

ISO 14696:2009-05 (E)

Reaction-to-fire tests - Determination of fire and thermal parameters of materials, products and assemblies using an intermediate-scale calorimeter (ICAL)

Contents		Page
Foreword		v
1	Scope	1
2	Normative references	1
3	Terms, definitions, symbols and units	2
3.1	Terms and definitions	2
3.2	Symbols and units	3
4	Principle	5
5	Apparatus	5
5.1	General	5
5.2	Radiant panel	5
5.3	Radiant panel constant irradiance controller	6
5.4	Specimen holder assembly components	7
5.5	Other major components	7
6	Significance and use	10
7	Test specimens	11
7.1	Size and preparation	11
7.2	Conditioning	11
8	Calibration of apparatus	11
8.1	General	11
8.2	Heat flux uniformity	11
8.3	Heat flux/distance relationship	11
8.4	Heat release	12
8.5	Mass loss	13
8.6	Smoke obscuration	13
8.7	Gas analysis	13
8.8	Heat flux meter	13
9	Test methods	14
9.1	Preparation	14
9.2	Procedure	14
10	Calculations	15
11	Test report	15
11.1	Descriptive information	15
11.2	Table of numerical results	16
11.3	Graphical results	16
11.4	Descriptive results	16
12	Test limitations	17
13	Hazards	17
14	Precision and bias	17
Annex A (normative)	Design of exhaust system	40

Annex B (normative) Instrumentation in exhaust duct	41
Annex C (informative) Considerations for heat release measurements	44
Annex D (normative) Measurement equations	48
Annex E (informative) Commentary	51
Annex F (informative) Measurement and determination of other parameters and values needed in computer fire models	53
Annex G (informative) Determination of the precision and bias of the test method	56
Bibliography	58