

EN 14058 tables C1-C5 - intended field of use

You locate the I_{cler} value (in $m^2.K/W$) (for class 4 garments, in table C1-C2) or the R_{ct} value (in $m^2.K/W$) (for class 1, 2 or 3, in table C3-C4-C5) in the left-hand column in the table below. In the corresponding row to the right of it you will find an indication of the minimum temperature in °C (corrected for wind chill) for various activity levels and air speeds to which one can be exposed for 1 or 8 hours (provided it is worn with the corresponding underclothing). Over-insulation should also be avoided, as should perspiration. In order to benefit from optimum protection in your specific work situation, it needs to be interspersed with adequate breaks in a heated room, in which this P.P.E. should preferably be (partially) removed or opened.

NOTE 1 It is possible that an adequate level of whole body insulation is not sufficient to prevent the cooling of susceptible parts of the body (e.g. hands, feet, face) and the concomitant risk of cold injury. The protection of hands against cold is dealt with in EN 511.

Table C.1 - Resultant effective thermal insulation of clothing I_{cler} and ambient temperature conditions in °C for heat balance at different durations of exposure

<u>Insulation</u>	<u>Wearer standing, 75 W/m²</u>			
I_{cler} m ² ·K/W	<u>Air velocity</u>			
	0,4 m/s		3 m/s	
	8 h	1 h	8 h	1 h
0,170	21	9	24	15
0,265	13	0	19	7
0,310	10	-4	17	3

Table C.2 - Resultant effective thermal insulation of clothing I_{cler} and ambient temperature conditions in °C for heat balance at different activity levels and durations of exposure

Insulation	Wearer moving activity							
I_{cler} m ² ·K/W	light 115 W/m ²				medium 170 W/m ²			
	Air velocity							
	0,4 m/s		3 m/s		0,4 m/s		3 m/s	
	8 h	1 h	8 h	1 h	8 h	1 h	8 h	1 h
0,170	13	0	18	7	1	-12	8	-4
0,265	3	-12	9	-3	-12	-28	-2	-16
0,310	-2	-18	6	-8	-18	-36	-7	-22

NOTE 2 Performance of a clothing ensemble or garment in terms of preserving heat balance at normal body temperature depends on internal body heat production. Therefore the protective level of a clothing ensemble or garment is evaluated by comparing its measured insulation value and the calculated required insulation value.

NOTE 3 Requirements for thermal insulation of the human body in a specific cold environment are assessed on the basis of EN ISO 11079.

NOTE 4 The table gives a theoretical estimation of I_{cler} from R_{ct} if the insulation of the material of a jacket and/or trousers is evenly distributed and covers the same body surface area as (a) corresponding garment item(s) of standard ensemble R.

Table C.3 - Influence of variation of jacket at minimum temperatures based on standard ensemble R

<u>Estimated clothing insulation</u>		<u>Wearer moving activity</u>							
Variation of jacket m² K/W		light 115 W/m²				medium 170 W/m²			
R _{ct} m² K/W	I _{cler} m² K/W	Air velocity							
		0,4 m/s		3 m/s		0,4 m/s		3 m/s	
		8 h	1 h	8 h	1 h	8 h	1 h	8 h	1 h
0,013	0,175	12	0	18	6	0	-13	8	-5
0,090	0,208	9	-5	16	3	-4	-19	4	-9
0,150	0,234	6	-9	14	-1	-8	-24	2	-13
0,250	0,278	0	-14	11	-6	-13	-32	-3	-18

Table C.4 - Influence of variation of trousers at minimum temperatures based on standard ensemble R

Estimated clothing insulation		Wearer moving activity							
Variation of jacket m² K/W		light 115 W/m²				medium 170 W/m²			
R _{ct} m² K/W	I _{cler} m² K/W	Air velocity							
		0,4 m/s		3 m/s		0,4 m/s		3 m/s	
		8 h	1 h	8 h	1 h	8 h	1 h	8 h	1 h
0,013	0,175	12	0	18	6	0	-13	8	-5
0,090	0,207	9	-5	16	3	-4	-19	4	-9
0,150	0,232	6	-8	14	-1	-7	-24	2	-12
0,250	0,273	1	-14	11	-6	-13	-31	-2	-18

Table C.5 - Influence of variation of jacket and trousers at minimum temperatures based on standard ensemble R

Estimated clothing insulation		Wearer moving activity							
Variation of jacket + trousers m² K/W		light 115 W/m²				medium 170 W/m²			
R _{ct} m² K/W	I _{cler} m² K/W	Air velocity							
		0,4 m/s		3 m/s		0,4 m/s		3 m/s	
		8 h	1 h	8 h	1 h	8 h	1 h	8 h	1 h
0,013	0,175	12	0	18	6	0	-13	8	-5
0,090	0,240	5	-10	13	-1	-8	-25	1	-13
0,150	0,291	0	-16	8	-6	-15	-33	-4	-20
0,250	0,376	-2	-18	1	-15	-27	-47	-13	-32



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