

The boundary equation  $h''_{2c3b}(s)$  has the following dimensionless form:

$$\frac{h''_{2c3b}(s)}{h^*} = \eta''(\sigma) = \left[ \sum_{i=1}^{16} n_i (\sigma - 1.02)^{I_i} (\sigma - 0.726)^{J_i} \right]^4, \quad (2.43)$$

where  $\eta = h/h^*$  and  $\sigma = s/s^*$  with  $h^* = 2800 \text{ kJ kg}^{-1}$  and  $s^* = 5.9 \text{ kJ kg}^{-1} \text{ K}^{-1}$ . The coefficients  $n_i$  and exponents  $I_i$  and  $J_i$  of Eq. (2.43) are listed in Table 2.71.

The equation  $h''_{2ab}(s)$ , Eq. (2.42), exactly meets the enthalpy value  $h''(273.15 \text{ K}) = h_2(p_s(273.15 \text{ K}), 273.15 \text{ K}) = 2.500\,892\,618 \times 10^3 \text{ kJ kg}^{-1}$  that was calculated from the basic equation  $g_2(p, T)$ , Eq. (2.6), where  $p = p_s(T)$  is obtained from Eq. (2.13). The equation  $h''_{2c3b}(s)$ , Eq. (2.43), yields exactly the enthalpy value at the critical point  $h_c = 2.087\,546\,845 \times 10^3 \text{ kJ kg}^{-1}$  that was calculated from the basic equation  $f_3(\rho, T)$ , Eq. (2.11), for  $\rho = \rho_c = 322 \text{ kg m}^{-3}$  and  $T = T_c = 647.096 \text{ K}$  according to Eqs. (1.6) and (1.4).

**Table 2.70** Coefficients and exponents of the boundary equation  $h''_{2ab}(s)$  in its dimensionless form, Eq. (2.42)

$i$	$I_i$	$J_i$	$n_i$	$i$	$I_i$	$J_i$	$n_i$
1	1	8	$-0.524\,581\,170\,928\,788 \times 10^3$	16	28	8	$0.660\,788\,766\,938\,091 \times 10^{16}$
2	1	24	$-0.926\,947\,218\,142\,218 \times 10^7$	17	28	12	$0.166\,320\,055\,886\,021 \times 10^{23}$
3	2	4	$-0.237\,385\,107\,491\,666 \times 10^3$	18	28	20	$-0.218\,003\,784\,381\,501 \times 10^{30}$
4	2	32	$0.210\,770\,155\,812\,776 \times 10^{11}$	19	28	22	$-0.787\,276\,140\,295\,618 \times 10^{30}$
5	4	1	$-0.239\,494\,562\,010\,986 \times 10^2$	20	28	24	$0.151\,062\,329\,700\,346 \times 10^{32}$
6	4	2	$0.221\,802\,480\,294\,197 \times 10^3$	21	32	2	$0.795\,732\,170\,300\,541 \times 10^7$
7	7	7	$-0.510\,472\,533\,393\,438 \times 10^7$	22	32	7	$0.131\,957\,647\,355\,347 \times 10^{16}$
8	8	5	$0.124\,981\,396\,109\,147 \times 10^7$	23	32	12	$-0.325\,097\,068\,299\,140 \times 10^{24}$
9	8	12	$0.200\,008\,436\,996\,201 \times 10^{10}$	24	32	14	$-0.418\,600\,611\,419\,248 \times 10^{26}$
10	10	1	$-0.815\,158\,509\,791\,035 \times 10^3$	25	32	24	$0.297\,478\,906\,557\,467 \times 10^{35}$
11	12	0	$-0.157\,612\,685\,637\,523 \times 10^3$	26	36	10	$-0.953\,588\,761\,745\,473 \times 10^{20}$
12	12	7	$-0.114\,200\,422\,332\,791 \times 10^{11}$	27	36	12	$0.166\,957\,699\,620\,939 \times 10^{25}$
13	18	10	$0.662\,364\,680\,776\,872 \times 10^{16}$	28	36	20	$-0.175\,407\,764\,869\,978 \times 10^{33}$
14	20	12	$-0.227\,622\,818\,296\,144 \times 10^{19}$	29	36	22	$0.347\,581\,490\,626\,396 \times 10^{35}$
15	24	32	$-0.171\,048\,081\,348\,406 \times 10^{32}$	30	36	28	$-0.710\,971\,318\,427\,851 \times 10^{39}$

**Table 2.71** Coefficients and exponents of the boundary equation  $h''_{2c3b}(s)$  in its dimensionless form, Eq. (2.43)

$i$	$I_i$	$J_i$	$n_i$	$i$	$I_i$	$J_i$	$n_i$
1	0	0	$0.104\,351\,280\,732\,769 \times 10^1$	9	8	2	$0.743\,957\,464\,645\,363 \times 10^4$
2	0	3	$-0.227\,807\,912\,708\,513 \times 10^1$	10	8	20	$-0.356\,896\,445\,355\,761 \times 10^{20}$
3	0	4	$0.180\,535\,256\,723\,202 \times 10^1$	11	12	32	$0.167\,590\,585\,186\,801 \times 10^{32}$
4	1	0	$0.420\,440\,834\,792\,042$	12	16	36	$-0.355\,028\,625\,419\,105 \times 10^{38}$
5	1	12	$-0.105\,721\,244\,834\,660 \times 10^6$	13	22	2	$0.396\,611\,982\,166\,538 \times 10^{12}$
6	5	36	$0.436\,911\,607\,493\,884 \times 10^{25}$	14	22	32	$-0.414\,716\,268\,484\,468 \times 10^{41}$
7	6	12	$-0.328\,032\,702\,839\,753 \times 10^{12}$	15	24	7	$0.359\,080\,103\,867\,382 \times 10^{19}$
8	7	16	$-0.678\,686\,760\,804\,270 \times 10^{16}$	16	36	20	$-0.116\,994\,334\,851\,995 \times 10^{41}$