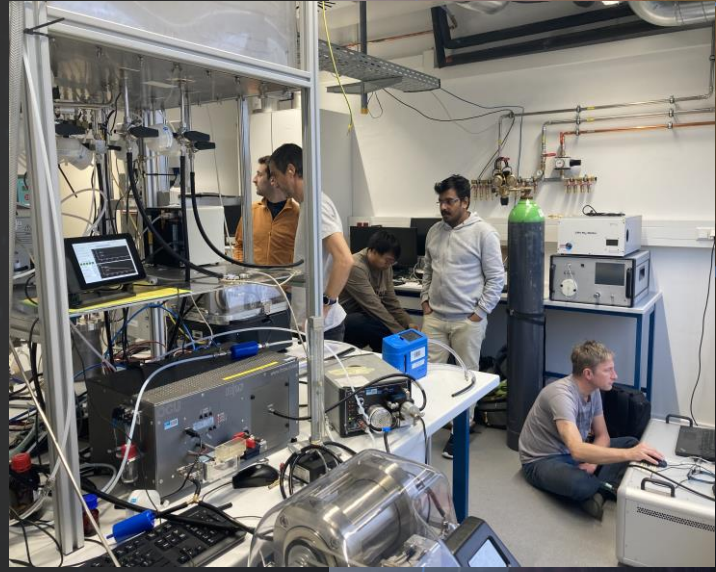


Project Overview



Black Carbon continues to receive considerable attention from the scientific community and policymakers. It has recently been incorporated into the revised EU Ambient Air Quality Directive (Directive (EU) 2024/2881) as an emerging pollutant requiring systematic monitoring, highlighting its increasing relevance for both climate and health assessments.

Across Europe, air quality monitoring networks measure black carbon using filter-based light-absorption photometers. However, these measurements are often associated with substantial uncertainties, making it difficult to compare results across different monitoring sites.

To address this challenge, the STANBC project brought together national metrology institutes and research organizations across Europe to develop a more reliable and harmonized framework for measuring aerosol light absorption and equivalent black carbon concentrations.



Project Final Meeting



The final group meeting of the STANBC project took place on 21–22 May 2026 and was hosted by the Physikalisch-Technische Bundesanstalt (PTB) in Germany.

Project partners met to review the overall progress of the project and coordinate the remaining activities before the project's completion. The meeting also gave consortium members the opportunity to present and discuss the scientific and technical results achieved throughout the project.

During the second day of the meeting, the Stakeholders' Committee was convened. Discussions focused on the future use of the project's results, the harmonisation of light absorption and black carbon measurements across Europe, and the project's contribution to standardisation activities within CEN/TC 264



Project's main achievements as reflected in the project's deliverables and publications

- Traceable calibration procedures for primary aerosol light absorption measurement techniques, including Extinction Minus Scattering (EMS) and Photo-Thermal Interferometry (PTI). These methods allow the quantification of aerosol absorption coefficients with uncertainties below 10%, and can be calibrated directly using absorbing gases or well-characterized aerosols.
- Traceability chain linking EMS and PTI reference methods with field instruments used for environmental black carbon (BC) measurements, such as photoacoustic spectrometers.
- Relationship between equivalent black carbon (eBC), refractory black carbon (rBC), and elemental carbon (EC) mass concentrations across an atmospherically relevant range of mass absorption cross-sections (MACs) and a broad range of aerosol types, including fresh and coated BC particles, under controlled laboratory conditions.
- Standard operating procedures (SOPs) for rBC particle mass measurements, for both laboratory experiments and ambient measurements.

Project's main achievements as reflected in the project's deliverables and publications

- Calibration procedures for filter-based light absorption photometers using the reference methods and well-defined synthetic aerosols spanning the complete Single Scattering Albedo (SSA) range (0.5 to almost 1.0).
- Wavelength-dependent mass absorption cross-sections (MAC) and calibration factors for filter-based light absorption photometers, derived from controlled laboratory experiments with well-characterized aerosols. Evaluation of MAC as a function of SSA, using soot particles with varying coating thicknesses.
- A New Work Item (NWI) proposal entitled "Methods for the Determination of Black Carbon Mass Concentration, Aerosol Light Absorption Coefficient, and Derived Optical Parameters in Ambient Air" was submitted to CEN/TC 264. The proposal was subsequently approved and assigned to CEN/TC 264/WG35.

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