental agencies at different levels

### What challenges do you currently face in utilizing black carbon aerosol metrics for air quality and/or climate research purposes?



Lack of standardized measurements

Inconsistencies in data interpretation

Measurement uncertainties

Other

The lack of standardized measurements was indicated to be the most important challenge currently faced in utilizing black carbon aerosol metrics for air quality and/or climate research purposes.

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## Communication, Dissemination and Networking highlights

### European Aerosol Conference 2024

STANBC will participate at the [EAC 2024](#). The conference will take place in Tampere, Finland from 25.8 – 30.8.2024. The consortium members will present current progress of the project.

- ❑ The results from the intercomparison of traceable calibration procedures based on absorbing gas NO<sub>2</sub> and nigrosin particles will be presented. Aerosol absorption was measured using a photothermal interferometer PTAAM-2λ (Haze Instruments), a photoacoustic extinctionsmeter PAX (Droplet Measurement Technologies) and an extinction-minus-scattering (EMS) method consisting of a cavity attenuated phase shift extinction instrument (CAPS PMEX, Aerodyne Research) and a nephelometer (Aurora 4000, Acoem) nephelometer. Title: ***Comparison of calibration methods for in-situ aerosol absorption instruments***, by Drinovec L., et al.
- ❑ The results from the METAS lab-based calibration workshop for filter based absorption photometers will be presented. Title: ***Calibration of filter-based absorption photometers against two reference standards***, by Hammer T., et al.



### Participation in standardization committee meetings

Consortium members have participated in standardization committee meetings including the following:

- ISO TC24 SC4 Particle characterization, October 2023
- Slovenian Institute for Standardization (SIST/TC KAZ Ambient air quality), September 2023

## 22NRM02 STANBC

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