$$R_c = K_1 Q_r \left(\%CO_2 + \%CO\right) + K_2 Q_a - K_3 Q_r \left[\left(\frac{\%CO}{2}\right) + \%CO_2 + \%O_2\right] + K_3 Q_{oxy}\left(\%O_{xy}\right) \quad \text{(Eq. 1)}$$