Development of the TR 08 for collection and measurement of dustfall

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Test and measurement 2019
Misty Hills 2019
Presentation map

- Background
- Purpose of TR 08
- Current challenges
- Current scope
- Proposed scope
- SANS 1137 Changes
- Structure of TR 08
- Way forward and conclusion

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The look and feel of the document

SUPPLEMENTARY REQUIREMENTS FOR THE ACCREDITATION OF COLLECTION AND MEASUREMENT OF DUSTFALL (SETTLEABLE PARTICULATE MATTER)

1.1.9.7. Weather data requirements

a. Meteorological conditions are important in assessing the impacts of sources on surrounding areas, because they dictate the transport and dispersion of settleable particulate matter in ambient air. The specifications for meteorological parameters must suit the intended purpose for monitoring as outlined in the following documents:
   i. guide to Meteorological Instruments and Methods of observation 2008 edition,
   ii. ISO 16622:2002 Meteorology — Sonic anemometers/thermometers — Acceptance test methods for mean wind measurements,
   iii. ISO 17713-1:2007 Meteorology: Wind measurements,
   iv. ISO 4354:2012 Wind Action on structures,

b. The minimum meteorological parameters to be measured and reported at the same frequency as the settleable particulate matter are: wind speed, wind direction, temperature, relative humidity, rainfall, and snowfall readings.

Note: the facility shall demonstrate the proven technique followed for its decisions in consideration of meteorological data in relation to risk associated and uncertainty the data.

1.1.3. Normative References:

- National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004), as amended
- Interpretation Act, 1957 (Act 33 of 1957)
- ISO 16622:2002 Meteorology — Sonic anemometers/thermometers — Acceptance test methods for mean wind measurements,
- ISO 17713-1:2007 Meteorology: Wind measurements,
- ISO 4354:2012 Wind Action on structures,
- ILAC G8:2009 Guidelines on the reporting of compliance to specifications
- SANS 1137:2019 National modifications to ASTM D1739
- SANS 1929:2011 South African National Standard
- PM 01 SANAS Policy Manual
- A 01 References, Acronyms and Definitions
- R80 Proficiency Testing Requirements for testing laboratories
Background

• There are about four versions of the ASTM D 1739
• In 2013 NDCR were promulgated
• Access to the 1970 standard proved to be a challenge
• To address this, DEFF requested SABS to adopt ASTM D1739 to support implementation of the regs. Hence the final NDCR will refer to SANS 1137.
Background Cont..

- All deposition methods published have similar limitations.
- There is an assertion that this standard is inferior, that is not the case.
- Since the first generation of NDCR 2013, few studies have been conducted to assess comparability.
- The regulator concluded to use the latest ASTM which is 2017 version.
Background Cont..

• What informs “prescribed dust fall rates”
  • Health effects of the pollutants
  • Health effects from the inhalable fraction of dust
  • Nuisance effects
Purpose of the TR 08

- Prescribe additional technical requirements
- Provide clarity on text on the scope of accreditation
- Provide standardization for assessors
- Provide uniformity of monitoring
Current challenges

- Potential misinterpretation
- Incorrect referencing of the standard
- Inconsistences in scope of accreditation
- No standardized monitoring approach
- Custom assessor approach
- Inadequate site visit
## Current scope

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<thead>
<tr>
<th>Facility</th>
<th>Material or Product tested</th>
<th>Types of tests</th>
<th>Standard specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab 1</td>
<td>Dust fall</td>
<td>Collection off site and measurement of dust fall</td>
<td>Based on ASTM D 1739 :1970</td>
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<tr>
<td>Lab 2</td>
<td>Atmospheric dust fall</td>
<td>Dust fall out</td>
<td>ASTM D 1739</td>
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<tr>
<td>Lab 3</td>
<td>Atmospheric dust fall</td>
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<td>ASTM D 1739</td>
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<td>Lab 4</td>
<td>Dust fall</td>
<td>Mass</td>
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<td>Types of tests</td>
<td>Standard specification</td>
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<td><strong>TR 08</strong></td>
<td>Determination of; (a) water-soluble (b) Insoluble (c) Deposition rate</td>
<td>ASTM D 1739-98 (Re-approved 2017) – wet method</td>
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<tr>
<td>Collection and measurement of dustfall (settleable particulate matter)</td>
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<td>Gravimetric analysis excluding sampling</td>
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<tr>
<td><strong>SANS 1137</strong></td>
<td>Determination of; (a) water-soluble (b) Insoluble (c) Deposition rate</td>
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</table>

ISO 17011 S7.9.5(d)
Amendments to ASTM

TR 08
• See next page

SANS 1137
• Clause 7.2 full stop and proviso
• Clause 9.1.1.5 deleted
• Clause 9.1.2 replaced
• Clause 9.2 addition - algaecide
Structure of the TR 08

- Introduction
- Exclusion
- Monitoring objectives
- Monitoring Plan
- Sampling
  - Design and siting
  - Analytical equipment
- Periodic monitoring
- Sample collection

- Weather data requirements
- Data management protocols
- Internal audit
- Inter-Laboratory comparison
Structure of the TR 08

Exclusion
- Horizontal flux

Monitoring objectives
- compliance

Sampling
- Wind shield
- Dimension of the bucket 300mm to 450mm.

Weather data considerations
- Positioning and spatial distribution
- Obstructions, roughness
- Terrain, surface cover, etc
  - ISO 16622, 17713, 4354.
Structure of the TR 08

Internal audit
• All sampling site shall be audited by an impartial, objective competent provider against the requirements of TR08

Inter-Laboratory comparison
• Height verification
• Dust deposition rate
• Gravimetric
• Blank and spiked filters
Way forward

- Publication of the TR 08 with associated forms
- Promulgation of the NDCR in November 2019
- Publication of the SANS 1137 August 2019
Conclusion

• Alignment in approach for all assessors
• Standardised monitoring approach from CABS
• Better understanding of the requirements
• Correct referencing for the standards
• Easy for authorities / stakeholders to understand
• Reduced risk on accreditation
Acknowledgement
-STC members at SANAS
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