

### Mass Transfer Modeling in Artificial Lung assist Device

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The purpose of this work was considered a simulator to manufacture the artificial lung assist device, and the use of a mathematical model to predict a behavior of blood. We tried to formularize prediction equations to predict the gas transfer rate and pressure drop in order to design an intravenous artificial lung assist device. As the results, we could estimate the gas transfer rate as a function of the hydraulic diameter of device. The gas transfer rate obtained from the experiment was similar to that predicting by the equation, confirming the usefulness of the equation. We were also able to, estimate the pressure drop as a function of the hydraulic diameter of device. The pressure drop obtained from the experiment was similar to that from the equation, again confirming the equations usefulness. We could estimate the gas transfer rate, and the pressure drop of the artificial lung assist device as a function of the hydraulic diameter of device. Therefore, these functions are very useful for predicting the gas transfer rate and the pressure drop of the artificial lung assist device.