

DIN EN ISO 13506-2:2024-12 (E)

Protective clothing against heat and flame - Part 2: Skin burn injury prediction - Calculation requirements and test cases (ISO 13506-2:2024)

Contents		Page
European foreword	3
Foreword	4
Introduction	5
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	General	8
5	Apparatus, specimen preparation and test procedure	8
6	Predicted skin burn injury calculation	9
6.1	Skin model.....	9
6.1.1	General.....	9
6.1.2	Manikin sensor heat flux values as function of time.....	9
6.1.3	Determination of the predicted skin and subcutaneous tissue (adipose) internal temperature field.....	9
6.1.4	Initial and boundary conditions.....	11
6.1.5	Determination of the Ω value for the prediction of skin burn injury.....	12
6.1.6	Time to pain.....	12
7	Skin burn injury calculation test cases and in situ calibration	13
7.1	Test cases and in situ validation.....	13
7.2	Skin layer temperature prediction test cases.....	13
7.2.1	General.....	13
7.2.2	Case one.....	13
7.2.3	Case two.....	13
7.2.4	Accuracy requirement.....	14
7.3	Skin burn injury calculation test cases.....	14
7.4	In situ validation of burn injury prediction.....	15
8	Test report	16
8.1	General.....	16
8.2	Skin model.....	16
8.3	Calculated results.....	16
8.3.1	General.....	16
8.3.2	Predicted area (%) of manikin injured based on the total area of the manikin containing heat flux sensors.....	17
8.3.3	Predicted area (%) of manikin injured based only on the area of manikin covered by the test specimen.....	17
8.3.4	Other information.....	17
Annex A (normative)	Skin model with temperature-dependent thermal conductivity, $k(x,T)$	18
Annex B (informative)	Interlaboratory test data analysis	20
Bibliography	22