$$A_0=\frac{2e^{-s_2'l}[\left(s_3'-s_2'\right)e_{15}^{(20)}\chi_4\left(s_1+s_3\right)-2\sigma\chi_2]\ \varepsilon_{11}^{(10)}\overline{c}_{44}^{(20)}\left(s_1\tan s_2H-s_2\right)}{E(k)},$$

$$B_0=\frac{2e^{-s_2'l}[\left(s_3'-s_2'\right)e_{15}^{(20)}\chi_4\left(s_1+s_3\right)-2\sigma\chi_2]\ \varepsilon_{11}^{(10)}\overline{c}_{44}^{(20)}\left(s_1+s_2\tan s_2H\right)}{E(k)},$$

$$C_0=\frac{2e^{-s_2'l}[2\sigma\chi_1s_3'-\left(s_3'-s_2'\right)e_{15}^{(20)}\varepsilon_{11}^{(10)}\chi_3]\varepsilon_{15}^{(20)}\overline{c}_{44}^{(20)}s_2'\left(s_1+s_3\right)}{E\left(k\right)},$$

$$D_0=\frac{2e^{-s_2'l}[2\sigma\chi_1s_3'-\left(s_3'-s_2'\right)e_{15}^{(20)}\varepsilon_{11}^{(10)}\chi_3]\varepsilon_{15}^{(20)}\overline{c}_{44}^{(20)}s_2'\left(s_1-s_3\right)e^{2s_3H}}{E\left(k\right)},$$

$$G_0=\frac{2e^{-s_2'l}\left[\varepsilon_{11}^{(10)}\left(s_1-s_3\right)\left(e^{2s_3H}-1\right)\left\{2\sigma\chi_1s_3'-\left(s_3'-s_2'\right)e_{15}^{(20)}\chi_3\varepsilon_{11}^{(10)}\right\}\varepsilon_{11}^{(20)}\overline{c}_{44}^{(20)}s_2'\left(s_1+s_3\right)-e_{15}^{(20)}E\left(k\right)\right]}{E\left(k\right)\varepsilon_{11}^{(20)}s_3'},$$

$$E_0=\frac{\begin{array}{c}2e^{-s_2'l}\Big[E\left(k\right)\overline{c}_{44}^{(20)}\left(s_1\tan s_2H-s_2\right)\varepsilon_{11}^{(20)}-\varepsilon_{11}^{(20)}\overline{c}_{44}^{(20)}\left(s_1^2+s_2^2\right)\tan s_2H\\ \times\left\{\left(s_3'-s_2'\right)e_{15}^{(20)}\chi_4\left(s_1+s_3\right)-2\sigma\chi_2\right\}\varepsilon_{11}^{(10)}\overline{c}_{44}^{(20)}(s_1\tan s_2H-s_2)-\left(s_1-s_3\right)\left(1-e^{2s_3H}\right)\\ \times(e_{15}^{(10)}\varepsilon_{11}^{(20)}-e_{15}^{(20)}\varepsilon_{11}^{(10)})\left\{2\sigma\chi_1s_3'-\left(s_3'-s_2'\right)e_{15}^{(20)}\left(\chi_3\right)\varepsilon_{11}^{(10)}\right\}\varepsilon_{11}^{(20)}\overline{c}_{44}^{(20)}s_2'\left(s_1+s_3\right)\left(s_1\tan s_2H-s_2\right)\Big]\end{array}}{E\left(k\right)s_2'\overline{c}_{44}^{(20)}\left(s_1\tan s_2H-s_2\right)\varepsilon_{11}^{(20)}},$$

$$E'(k)=\left\{\gamma_1\sec s_2H+\left(\frac{s_1+s_2\tan s_2H}{s_3}\right)\gamma_2-\gamma_3\right\}\left[\left(\frac{s_1\tan s_2H-s_2}{s_3}\right)\overline{\gamma_2}-\tan s_2H\overline{\gamma_3}\right]$$
$$-\left\{\overline{\gamma_1}\sec s_2H+\left(\frac{s_1+s_2\tan s_2H}{s_3}\right)\overline{\gamma_2}-\overline{\gamma_3}\right\}\left[\left(\frac{s_1\tan s_2H-s_2}{s_3}\right)\gamma_2-\tan s_2H\gamma_3+\sec s_2H\gamma_4\right],$$

$$X=-2(\delta_1\gamma_2+\delta_2\overline{\gamma_2}),$$

where

$$\delta_1=[\sigma\left(\frac{1}{s_3'}+\frac{1}{s_2'}\right)+\overline{c}_{44}^{(20)}\left(1-\frac{s_2'}{s_3'}\right)+2\frac{(e_{15}^{(20)})^2}{\varepsilon_{11}^{(20)}}]\sec s_2H,\quad \delta_2=(\frac{1}{s_3'}+c_{44}^{(20)})\sec s_2H,$$

$$\gamma_2=\frac{\overline{c}_{44}^{(20)}s_2'\varepsilon_{11}^{(20)}}{e_{15}^{(20)}}[\frac{\overline{c}_{44}^{(10)}}{2e_{15}^{(10)}}\left\{(e^{-s_3H}-e^{s_3H})+\frac{\varepsilon_{11}^{(10)}}{\varepsilon_{11}^{(20)}s_3'}((s_1-s_3)e^{-s_3H}-(s_1+s_3)e^{s_3H})\right]$$
$$+\frac{e_{15}^{(20)}}{\varepsilon_{11}^{(20)}}\{\frac{\overline{c}_{44}^{(10)}\varepsilon_{11}^{(10)}}{2e_{15}^{(10)}}\left[(s_1-s_3)e^{-s_3H}-(s_1+s_3)e^{s_3H}\right]\}-\frac{\overline{c}_{44}^{(10)}}{2}\left[(s_1-s_3)e^{-s_3H}-(s_1+s_3)e^{s_3H}\right],$$

$$\overline{\gamma_2}=\frac{(-\sigma+\overline{c}_{44}^{(20)}s_2')\varepsilon_{11}^{(20)}}{e_{15}^{(20)}}[\frac{\overline{c}_{44}^{(10)}}{2e_{15}^{(10)}}\left\{(e^{-s_3H}-e^{s_3H})+\frac{\varepsilon_{11}^{(10)}}{\varepsilon_{11}^{(20)}s_3'}((s_1-s_3)e^{-s_3H}-(s_1+s_3)e^{s_3H})\right]$$
$$-\frac{e_{15}^{(20)}\overline{c}_{44}^{(10)}\varepsilon_{11}^{(10)}}{2\varepsilon_{11}^{(20)}e_{15}^{(10)}}\left[(s_1-s_3)e^{-s_3H}-(s_1+s_3)e^{s_3H}\right],$$

$$\psi^1(k)=R^*(k)\gamma_2-\tilde{R}(k)\overline{\gamma_2},$$

where

$$R^*(k)=\{\bar{c}_{44}^{(20)}s_2'^2E_0+2s_2'e^{-s_2'l}c_{44}^{(20)}-\beta_2 s'E_0+2\beta_2e^{-s_2'l}+e_{15}^{(20)}s_3'^2G_0-e_{15}^{(20)}\beta_2s_3'G_0-\sigma(B_0s_2+A_0s_1+s_2'E_0$$
$$-2e^{s_2'l}\}+(-\sigma+\bar{c}_{44}^{(20)}s_2')\left[s_3C_0-s_3D_0-(C_0+D_0)s_1-\frac{e_{15}^{(10)}}{\varepsilon_{11}^{(10)}}(B_0s_2+A_0s_1)-G_0s_3'-s_2'\frac{e_{15}^{(20)}}{\varepsilon_{11}^{(20)}}E_0\right]$$
$$+\left(\frac{(-\sigma+\bar{c}_{44}^{(20)}s_2')}{\varepsilon_{11}^{(20)}s_3'}-\frac{e_{15}^{(20)}}{\varepsilon_{11}^{(20)}}\right)\left[-\varepsilon_{11}^{(10)}(s_1-s_3)(C_0s_1-C_0s_3)-\varepsilon_{11}^{(10)}(s_1+s_3)(D_0s_1+D_0s_3)\right.$$
$$\left.-\varepsilon_{11}^{(10)}(s_1-s_3)C_0\beta_1-\varepsilon_{11}^{(10)}(s_1+s_3)D_0\beta_1-e_{15}^{(20)}2s_2'e^{-s_2'l}+G_0\varepsilon_{11}^{(20)}s_3'^2-2\beta_2e_{15}^{(20)}e^{-s_2'l}-\varepsilon_{11}^{(20)}G_0s_3'\beta_2\right],$$
$$\tilde{R}(k)=\left[\bar{c}_{44}^{(10)}(B_0s_1s_2+A_0s_1^2-A_0s_2^2+B_0s_1s_2)+e_{15}^{(10)}\left\{C_0(s_1-s_3)^2+D_0(s_1+s_3)^2\right\}+\beta_1\left\{\bar{c}_{44}^{(10)}s_1A_0\right.\right.$$
$$\left.+B_0s_2\bar{c}_{44}^{(10)}+e_{15}^{(10)}(s_1-s_3)C_0+e_{15}^{(10)}(s_1+s_3)D_0\right\}-\bar{c}_{44}^{(10)}E_0s_2'^2-2c_{44}^{(20)}s_2'e^{-s_2'l}-e_{15}^{(20)}s_3'^2G_0-\beta_2(-\bar{c}_{44}^{(10)}s_2'E_0$$
$$+2c_{44}^{(20)}e^{s_2'l}-e_{15}^{(20)}s_3'G_0\left]+\frac{\bar{c}_{44}^{(20)}s_2'\varepsilon_{11}^{(10)}}{e_{15}^{(20)}}\right[s_3C_0-s_3D_0-(C_0+D_0)s_1-\frac{e_{15}^{(10)}}{\varepsilon_{11}^{(10)}}(B_0s_2+A_0s_1)-G_0s_3'-s_2'\frac{e_{15}^{(20)}}{\varepsilon_{11}^{(20)}}E_0\left]\right.$$
$$+\left(\frac{\bar{c}_{44}^{(20)}s_2'}{e_{15}^{(20)}s_3'}+\frac{e_{15}^{(20)}}{\varepsilon_{11}^{(20)}}\right)\left[-\varepsilon_{11}^{(10)}(s_1-s_3)(C_0s_1-C_0s_3)-\varepsilon_{11}^{(10)}(s_1+s_1)(D_0s_1+D_0s_1)-\varepsilon_{11}^{(10)}(s_1+s_3)C_1\beta\right.$$
$$\left.-\varepsilon_{11}^{(10)}(s_1+s_3)D_0\beta_1-e_{15}^{(20)}2s_2'e^{-s_2'l}+G_0\varepsilon_{11}^{(20)}s_3'^2-2\beta_2e_{15}^{(20)}e^{-s_2'l}-\varepsilon_{11}^{(20)}G_0s_3'\beta_2\right],$$

APPENDIX B

$$\alpha_1=\left(\frac{\bar{c}_{44}^{(20)}s_2'\varepsilon_{11}^{(20)}e_{15}^{(10)}}{e_{15}^{(20)}\varepsilon_{11}^{(10)}}+\sigma-\sigma\frac{\varepsilon_{11}^{(20)}e_{15}^{(10)}}{e_{15}^{(20)}\varepsilon_{11}^{(10)}}\right)\left[\frac{(s_1+s_2)-(s_1-s_2)e^{2s_2H}}{(s_1+s_2)}\right],$$
$$\alpha_2=\frac{e_{15}^{(20)}\varepsilon_{11}^{(10)}}{\varepsilon_{11}^{(20)}}(s_1-s_2)(e^{2s_3H}-1)+\left(\frac{\bar{c}_{44}^{(20)}s_2'\varepsilon_{11}^{(20)}}{e_{15}^{(20)}}-\sigma\frac{\varepsilon_{11}^{(20)}}{e_{15}^{(20)}}\right)\left[\frac{(s_1+s_3)-(s_1-s_3)e^{2s_3H}}{(s_1+s_3)}-\frac{\varepsilon_{11}^{(10)}}{\varepsilon_{11}^{(20)}}\frac{s_1-s_3}{s_3'}(e^{2s_3H}-1)\right],$$
$$\alpha_3=\bar{c}_{44}^{(10)}(s_1-s_2)(1-e^{2s_2H})+\frac{\bar{c}_{44}^{(20)}s_2'\varepsilon_{11}^{(20)}e_{15}^{(10)}}{e_{15}^{(20)}\varepsilon_{11}^{(10)}}\left[\frac{(s_1+s_2)-(s_1-s_2)e^{2s_2H}}{(s_1+s_2)}\right],$$
$$\alpha_4=\left(e_{15}^{(10)}-\frac{\varepsilon_{11}^{(10)}e_{15}^{(20)}}{\varepsilon_{11}^{(20)}}\right)(s_1-s_3)(1-e^{2s_3H})+\frac{\bar{c}_{44}^{(20)}s_2'\varepsilon_{11}^{(20)}}{e_{15}^{(20)}}\left[\frac{(s_1+s_3)-(s_1-s_3)e^{2s_3H}}{(s_1+s_3)}-\frac{\varepsilon_{11}^{(10)}}{\varepsilon_{11}^{(20)}}\frac{s_1-s_3}{s_3'}(e^{2s_3H}-1)\right],$$

$$\alpha_5=2\bar{c}_{44}^{(20)}\left(\frac{s_2'}{(\varepsilon_{11}^{(20)})^2s_3'}-1\right)-2\sigma\left(\frac{1}{(\varepsilon_{11}^{(20)})^2s_3'}+\frac{1}{s_2'}\right),\quad \alpha_6=2\bar{c}_{44}^{(20)}\left(\frac{s_2'}{(\varepsilon_{11}^{(20)})^2s_3'}-1\right),$$
$$\alpha_7=\frac{e_{15}^{(20)}R_3(k)}{\varepsilon_{11}^{(20)}}-\frac{\varepsilon_{11}^{(20)}(\bar{c}_{44}^{(20)}s_2'-\sigma)}{e_{15}^{(20)}}\left(R_2(k)+\frac{R_3(k)}{s_3'\varepsilon_{11}^{(20)}}\right)-R_1(k)$$

$$\alpha_8 = \frac{e_{15}^{(20)} R_3(k)}{\varepsilon_{11}^{(20)}} - \frac{\varepsilon_{11}^{(20)} \overline{c_{44}}^{(20)} s_2'}{e_{15}^{(20)}} \left(R_2(k) + \frac{R_3(k)}{s_3' \varepsilon_{11}^{(20)}} \right) - R_4(k),$$

$$\Delta_1 = \frac{\overline{c_{44}}^{(10)} \varepsilon_{11}^{(10)}}{e_{15}^{(10)}} \frac{s_1 - s_3}{2s_3} e^{s_2 H} \left[(s_1 - s_3) e^{-s_3 H} - (s_1 + s_3) e^{s_3 H} \right] \left(\frac{\overline{c_{44}}^{(20)} s_2' - \sigma}{e_{15}^{(20)} s_3'} - \frac{e_{15}^{(20)}}{\varepsilon_{11}^{(20)}} \right)$$

$$+ \sigma + \frac{(\overline{c_{44}}^{(20)} s_2' - \sigma) \varepsilon_{11}^{(20)} e_{15}^{(10)}}{e_{15}^{(20)} \varepsilon_{11}^{(10)}} + e^{2 s_2 H} \left[e^{-2 s_3 H} - e^{2 s_3 H} \right] \left\{ \frac{(\overline{c_{44}}^{(20)} s_2' - \sigma) \varepsilon_{11}^{(20)}}{e_{15}^{(20)}} \right.$$

$$\left. \times \left(\frac{\overline{c_{44}}^{(20)} (s_1 - s_2)}{2 s_3 e_{15}^{(10)}} - \frac{e_{15}^{(10)}}{\varepsilon_{11}^{(20)} s_3'} \frac{s_1^2 - s_3^2}{2 s_3} \right) + \frac{e_{15}^{(10)} e_{15}^{(20)}}{\varepsilon_{11}^{(20)}} \frac{s_1^2 - s_3^2}{2 s_3} \right\} - \frac{(\overline{c_{44}}^{(20)} s_2' - \sigma) \varepsilon_{11}^{(20)} e_{15}^{(10)}}{e_{15}^{(20)} \varepsilon_{11}^{(10)} 2 s_3'}$$

$$\times e^{s_2 H} \left[(s_1 + s_3) e^{-s_3 H} - (s_1 - s_3) e^{s_3 H} \right],$$

$$\Delta_2 = \frac{\overline{c_{44}}^{(10)} \varepsilon_{11}^{(10)}}{e_{15}^{(10)}} \frac{s_1 + s_3}{2s_3} e^{-s_2 H} \left[(s_1 - s_3) e^{-s_3 H} - (s_1 + s_3) e^{s_3 H} \right] \left(\frac{\overline{c_{44}}^{(20)} s_2' - \sigma}{e_{15}^{(20)} s_3'} - \frac{e_{15}^{(20)}}{\varepsilon_{11}^{(20)}} \right)$$

$$+ \sigma + \frac{(\overline{c_{44}}^{(20)} s_2' - \sigma) \varepsilon_{11}^{(20)} e_{15}^{(10)}}{e_{15}^{(20)} \varepsilon_{11}^{(10)}} + e^{2 s_2 H} \left[e^{-2 s_3 H} - e^{2 s_3 H} \right] \left\{ \frac{(\overline{c_{44}}^{(20)} s_2' - \sigma) \varepsilon_{11}^{(20)}}{e_{15}^{(20)}} \right.$$

$$\left. \times \left(\frac{\overline{c_{44}}^{(20)} (s_1 + s_2)}{2 s_3 e_{15}^{(10)}} - \frac{e_{15}^{(10)}}{\varepsilon_{11}^{(20)} s_3'} \frac{s_1^2 - s_3^2}{2 s_3} \right) + \frac{e_{15}^{(10)} e_{15}^{(20)}}{\varepsilon_{11}^{(20)}} \frac{s_1^2 - s_3^2}{2 s_3} \right\} - \frac{(\overline{c_{44}}^{(20)} s_2' - \sigma) \varepsilon_{11}^{(20)} e_{15}^{(10)}}{e_{15}^{(20)} \varepsilon_{11}^{(10)} 2 s_3'}$$

$$\times e^{-s_2 H} \left[(s_1 + s_3) e^{-s_3 H} - (s_1 - s_3) e^{s_3 H} \right],$$

$$\Delta_3 = \overline{c_{44}}^{(10)} (s_1 - s_2) + \frac{e^{s_2 H}}{2 s_3} \left[(s_1 - s_3) e^{-s_3 H} - (s_1 + s_3) e^{s_3 H} \right] \left(\overline{c_{44}}^{(10)} (s_1 - s_2) \right.$$

$$\left. + \frac{\overline{c_{44}}^{(20)} \overline{c_{44}}^{(10)} s_2' (s_1 - s_2)}{s_3' e_{15}^{(20)} e_{15}^{(10)}} - \frac{\overline{c_{44}}^{(10)} \varepsilon_{11}^{(10)} e_{15}^{(20)} (s_1 - s_2)}{e_{15}^{(10)} \varepsilon_{11}^{(20)}} \right) + e^{s_2 H} \left[e^{-s_3 H} - e^{s_3 H} \right]$$

$$\times \left(- \frac{(e_{15}^{(10)})^2}{\varepsilon_{11}^{(10)}} (s_1^2 - s_3^2) + \frac{\overline{c_{44}}^{(10)} \overline{c_{44}}^{(20)} \varepsilon_{11}^{(20)} s_2' (s_1 - s_2)}{2 s_3 e_{15}^{(10)} e_{15}^{(20)}} - \frac{\overline{c_{44}}^{(20)} s_2' e_{15}^{(10)}}{e_{15}^{(20)} s_3'} \frac{s_1^2 - s_3^2}{2 s_3} + \frac{e_{15}^{(10)} e_{15}^{(20)}}{\varepsilon_{11}^{(20)}} \frac{s_1^2 - s_3^2}{2 s_3} \right.$$

$$\left. + \frac{\overline{c_{44}}^{(20)} s_2' \varepsilon_{11}^{(20)} e_{15}^{(10)}}{e_{15}^{(20)} \varepsilon_{11}^{(10)}} - \frac{\overline{c_{44}}^{(20)} e_{15}^{(10)} \varepsilon_{11}^{(20)} s_2'}{\varepsilon_{11}^{(10)} e_{15}^{(20)}} \frac{e^{s_2 H}}{2 s_3} \left[(s_1 + s_3) e^{-s_3 H} - (s_1 - s_3) e^{s_3 H} \right], \right.$$

$$\Delta_4 = \overline{c_{44}}^{(10)} (s_1 + s_2) + \frac{e^{s_2 H}}{2 s_3} \left[(s_1 - s_3) e^{-s_3 H} - (s_1 + s_3) e^{s_3 H} \right]$$

$$\times \left(\overline{c_{44}}^{(10)} (s_1 + s_2) + \frac{\overline{c_{44}}^{(20)} \overline{c_{44}}^{(10)} s_2' (s_1 + s_2)}{s_3' e_{15}^{(20)} e_{15}^{(10)}} - \frac{\overline{c_{44}}^{(10)} \varepsilon_{11}^{(10)} e_{15}^{(20)} (s_1 - s_2)}{e_{15}^{(10)} \varepsilon_{11}^{(20)}} \right) + e^{-s_2 H} \left[e^{-s_3 H} - e^{s_3 H} \right]$$

$$\times\left(-\frac{(e_{15}^{(10)})^2}{\varepsilon_{11}^{(10)}}(s_1^2-s_3^2)+\frac{\overline{c_{44}}^{(10)}\overline{c_{44}}^{(20)}\varepsilon_{11}^{(20)}s_2'(s_1+s_2)}{2s_3e_{15}^{(10)}e_{15}^{(20)}}-\frac{\overline{c_{44}}^{(20)}s_2'e_{15}^{(10)}}{e_{15}^{(20)}s_3'}\frac{s_1^2-s_3^2}{2s_3}\right.$$

$$\left.+\frac{e_{15}^{(10)}e_{15}^{(20)}}{\varepsilon_{11}^{(20)}}\frac{s_1^2-s_3^2}{2s_3}\right)+\frac{\overline{c_{44}}^{(20)}s_2'\varepsilon_{11}^{(20)}e_{15}^{(10)}}{e_{15}^{(20)}\varepsilon_{11}^{(10)}}-\frac{\overline{c_{44}}^{(20)}e_{15}^{(10)}\varepsilon_{11}^{(20)}s_2'}{\varepsilon_{11}^{(10)}e_{15}^{(20)}}\frac{e^{-s_2H}}{2s_3}\left[(s_1+s_3)e^{-s_3H}-(s_1-s_3)e^{s_3H}\right],$$

$$\Delta_5=\frac{2(\overline{c_{44}}^{(20)})^2s_2'\varepsilon_{11}^{(20)}}{\left(\overline{c_{44}}^{(20)}s_2'\varepsilon_{11}^{(20)}-s_3'(e_{15}^{(20)})^2\right)}+2c_{44}^{(20)}(s_2'+s_3')-s_3'\frac{2(\overline{c_{44}}^{(20)})^2s_2'\varepsilon_{11}^{(20)}}{\left(\overline{c_{44}}^{(20)}s_2'\varepsilon_{11}^{(20)}-s_3'(e_{15}^{(20)})^2\right)},$$

$$\Delta_6=\frac{2c_{44}^{(20)}}{e_{15}^{(20)}}-\left(\frac{\overline{c_{44}}^{(20)}}{e_{15}^{(20)}}-\frac{e_{15}^{(20)}}{\varepsilon_{11}^{(20)}}\right)\frac{2\overline{c_{44}}^{(20)}s_2'\varepsilon_{11}^{(20)}}{\left(\overline{c_{44}}^{(20)}s_2'\varepsilon_{11}^{(20)}-s_3'(e_{15}^{(20)})^2\right)}.$$