

**Table 6.36.** Thermophysical characteristics of body tissues and organs and other materials. (Using data from [308])

organ or tissue	thermal conductivity $K$ (W/m-K)	specific heat $c_v$ (MJ/m <sup>3</sup> -K)	density (approximate) $\rho$ (kg/m <sup>3</sup> )
skin – very warm	2.80	3.77	1,000
skin – normal hand	0.960	3.77	1,000
skin – cold	0.335	3.77	1,000
subcutaneous pure fat	0.190	1.96	850
muscle – living	0.642	3.94	1,050
muscle – excised, fresh	0.545	3.64	1,050
bone – average	1.16	2.39	1,500
bone – compact	2.28	2.70	1,790
bone – trabecular	0.582	2.07	1,250
blood – water at 310 K	0.623	4.19	993
blood – plasma (Hct = 0%) at 310 K	0.599	4.05	1,025
blood – whole (Hct = 40%)	0.549	3.82	1,050
heart – excised, near fresh	0.586	3.94	1,060
liver – excised, near fresh	0.565	3.78	1,050
kidney – excised, near fresh	0.544	4.08	1,050
abdomen core	0.544	3.89	1,050
brain – excised, near fresh	0.528	3.86	1,050
brain – living	0.805	–	–
lung – excised, bovine	0.282	2.24	603
whole body (average)	–	4.12	1,156

Note that  $1 \text{ MJ/m}^3\text{-K} = 239 \text{ kcal/m}^3\text{-K}$  and  $1,000 \text{ kg/m}^3 = 1 \text{ g/cm}^3$ .