**Y-Mixer**

***Basic Component description***

A brief that describes the component and how it is used in microfluidics. Can be a couple sentences.

***Component Specs***

***List Input and Output nodes***

[diagram pending – two fluid inputs, one fluid output, two chem inputs, one fluid output]

Figure 1: Example mixer diagram

mixer\_example({P} [type] fluid input 1, (P) [type] fluid input 2, (V) [type] chemical 1 input, (V) [type] chemical 2 input, {P} [type] fluid output, {V} [type] Chemical 1 output, {V} [type] Chemical 2 output)

***Microfluidic Operations***

Mixing

***Component Verilog-AMS parameters***

Cross section (w | width, h | height)

Channel length (l | length) – describes length of a single channel segment (all channel segments are equal)

**ASSUMPTIONS:**

Channel cross sections consistent throughout

the length of each segment is the same

thus we can assume that the resistance along each channel segment is equal

assume that diffusion across cross section of channel is negligible

***Virtuoso Description***

**OpenSCAD Description**

Information such as API and other important information that is useful for the user or an engineer trying to implement the module

***Manufacturing Description***

This section will contain information of the process that is need to create the component. This will include information on the exposure profile, and how this changes throughout the part, and special post processing steps that need to be done.

***Component model***

Equations for resistance/flow rate are derived from straight channel component models

***References***

[1] A. Voigt, J. Schreiter, P. Frank, C. Pini, C. Mayr, and A. Richter, 2020: Method for the Computer-Aided Schematic Design and Simulation of Hydrogel-Based Microfluidic Systems. *IEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, **39**, 8, 1635-1648.

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