Thermo-Man®
Thermal Protection Evaluation System

Tested in accordance to ISO 13506-1:2017 and evaluated according to ISO 13506-2:2017 by using skin model A

General

System identification	Meyrin
Operator	Hilal, Said
Customer	S-Gard Schutzkleidung, Hubert Schmitz GmbH
Requesting Person	
Manikin Serial	Meyrin 201902
Reference Heat Flux	83.78 kW/m²

Specimen Exposure

File Number	E_20240506_6855
Date and Time	5/6/2024 1:26:53 PM
Exposure Time	8 s
Acquisition time	120 s
Sample rate	10 Hz
Pretrigger	1 scans
Exposure Type	FireFighters
Objective	
Other details	

Environmental Conditions

Pressure	
Exterior temperature	
Humidity	
Wind speed	
Wind direction	

Garment Details

Garment type	Turn-Out Gear	Conditioning type	no
Material	Nomex® Advanced	Condtioning time	0
Nominal weight	200.0 g/m²	Undergarments	None
Size	52		
Number of layers	3		
Number of lauderings	0		
Manufacturer	S-Gard Schutzkleidung, Hubert Schmitz GmbH		
Source	S-Gard Schutzkleidung, Hubert Schmitz GmbH		
Description	Turn-Out Gear,Jacket and Pants made of 56% Nomex®/ 43% Kevlar® / 1%Antistatic, with membrane Gore -Tex Crosstech®Paralllon System 300 g/m² Hybrid .		

Predicted area % of body burns (with unprotected areas)

Total Burn Injury	7%
2nd Degree Burn Injury	1.64%
3rd Degree Burn Injury	5.74%

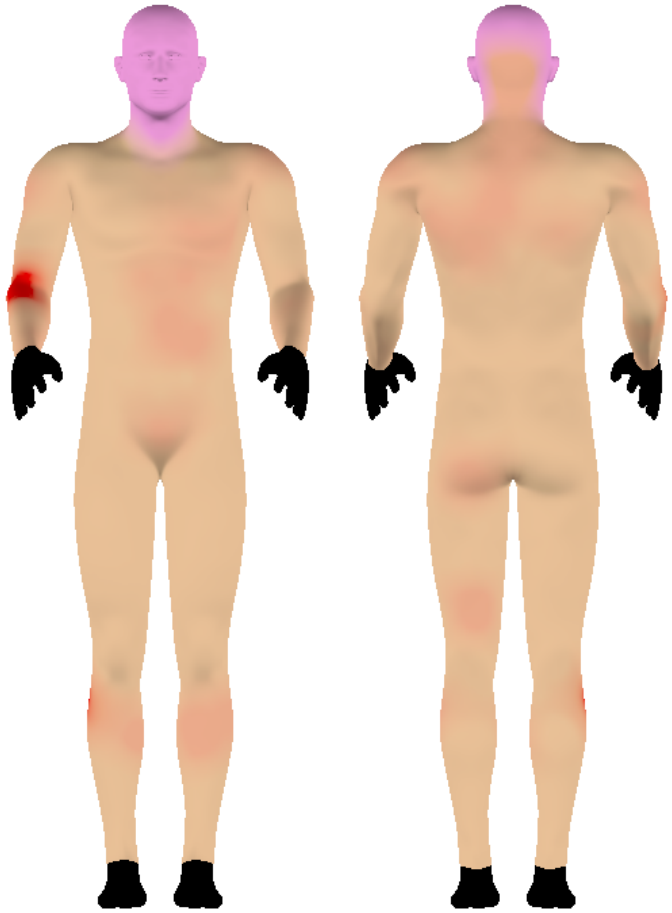
Observations

Afterflame	60.50 s	Breakopen	No
Smoke generation	heavy	Char Characteristics	brittle
Melting Dripping Garments		Undergarment Condition	N/A
Odor	medium	Deposits on Manikin	light
Unusual Behavior			
Comments			

Distance	from floor to left leg cuff	from floor to right leg cuff
Before		
After		
Difference		

Predicted Burn Injury

8 Second Exposure



3rd Degree Burn Injury

0.00% Protected

5.74% Unprotected

2nd Degree Burn Injury

1.64% Protected

0.00% Unprotected

Total Burn Injury 7%

(1.64% protected + 5.74% unprotected)

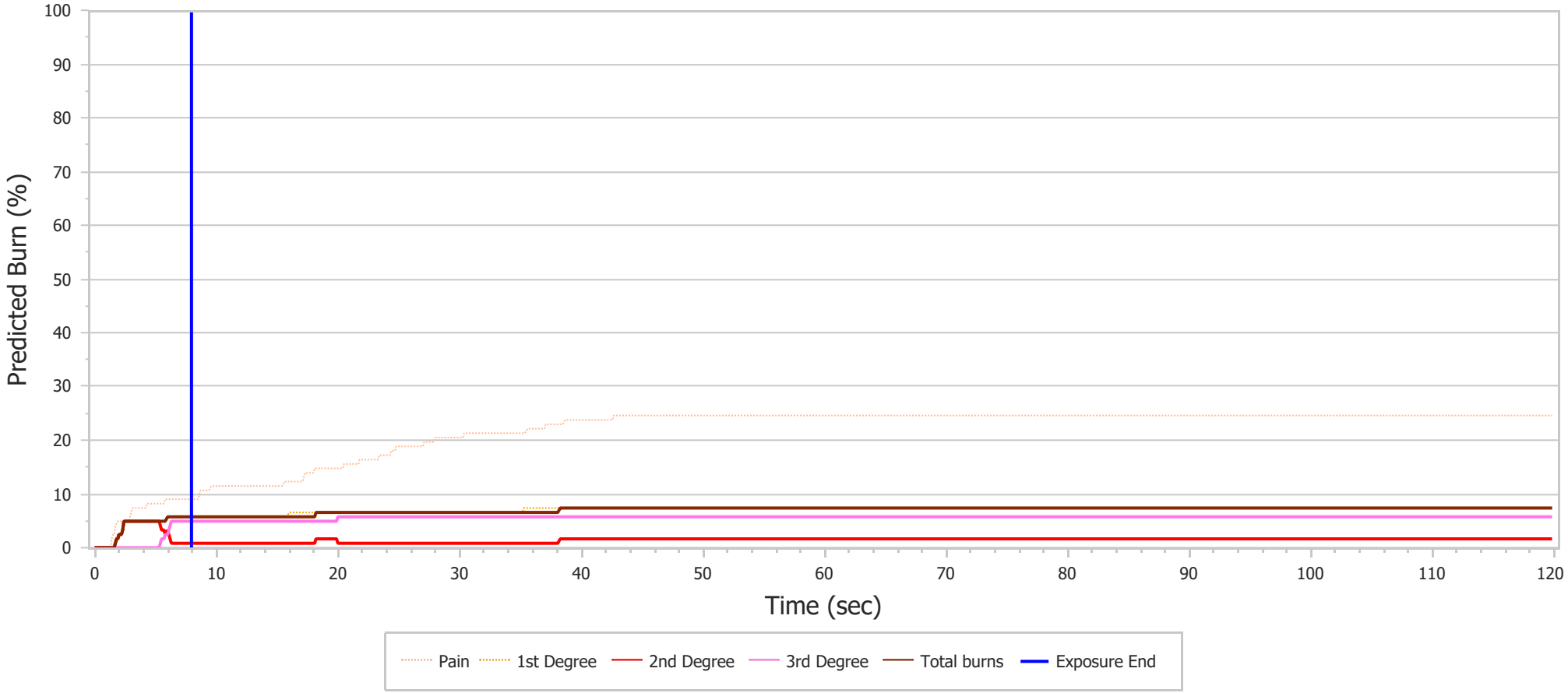
Pain

No Burn Injury

No Information

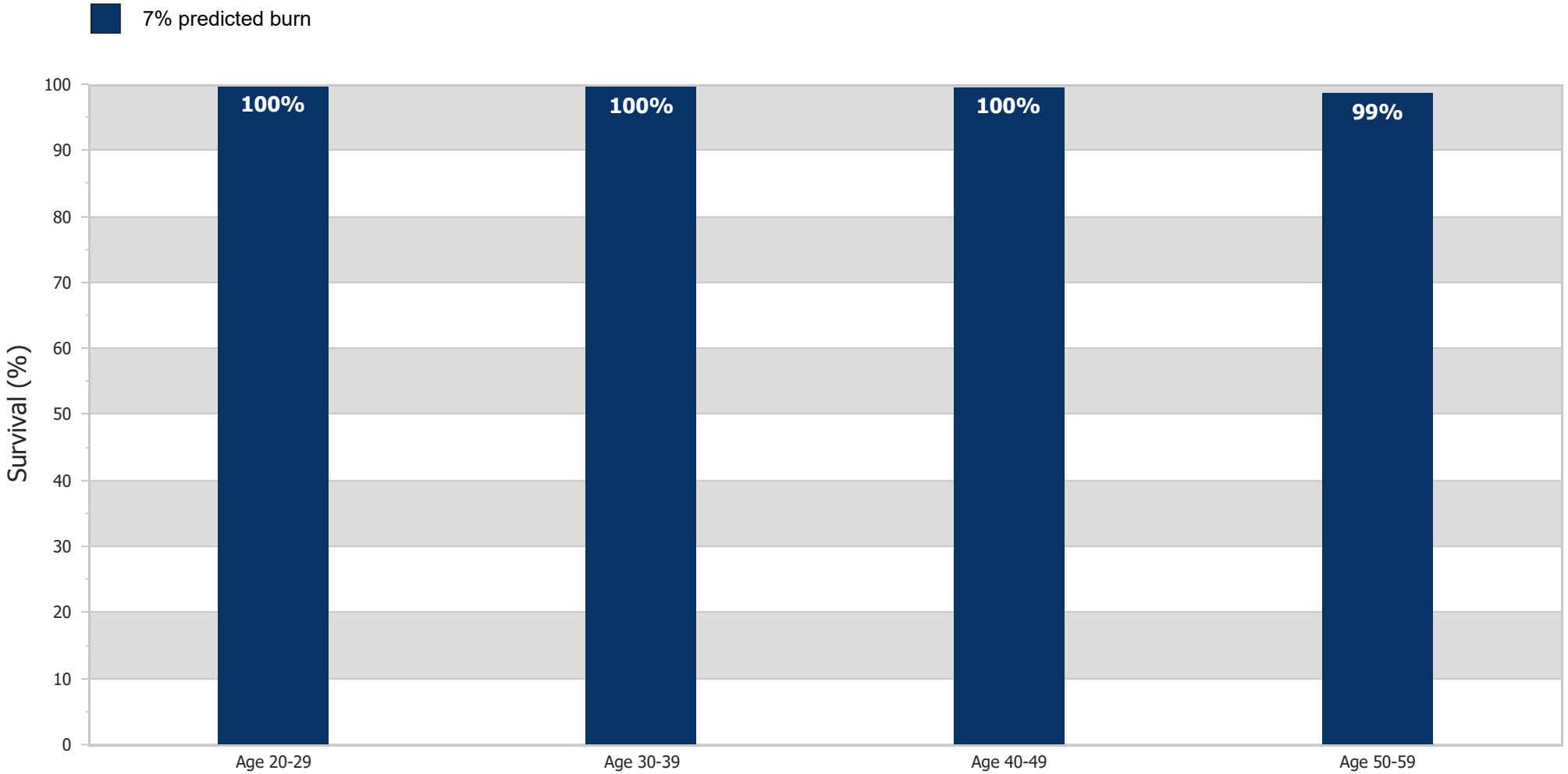
Predicted Burn Injury vs. Time

8 Second Exposure



Predicted Burn Injury Survival Test Data

Derived from American Burn Association, National Burn Repository® 2011. Version 7.0



Skin Burn Injury Summary

8 Second Exposure

Total Predicted Burn Injury 7%

Sensor	Name	Time to pain	Time to 1st Degree Burn	Time to 2nd Degree Burn	Time to 3rd Degree Burn	Protected
Back						
92	Back, left side					Yes
96	Back, lower neck	38.7 s				Yes
97	Back, left shoulder					Yes
98	Back, left shoulder blade	18.1 s				Yes
99	Back, right shoulder blade					Yes
100	Back, right shoulder					Yes
101	Back, upper left	30.4 s				Yes
102	Back, upper left	37.1 s				Yes
103	Back, middle					Yes
105	Back, upper right					Yes
107	Back, upper right	35.6 s				Yes
108	Back, mid-left					Yes
109	Back, mid-right					Yes
110	Back, left waist					Yes
111	Back, right waist					Yes
112	Back, left buttock, upper					Yes
113	Back, mid-lower					Yes
114	Back, right buttock, upper					Yes
115	Back, left hip, outer					Yes
116	Back, left buttock, lower					Yes
117	Back, right buttock, lower					Yes
118	Back, right hip, outer					Yes
Chest & Abdomen						
61	Front, chest, upper right					Yes
62	Front, chest, upper left					Yes
63	Front, chest, upper right					Yes
64	Front, chest, upper left	9.6 s				Yes
65	Front, solerplexis, right	3.0 s				Yes
66	Front, solerplexis, left	3.1 s				Yes
67	Front, solerplexis, right					Yes
68	Front, solerplexis, middle	2.9 s				Yes
69	Front, solerplexis, left	8.6 s				Yes
70	Front, stomach, right					Yes
71	Front, stomach, left					Yes
72	Front, lower middle					Yes
73	Front, shoulder, right top					Yes
74	Front, collar bone, right					Yes
75	Front, chest, right outer					Yes
76	Front, right side, mid chest					Yes
77	Front, waist, right outer					Yes
78	Front, right hip, upper					Yes
79	Front, right pelvis, front					Yes

Sensor	Name	Time to pain	Time to 1st Degree Burn	Time to 2nd Degree Burn	Time to 3rd Degree Burn	Protected
80	Front, right mid-hip, outer					Yes
84	Front, pelvis	27.1 s				Yes
88	Front, left upper hip, outer					Yes
89	Front, left pelvis					Yes
90	Front, left waist, outer					Yes
91	Front, left waist, outer					Yes
93	Front, left chest outer					Yes
94	Front, left collar bone					Yes
95	Front, left shoulder, top					Yes
Head						
11	Head, right eye	1.5 s	1.9 s	2.0 s	5.8 s	No
12	Head, left eye	1.7 s	2.3 s	2.4 s	6.3 s	No
13	Head, left ear	1.7 s	2.3 s	2.3 s	6.1 s	No
14	Head, right lower jaw	1.4 s	1.6 s	1.7 s	5.4 s	No
25	Head, mouth	1.4 s	1.7 s	1.8 s	5.5 s	No
26	Head, chin	4.3 s	5.9 s	6.0 s	20.0 s	No
27	Head, rear neck	5.8 s				No
28	Head, rear upper	1.9 s	2.4 s	2.4 s	6.2 s	No
Left Arm						
1	Arm, left, outer shoulder	24.8 s				Yes
2	Arm, left, upper front					Yes
3	Arm, left, upper rear					Yes
4	Arm, left, mid-upper outer					Yes
5	Arm, left, mid-inner					Yes
6	Arm, left, elbow					Yes
7	Arm, left, lower inner					Yes
8	Arm, left, mid-lower front					Yes
9	Arm, left, mid-lower front	20.5 s				Yes
10	Arm, left, rear wrist					Yes
Left Leg						
29	Leg, left, inside upper					Yes
30	Leg, left, upper front					Yes
31	Leg, left, upper outer					Yes
32	Leg, left, upper rear	28.0 s				Yes
33	Leg, left, mid-upper inner					Yes
34	Leg, left, front knee					Yes
35	Leg, left, mid-upper outer					Yes
36	Leg, left, rear knee					Yes
37	Leg, left, mid-upper inner					Yes
38	Leg, left, calf inner					Yes
39	Leg, left, calf outer					Yes
40	Leg, left, calf outer	15.6 s				Yes
41	Leg, left, rear inner	17.3 s				Yes
42	Leg, left, lower-front inner					Yes
43	Leg, left, lower-front outer					Yes
44	Leg, left, bottom rear					Yes
85	Leg, left, front mid-thigh					Yes

Sensor	Name	Time to pain	Time to 1st Degree Burn	Time to 2nd Degree Burn	Time to 3rd Degree Burn	Protected
86	Leg, left, front hip					Yes
87	Leg, left, mid-thigh outer					Yes
119	Leg, left, rear thigh	21.8 s				Yes
121	Leg, left, lower outer thigh					Yes
122	Leg, left, upper inner thigh					Yes
Right Arm						
15	Arm, right, outer shoulder					Yes
16	Arm, right, upper outer	23.4 s				Yes
17	Arm, right, upper rear					Yes
18	Arm, right, mid-outer					Yes
19	Arm, right, mid-inner					Yes
20	Arm, right, rear elbow					Yes
21	Arm, right, outer	17.2 s	35.3 s	38.3 s		Yes
22	Arm, right, lower inner					Yes
23	Arm, right, lower rear					Yes
24	Arm, right, lower front	42.7 s				Yes
Right Leg						
45	Leg, right, upper rear-inner					Yes
46	Leg, right, upper front					Yes
47	Leg, right, upper outer					Yes
48	Leg, right, upper rear-inner					Yes
49	Leg, right, upper front-inner					Yes
50	Leg, right, front knee					Yes
51	Leg, right, outer knee					Yes
52	Leg, right, rear knee					Yes
53	Leg, right, inner knee					Yes
54	Leg, right, inner knee	24.4 s				Yes
55	Leg, right, mid outer					Yes
56	Leg, right, rear outer calf	8.7 s	16.0 s	18.2 s		Yes
57	Leg, right, rear inner calf					Yes
58	Leg, right, front inner calf					Yes
59	Leg, right, lower front					Yes
60	Leg, right, bottom rear					Yes
81	Leg, right, thigh upper outer					Yes
82	Leg, right, thigh upper front					Yes
83	Leg, right, thigh upper inner					Yes
120	Leg, right, rear thigh					Yes
123	Leg, right, upper inner thigh					Yes
124	Leg, right, lower outer thigh					Yes

Pictures

Disclaimer

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