

## **National Metrology Institute of South Africa (NMISA)**

**Tuesday 7 January 2025**

**Final and for immediate release**

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### **New Standards for Ozone Monitoring in South Africa**

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The National Metrology Institute of South Africa (NMISA) is preparing to adopt critical updates to the national measurement standard for measuring ozone in ambient air, ensuring South Africa's air quality monitoring networks remain aligned with international best practices.

These changes, driven by the global revision of the value of the absorption cross-section used for the measurement of ambient levels of ozone with ultra-violet (UV) photometry, promise to enhance the accuracy of ozone measurements, thereby advancing efforts to monitor and combat air pollution effectively. The Department of Forestry, Fisheries, and the Environment (DFFE) regulates ground-level ozone monitoring in South Africa, while NMISA ensures the metrological traceability of these measurements to international measurement standards. Adopting the new absorption cross-section value will improve the accuracy of ozone concentration monitoring data, and highlight more instances where ozone levels exceed target thresholds (thereby reinforcing the urgency for cleaner air initiatives).

The transition to the new ozone absorption cross-section value will occur in phases. Starting on 1 January 2025, real-time monitoring data for ambient levels of ozone will be flagged to indicate whether the Hearn 1961 or CCQM.O3.2019 constant has been used as the value for the absorption cross-section in the measuring equipment. By the end of 2025, all historical data will be adjusted to align with the new absorptions cross-section value. From 1 January 2026, all ozone measurements and published data will exclusively reflect the CCQM.O3.2019 absorption cross-section value, ensuring that South Africa's air quality monitoring capabilities remain internationally aligned.

#### **What is Changing and Why?**

The ability of ozone molecules to absorb light at a certain wavelength is the basis for measuring ozone levels using ultraviolet (UV) photometry techniques. For the first time since 1961, the ozone absorption cross-section value, a crucial constant used in the measurement equation for this process, has been updated.

The revised absorption cross-section value, CCQM.O3.2019, replaces the historical Hearn 1961 value. It reduces uncertainty by six times and reflects improvements in the trueness of measurement results.

The new absorption cross-section value is 1.23% lower than its predecessor, meaning reported ozone concentrations will increase by the same margin. This adjustment, effective globally from 1 January 2025, supports more accurate measurement results for ambient levels of ozone, directly benefiting air quality management efforts and public health initiatives.

### **NMISA's Role in the Transition**

The proposed changes in ozone measurement results are being implemented by national metrology institutes (NMIs) worldwide, ensuring harmonised and accurate measurement results at a global level. As South Africa's National Metrology Institute, NMISA is leading the implementation of this change by:

- ensuring measuring equipment for ambient level ozone in local monitoring networks are calibrated using the updated absorption cross-section value.
- providing technical guidance and resources to calibration laboratories and air quality monitoring networks.
- supporting stakeholders in transitioning to the revised measurement methodology for real-time data reporting and analysis.

NMISA's adoption of the updated ozone absorption cross-section value underscores its mandate to ensure measurement accuracy and traceability in South Africa. By advancing the country's air quality monitoring capabilities, NMISA aligns national practices with international measurement standards, providing more reliable data to inform policy decisions and interventions for cleaner air and a healthier environment. Leading the implementation of changes in ambient level ozone measurement highlights NMISA's crucial role in supporting regulatory frameworks and promoting global collaboration through accurate and reliable measurements.

### **For additional information or media inquiries, please contact:**

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### **NMISA:**

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## **THE NATIONAL METROLOGY INSTITUTE OF SOUTH AFRICA (NMISA)**

The National Metrology Institute of South Africa (NMISA) was established by Government under the Measurement Units and Measurement Standards Act to link South Africa to the International System of Units (SI). This link is crucial in providing the necessary quality assurance to South Africa's trading partners, regionally and internationally, and is essential in negating technical barriers to trade. As part of the South African quality infrastructure, NMISA keeps, develops, maintains, and disseminates the National Measurement Standards.

### **NMISA:**

- Underpins all accurate measurements for the country and the region contributing to the overall quality of life, trade, and regulatory environments.
- Provides the confidence that measurements made in South Africa are accurate, comparable, and internationally accepted.
- As part of South Africa's quality infrastructure, is key in the operation of domestic markets and global competitiveness by ensuring the integrity of measurements conducted at various stages of the value chains of different commodities and manufactured products for the local and export markets.
- Plays a leadership role in the development of accurate measurement and traceability on the African continent.
- Holds the Secretariat for both the Sub-Regional Metrology Programme (SADCMET) and the Intra-Africa Metrology System (AFRIMETS) and serves as part of the board of directors on the AOAC INTERNATIONAL (AOACI) which is dedicated to promoting and advancing knowledge and best practices in analytical sciences in Africa