

DIN ISO 13506:2008-12 (E)

Protective clothing against heat and flame - Test method for complete garments - Prediction of burn injury using an instrumented manikin (ISO 13506:2008)

Contents	Page
National foreword	3
National Annex NA (informative) Bibliography	4
Introduction	5
1 Scope	7
2 Normative references	8
3 Terms and definitions	8
4 General	10
5 Apparatus	10
5.1 Instrumented manikin	10
5.2 Heat flux sensors	12
5.2.1 Principle	12
5.2.2 Number of heat flux sensors	13
5.2.3 Heat flux sensor-measuring capacity	13
5.2.4 Heat flux sensor construction	13
5.2.5 Heat flux sensor calibration	13
5.3 Data acquisition system	13
5.4 Computer software program	14
5.4.1 General	14
5.4.2 Incident heat flux calculation	14
5.4.3 Predicted burn injury calculations	14
5.4.4 Calculation of predicted area of burn injury	14
5.4.5 Additional computer software features	14
5.5 Flame exposure chamber	14
5.5.1 General	14
5.5.2 Chamber size	15
5.5.3 Chamber air flow	15
5.5.4 Chamber isolation	15
5.5.5 Chamber air exhaust system	15
5.5.6 Chamber safety devices	15
5.6 Fuel and delivery system	15
5.6.1 General	15
5.6.2 Fuel	15
5.6.3 Delivery system	15
5.6.4 Burner system	16
5.7 Image recording equipment	17
5.8 Safety checklist	17
5.9 Specimen conditioning area	17
6 Sampling and test specimens	17
6.1 General	17
6.1.1 Type of test specimen	17
6.1.2 Garment/ensemble material evaluation/comparison	17
6.1.3 Garment/ensemble design evaluation/comparison	17
6.1.4 Garment/ensemble specification evaluation	18

6.2	Number of test specimens	18
6.3	Standard garment design	18
7	Specimen preparation	18
7.1	Pretreatment	18
7.2	Conditioning	19
8	Procedure	19
8.1	Preparation of test apparatus	19
8.1.1	General	19
8.1.2	Flame exposure chamber purging	19
8.1.3	Gas line charging	19
8.1.4	Confirmation of exposure conditions	19
8.2	Specimen testing	19
8.2.1	General	19
8.2.2	Dressing the manikin	19
8.2.3	Recording the specimen identification, test conditions and test observations	20
8.2.4	Confirmation of safe operation conditions and lighting of pilot flames	20
8.2.5	Starting the image recording system	20
8.2.6	Exposure of the test specimen	20
8.2.7	Acquisition of the heat transfer data	20
8.2.8	Recording of specimen response remarks	21
8.2.9	Initiation of heat transfer and burn injury calculation	21
8.3	Preparation for the next test exposure	21
9	Test report	21
9.1	General	21
9.2	Type of test	21
9.3	Specimen identification	21
9.4	Exposure conditions	21
9.5	Calculated results	22
9.5.1	General	22
9.5.2	Predicted total area (%) of manikin injured based on the total area of the manikin containing heat flux sensors	22
9.5.3	Predicted total area (%) of manikin injured based on area of manikin covered by the test specimen	22
9.5.4	Other information that may be reported	22
9.6	Observations	22
	Annex A (informative) Considerations for conducting tests and using test results	23
	Annex B (informative) Inter-laboratory test data	24
	Annex C (informative) Estimation of skin burns	25
	Annex D (normative) Calibration procedure	27
	Annex E (informative) Elements of a computer software program	30