$$c_{p(100-300\,°C)} = \left(0.203 + 0.001624\,V^{daf}\right) \cdot$$

$$\cdot\left[1 + 0.311\left(\frac{t}{100} + 0.0066\left(\frac{t}{100}\right)^2 - 0.0033\left(\frac{t}{100}\right)^3\right)\right], \quad \frac{kcal}{kg\,K} \qquad (1)$$

where:

$c_{p(100-300\,°C)}$ – specific heat capacity at constant pressure in the temperature range 100–300°C, kcal/kg/K*

V^{daf} – volatile matter content on the dry, ash-free basis, %

t – temperature, °C.

Above this range of temperature, the correlation $c_p = f(t)$ for the coal can be extrapolated similarity to graphite, using the regression:

$$c_{p(300-1100\,°C)} = f_0 + f_1\left(\frac{t}{100}\right) + f_2\left(\frac{t}{100}\right)^2 + f_3\left(\frac{t}{100}\right)^3 + f_4\ln\left(\frac{t}{100}\right), \quad \frac{kcal}{kg\,K} \quad (2)$$

where:

$c_{p(300-1100\,°C)}$ – specific heat capacity at constant pressure in the temperature range 300–1100 °C, kcal/kg/K*

f_0, f_1, f_2, f_3, f_4 – coefficients of equation

t – temperature °C.