

# DIN 71460-2:2020-10 (E)

## Road vehicles - Air filters for passenger compartments - Part 2: Test for gaseous filtration

---

<b>Contents</b>	<b>Page</b>
Foreword .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions.....	5
4 Limits of error .....	8
4.1 General rule .....	8
4.2 Volume flow measurement .....	8
4.3 Differential pressure measurement.....	8
4.4 Temperature measurement .....	8
4.5 Relative humidity measurement.....	8
4.6 Limits of error for the specified test gases.....	8
5 General conditions.....	8
5.1 Conditioning of the air .....	8
5.2 Purity of the air used.....	8
5.3 Stability of the gas concentration.....	9
6 Test substances.....	9
6.1 Basic test substances.....	9
6.2 Optional test substances.....	9
6.3 Other test substances.....	10
7 Test apparatus .....	10
7.1 General set-up .....	10
7.2 Test stand performance .....	10
7.3 Air supply.....	10
7.4 Test set-up .....	10
7.5 Generation and feeding of the test substances .....	10
7.6 Sampling and analysis .....	11
7.7 Test stand components .....	11
7.7.1 Volume flow sensors .....	11
7.7.2 Differential pressure sensors.....	11
7.7.3 Temperature sensors.....	11
7.7.4 Sensors for determining relative humidity .....	11
7.7.5 Data recording .....	11
7.7.6 Gas analysers (cf. 4.5) .....	11
8 Experimental determination of the zero time point ( $t_0$ ) and the lag time ( $t_{lag}$ ) .....	12
9 Preparation of a filter or a filter element for the test.....	12
10 Measurement.....	13
10.1 Purpose.....	13
10.2 Measurement of the pressure drop.....	13
10.3 Preparation of the test gas .....	13
10.4 Determining the efficiency or the breakthrough.....	13
10.4.1 General approach.....	13

10.4.2	Determining efficiency .....	13
10.4.3	Measuring efficiency .....	13
10.5	Determining capacity .....	14
10.6	Data recording and analysis .....	14
10.7	Determining desorption (optional).....	14
11	System check.....	14
11.1	Uniformity of the volume flow .....	14
11.2	Test of the stability of the concentration of the test substances without test filter .....	14
12	Documentation.....	15
12.1	General data.....	15
12.2	Test results.....	15
Annex A (normative)	Recommended test stand set-up.....	17
Annex B (informative)	Precise definition and determination of the zero time point ( $t_0$ ) and the lag time ( $t_{lag}$ ).....	18
Annex C (informative)	Determining capacity .....	21
Annex D (informative)	Conversion equation for possible test substances and typical concentrations used .....	22

## Figures

Figure 1	— Positions for measuring the test substance concentration.....	15
Figure A.1	— Recommended test stand set-up.....	17
Figure B.1	— Determining $t_0$ and $t_{lag}$ .....	19
Figure C.1	— Determining capacity.....	21

## Tables

Table 1	— Test substances.....	9
Table 2	— Optional test substances.....	9
Table D.1	— Typical test substances and concentrations at $T_C = 23\text{ °C}$ with $p = 1\,013\text{ hPa}$ .....	22