$$\boldsymbol{C_{out,i+1} = C_{out,i} + \frac{C_{2,i} - C_{out,i}}{(1-\alpha_1)(1-\alpha_2)\,\tau}\,\Delta t}$$

$$\nu\, C_2 = \nu\, C_{out} + (1-\alpha_1)(1-\alpha_2)\, V\, \frac{\mathrm{d}C_{out}}{\mathrm{d}t} \implies$$

$$\implies C_2 = C_{out} + (1-\alpha_1)(1-\alpha_2)\,\tau\, \frac{\mathrm{d}C_{out}}{\mathrm{d}t} \implies$$

$$\implies \frac{\mathrm{d}C_{out}}{\mathrm{d}t} = \frac{C_2 - C_{out}}{(1-\alpha_1)(1-\alpha_2)\,\tau} \implies$$

$$\implies \frac{\Delta C_{out}}{\Delta t} = \frac{C_{out,i+1} - C_{out,i}}{\Delta t} = \frac{C_{2,i} - C_{out,i}}{(1-\alpha_1)(1-\alpha_2)\,\tau} \implies$$

$$\implies C_{out,i+1} = C_{out,i} + \frac{C_{2,i} - C_{out,i}}{(1-\alpha_1)(1-\alpha_2)\,\tau}\,\Delta t$$