



TEST REPORT NO.: 20465-004

Test performed by:

Sign

**Testing of sleeping bags
according to EN 13537**

Test Summary

TEST REFERENCES

Test object: Bask, Model: Mustang-780 FP-M art. #2021a
Test Reference No.: 20465-004
Date of report: 2005-04-26

THERMAL INSULATION (m²K/W)	
Complete bag R _c 1.259	Local insulation Front torso: 2.463 Back torso: 1.334 Feet: 0.586
R _{c,eff} 0.710	

TEMPERATURE LIMITS (°C)				
	T _{comfort} ¹⁾	T _{limit} ²⁾	T _{extreme} ³⁾	T _{maximum} ⁴⁾
Comfort front: -45.1	-7.0	-14.1	-34.1	12.5
Comfort back: -9.4				
Comfort feet: 14.3				

- 1) Lower limit of the comfort range down to which a sleeping bag user with a relaxed posture such as lying on the back is globally in equilibrium and just not feeling cold (related to standard woman and in standard condition of use)
- 2) Lower limit of which a sleeping bag user with a rolled-up body posture is globally in thermal equilibrium and just not feeling cold (related to standard man and in standard conditions of use)
- 3) Lower extreme temperature where the risk of health damage by hypothermia occurs (related to standard woman and in standard conditions of use)
- 4) Upper limit of comfort range; the temperature up to which a partially uncovered sleeping bag user (standard man) just does not perspire too much



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Thermal Insulation measured by Manikin

Technical set-up and measurements

TEST REFERENCES	
Test object:	Bask, Model: Mustang-780 FP-M art. #2021a
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Date of test:	2005-04-26
Size - test object:	220x190 cm <i>(size as stated by manufacturer)</i>
Weight - test object:	1.57 kg <i>(weight of test object only - measured by Thelma)</i>
Weight of down:	900 g <i>(as stated by manufacturer)</i>
Down fill power	780 max <i>(as stated by manufacturer)</i>

Measuring conditions	
Ambient conditions	The thermal manikin
Ambient temperature: -20.1 °C	Manikin: "LOUISE" (20 segments)
Radiant temperature: -20.1 °C	Size - Surface 1.48 m ²
Relative humidity: 42 %	"Skin" temperature: 34 °C
Wind speed: 0.35 m/s	Manekin position: Lying on its back - arms alongside
Insulation mattress: Mil. type, 12 mm (grey/white)	Manekin clothing: Two piece tracksuit and knee long socks
	Calculation method: Serial

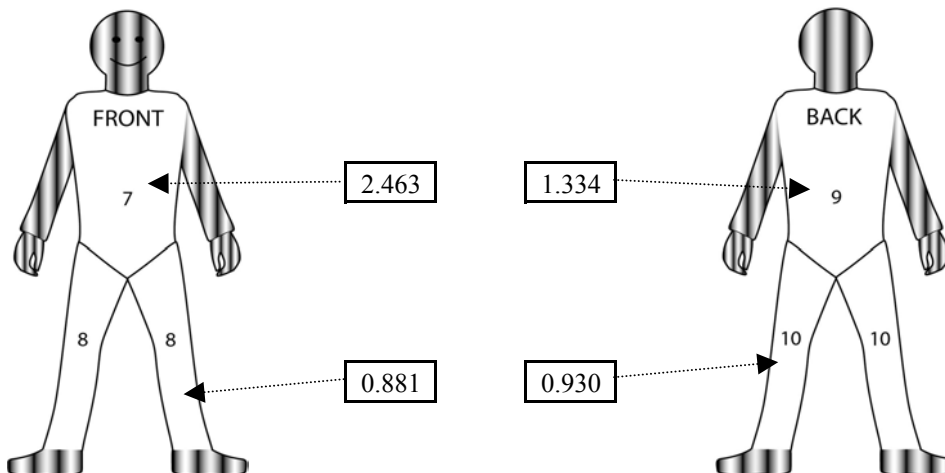
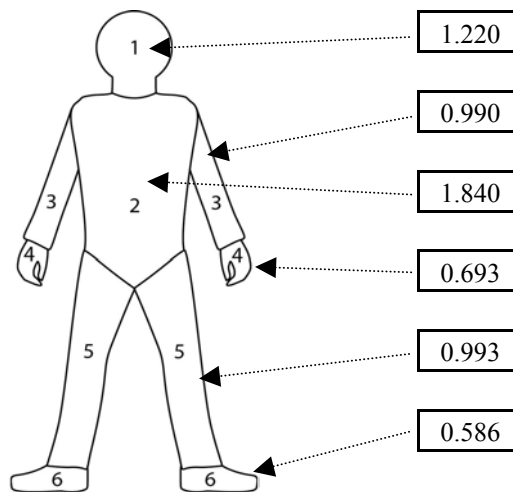
Measurements (results)					
No. of measurements:	3				
	<u>Average</u>	<u>Test1</u>	<u>Test2</u>	<u>Test3</u>	
Total insulation (R _c):	1.259	1.256	1.257	1.266	m ² K/W
Local insulation					
- torso front:	2.463	2.372	2.522	2.500	m ² K/W
- torso back:	1.334	1.402	1.301	1.308	m ² K/W
- feet:	0.586	0.580	0.598	0.582	m ² K/W

Informative Appendix

Thermal insulation (in m^2K/W) for different body parts

Test object: Bask, Model: Mustang-780 FP-M art. #2021a
 Test Reference no 20465-004
 Date of test: 2005-04-26

- 1 Head
- 2 Torso
- 3 Arms
- 4 Hands
- 5 Legs (thigh + calf)
- 6 Feet
- 7 Front torso
- 8 Front legs
- 9 Back torso
- 10 Back legs





Informative Appendix

Detailed data for all body parts

Test object:	Bask, Model: Mustang-780 FP-M art. #2021a
Test Reference no	20465-004
Date of test:	2005-04-26

Environmental test temperature: -20.1 °C

Sec. no.:	Body section	Body sec. surface (m ²)	Area-factor	Test 1			Test 2		Test 3	Avg.
				T (°C)	H (W/m ²)	H (W/m ²)	H (W/m ²)	H (W/m ²)	H (W/m ²)	
1	Left foot	0.0430	0.03	34.0	101.4	94.1	98.6	98.0		
2	Right foot	0.0430	0.03	34.0	86.3	87.2	88.0	87.2		
3	Left leg	0.0900	0.06	34.0	74.8	79.3	84.7	79.6		
4	Right leg	0.0900	0.06	34.0	80.2	86.4	88.1	84.9		
5	Left thigh, front	0.0800	0.05	34.0	61.9	52.2	49.6	54.6		
6	Right thigh front	0.0830	0.06	34.0	44.3	43.3	41.4	43.0		
7	Left thigh back	0.0800	0.05	34.0	38.9	40.1	38.1	39.1		
8	Right thigh back	0.0830	0.06	34.0	50.9	50.2	49.3	50.2		
9	Pelvis front	0.0550	0.04	34.0	22.9	22.0	22.3	22.4		
10	Crouch back	0.1100	0.07	34.0	43.2	44.0	43.0	43.4		
11	Face - neck	0.0750	0.05	34.0	39.2	41.3	42.1	40.8		
12	Crown	0.0500	0.03	34.0	49.8	51.2	51.6	50.9		
13	Left hand	0.0380	0.03	34.0	103.3	111.4	92.1	102.3		
14	Right hand	0.0370	0.03	34.0	68.7	59.6	60.2	62.8		
15	Left arm	0.0500	0.03	34.0	56.1	61.8	61.8	59.9		
16	Right arm	0.0505	0.03	34.0	70.0	71.4	71.8	71.1		
17	Left shoulder	0.0730	0.05	34.0	48.2	48.5	47.8	48.2		
18	Right shoulder	0.0780	0.05	34.0	51.1	51.4	49.2	50.6		
19	Chest	0.1400	0.09	34.0	22.8	21.2	21.4	21.8		
20	Back	0.1300	0.09	34.0	35.4	39.7	40.1	38.4		

T: Skin temperature (°C) of actual section

H: Heating power (W/m²) supplied to the actual section to achieve the actual skin temperature (*Note! Lower values indicate better thermal insulation than higher values*)