$$\frac{q_c(T_j)}{N} = \dot{Q}_c^{k=2}\left(T_j\right) * \frac{n_j}{N}$$

$$\frac{e_c(T_j)}{N} = \dot{E}_c^{k=2}\left(T_j\right) * \frac{n_j}{N}$$