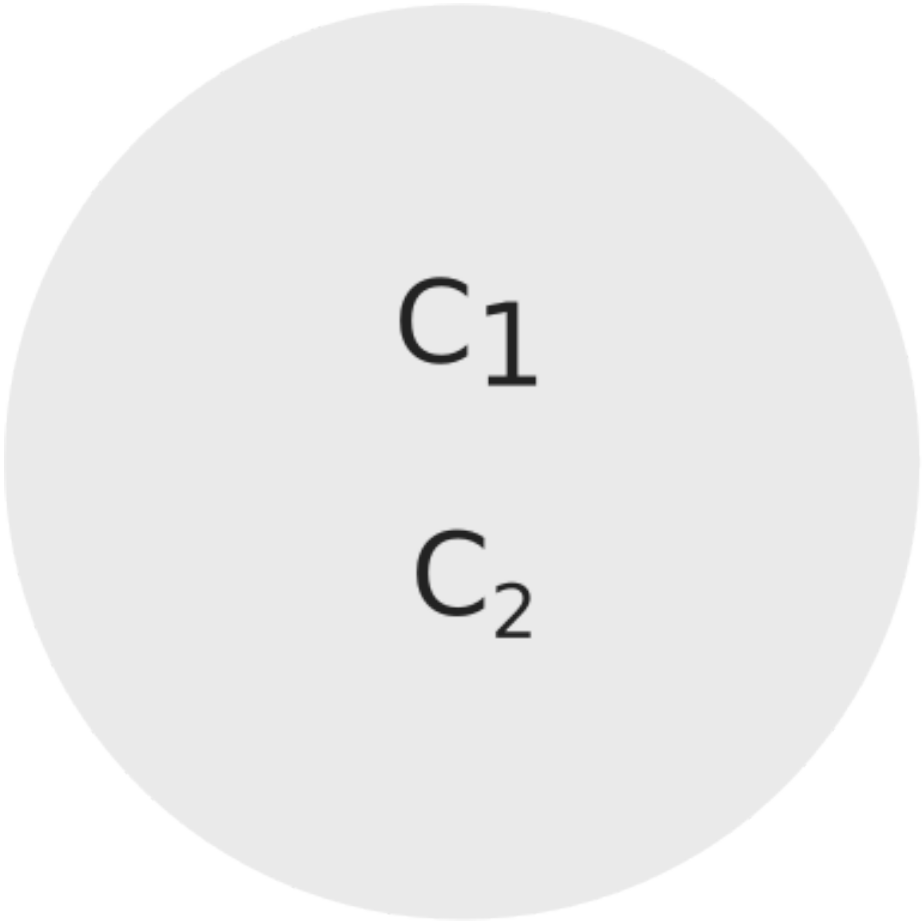

Figure 1: Geometry to compute mixing of species C_1 and C_2.

Mixing of species of two different species, C_1 and C_2.

$$D_1 \ \nabla^2 \ C_1(\mathbf{r},\mathbf{t}) - R_1(\mathbf{t}) + R_2(\mathbf{t}) = \frac{\partial C_1(\mathbf{r},\mathbf{t})}{\partial t} \tag{1}$$

$$D_2 \ \nabla^2 \ C_2(\mathbf{r},\mathbf{t}) + R_2(\mathbf{t}) = \frac{\partial C_2(\mathbf{r},\mathbf{t})}{\partial t} \tag{2}$$

In the above equations, the reaction terms $R_1(\mathbf{t})$ and $R_2(\mathbf{t})$ can be assumed to be linear. To further simplify, the diffusion coefficients of the two species, 1 and 2 can also be assumed positionally independent.