Quasisimilarity of flow behavior of power-law fluids in concentric annuli

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Axial flow of power-law fluids in concentric annuli is studied. It is shown that this problem has a quasisimilarity solution in a broad range of flow behavior and consistency indices, and an aspect ratio \( \kappa \) of the inner diameter to the outer one. This solution makes it possible to transform the dependence of the flow rate vs. pressure drop for individual \( \kappa \) to a common graph for all \( \kappa \geq 0.4 \). The procedure presented fully eliminates the necessity of determining the location of maximum axial velocity.

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