

DIN EN 13823:2010-12 (E)

Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item

Contents		Page
Foreword		4
Introduction		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	Test facility	7
4.1	General	7
4.2	Test room	7
4.3	Materials	10
4.4	Test apparatus	10
4.5	Smoke exhaust system	12
4.6	General measurement section equipment	12
4.7	Other general equipment	13
5	Test specimen	14
5.1	Dimensions of specimen	14
5.2	Mounting of specimen	14
5.2.1	Mounting as in end use application	14
5.2.2	Standard mounting	14
5.3	Installation of the specimen wings in the trolley	16
5.4	Number of specimens	17
6	Conditioning	17
7	Principle	17
8	Test procedure	18
8.1	General	18
8.2	Testing operations	18
8.3	Visual observation and manual recording of data	19
8.3.1	General	19
8.3.2	Pre-test conditions	19
8.3.3	Lateral flame spread on the long wing	19
8.3.4	Flaming particles or droplets	19
8.3.5	End of test conditions	21
8.3.6	Recorded events	21
8.4	Automated recording of data	21
8.5	Early termination of test	22
9	Expression of results	22
10	Test report	22
Annex A (normative) Calculation procedures		24
A.1	General	24

A.1.1	General remarks	24
A.1.2	Calculations to be performed on the test data	25
A.1.3	Calculations to be performed on calibration data	25
A.1.4	Standard data set	25
A.2	Synchronization of data	25
A.3	Checking equipment response	27
A.3.1	Temperature readings	27
A.3.2	Drift in gas concentration measurement	27
A.3.3	Drift in light attenuation measurement	27
A.4	Exposure period	28
A.5	Heat output	28
A.5.1	Calculation of heat release rate (HRR)	28
A.5.2	Calculation of THR(t) and THR600s	31
A.5.3	Calculation of FIGRA0,2MJ and FIGRA0,4MJ (fire growth rate indices)	32
A.6	Smoke production	33
A.6.1	Calculation of smoke production rate (SPR)	33
A.6.2	Calculation of TSP(t) and TSP600s	36
A.6.3	Calculation of SMOGRA (smoke growth rate index)	36
A.7	Calculations for calibrations - Propane heat release	37
Annex B (informative) Precision of test method		38
B.1	General remarks and results	38
B.2	Calculation of test results	39
B.3	Statistical analysis	39
B.4	Statistical results	39
Annex C (normative) Calibration procedures		43
C.1	Procedures for separate pieces of equipment	43
C.1.1	General	43
C.1.2	Oxygen analyser adjustment	43
C.1.3	Oxygen analyser output noise and drift	43
C.1.4	Carbon dioxide analyser adjustment	44
C.1.5	Check of propane mass flow controller	44
C.1.6	Light system calibration	44
C.2	System response calibrations	45
C.2.1	Burner switch response time	45
C.2.2	Burner heat output step calibration	47
C.2.3	Heptane calibration	50
C.2.4	Velocity profile factor kt,v	52
C.2.5	Flow factor kt	54
Annex D (informative) Calibration procedures		55
D.1	Procedures for separate pieces of equipment	55
D.1.1	General	55
D.1.2	Oxygen analyser adjustment	55
D.1.3	Carbon dioxide analyser adjustment	55
D.1.4	Check of propane mass flow controller	55
D.1.5	Optical filter check	56
D.2	Check of the thermal attack on the specimens	57
D.2.1	General	57
D.2.2	Procedure	57
Annex E (normative) Design drawings		58
Annex F (informative) Data file format		93
Annex G (informative) Record sheet		96
Bibliography		97