# Permeability of Red Blood Cells

**BIO1140 Section A2**

**Demonstrators**
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Table 1: Red Blood Cell Permeability in Different Solutions [a]

| | Time (seconds) for Each Trial | | | | |
|---|---|---|---|---|---|
| Type of Solution | 1 | 2 | 3 | Mean Average | Standard Deviation |
| Distilled Water | < 2[b] | < 2 | < 2 | < 2 | 0 |
| Thiourea | 68 | 62 | 65 | 65 | 1.73 |
| Triton | 2 | 2 | 2 | 2 | 2 |
| Dextrose | >1200[c] | >1200 | >1200 | >1200 | 0 |
| Ethanol | 5.2 | 4.4 | 4 | 4.53 | 0.35 |

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[a] Set B data used in Experiment

[b] Diffusion occurs in less than 2 seconds

[c] Diffusion did not occur within 1200 seconds

Analysis:

1. The factors that could have affected the diffusion are the size of the molecules, the total concentration of the solute that we were using, how polar our substances were and their polarity with each other. Solvent density is a large factor in this experiment if a solvent is too dense then diffusion would take too long for us to be able to record the exact time value.
2. These factors affect the solutes by either allowing them to diffuse with water almost instantly or very quickly, or cause them to almost never diffuse with water for our experiment. The larger the molecules in the solvent the slower its diffusion is. The density of the solvent also affects the diffusion the more dense the solvent is the slower the diffusion is. The polarity of the molecules is a big factor as well as the higher the polarity between the two substances the harder and longer the solvent takes to diffuse.