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## Impact of different confluent fluid streams viscosities on interconnected porous static mixer device

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We present both experimental and numerical simulations for a static mixing device that combines two fluids of different viscosities through a porous media. Experimentally, the mixing extent was determined by CCD detection. We showed that the porous plug dramatically improved the mixer performance. The numerical simulation identified the zones where the mixing was developed in the system as the mixing component mass flow could be plotted. The mixing principally occurred downstream the porous plug which initiated a jet flow due to the viscosities contrast of the two fluids. For a better understanding of the impact of porous on mixing we achieved a morphological study from X-rays micro-ct-images. It gave the porosity of the porous and showed an anisotropy of the geometry and then on the permeability which certainly played a part in the mixing performance.

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