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Construction of a liquid droplet flowmeter for low-permeable gas separation membranes

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Abstract

A column-based liquid flowmeter was fabricated to correct the errors arising from the diffusion of gases through the soap film in soap bubble flowmeters (back diffusion). The soap film was replaced with a liquid droplet (soap or paraffin), without introducing any noticeable error caused by the weight of the droplet. To the best of our knowledge, this was the first time that liquid paraffin was used as an indicating medium in a gas flowmeter. The flow rates were measured in five segments on the flowmeter. The results showed that the liquid droplet flowmeter was a suitable instrument to measure the permeability of the low-permeable membranes with flow rate in the range of $\mu\text{L}/\text{min}$. Based on the results obtained from the

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