Main Topics

Aerosols & Particles

- environmental relevance
- occupational safety
- particle synthesis

Air Quality & Gas Treatment

- filtration and sorption
- process development
- CFD simulations

Circular Economy & Water Technology

- mechanical & thermal processes
- reactive & oxidative processes
- process development

Analysis & Measurement Techniques

- trace analysis
- development of instruments
- process digitalisation

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Indoor Air Cleaners

Tests According to GB/T 18801 and IEC 63086

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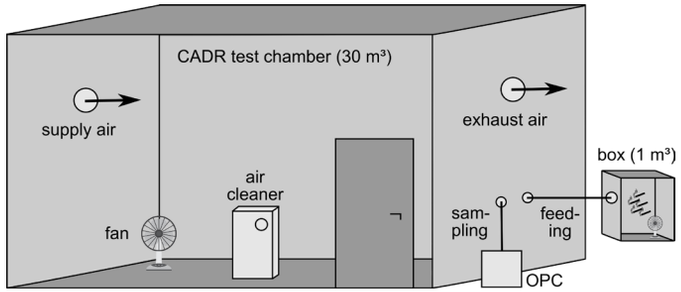
Indoor Air Cleaners - Test According to GB/T 18801-2022 and ICE 63086-2-1

Chamber for CADR Tests



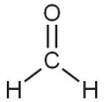
Test chamber in accordance with GB/T 18801-2022

- Clean Air Delivery Rate (CADR) for
  - particles (cigarette smoke)*
  - gases (e. g. formaldehyde)
- Filter aging with particles and/or gases
- Cumulative clean mass (CCM) for particles and/or gases

3 m³ chamber for aging with cigarette smoke

Technical Specifications

Particles



Formaldehyde

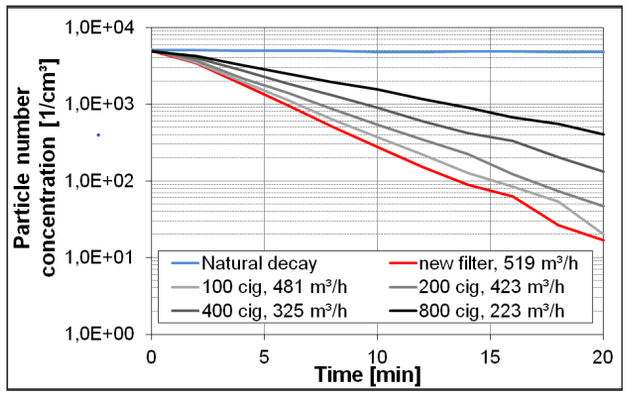
- Testing standards: GB/T 18801-2022*
  DIN EN IEC 63086-2-1
- House methods: Size-dependent CADR
- Test chamber: 30 m³ (measurement)
  3 m³ (aging)
- Relative humidity: (50 ± 10)% rh
- Temperature: (23 ± 2)°C
- Particulate pollutants: cigarette smoke and others (salt, oil, dust, pollen)
- Gaseous pollutants: formaldehyde or other gases on request
- Results: CADR value [m³/h]
  CCM [mg]
- Equipment: optical particle counter, formaldehyde monitor, other on request

Tests according to GB/T18801-2015 Appendix B, Appendix C and Appedix D are accredited according to DIN EN ISO/IEC 17025:2018. The accreditation is only valid for the scope specified in the annex of accreditation certificate no. D-PL-19759-01-03 by the Deutsche Akkreditierungsstelle GmbH (DAkkS) from 30.11.2022 (accreditation for GB/T18801-2022 has been approved, certificate pending).

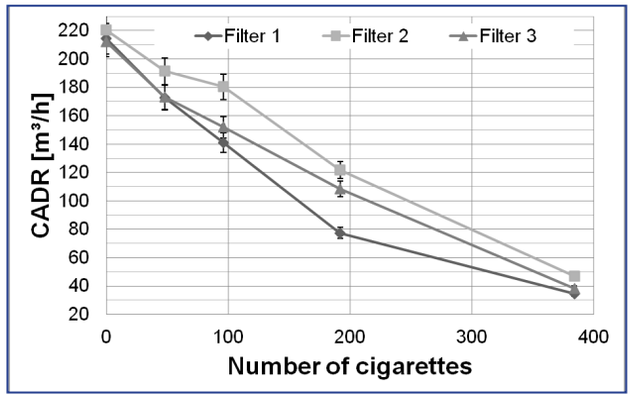
Exemplary Results

$$C(t) = C_0 \; x \; e^{-kt}$$

$$CADR = (k_{IAC} - k_{natural}) \; x \; V_{chamber}$$



Concentration decay (particles) with new and aged filters



Effect of filter aging with cigarettes (in steps of 50)