**Potentially Useful Formulas**

Let be a characteristic velocity, be a characteristic length, be kinematic viscosity,

Further, let be diffusion coefficient.

Finally, let be the mass transfer coefficient.

**Constants and Conversions**

Avogadro’s Number:

Faraday’s Constant:

Universal Gas Constant:

Centigrade to Kelvin: Degrees Kelvin 273.15 Degrees Centigrade

Viscosity of water at 25oC = 1 cP ; at 37oC = 0.76 cP

**General mass transport equation**

In Cartesian coordinates

In cylindrical coordinates

In spherical coordinates

**Sherwood Numbers**

|  |  |
| --- | --- |
| Condition | Sh |
| Sphere in a stagnant fluid | 2 |
| Forced convection over a sphere |  |
| Laminar flow over a flat plate |  |
| Laminar flow in a cylindrical tube, short contact time |  |
| Laminar flow in a cylindrical tube, fully developed flow and concentration profiles | 3.66 |
| Turbulent flow through a circular tube |  |
| Spinning Disk |  |
| Falling Film, Average |  |