

عنوان مقاله:

Gas Mixing Simulation in a T-Shape Micro Channel Using The DSMC Method

محل انتشار:

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خلاصه مقاله:

Gas mixing in a T-shape micro mixer has been simulated using the Direct Simulation Monte Carlo (DSMC) method. It is considered that the adequate mixing occurs when the mass composition of the species, CO or N₂, deviates below 1 % from their equilibrium composition. The mixing coefficient is defined as the ratio of the mixing length to the main channel's height. As the inlet Kn increases, while the diffusion of the molecules behaves more active, the mixing coefficient decreases. Furthermore, increasing the inlet pressure will cause the mixing length to increase, since the convection effect of the gas stream is more pronounced compared with the diffusion effect. Increasing the gas flow temperature or the wall temperature can enhance the mixing performance, while the effect of increasing the wall temperature is more significant. Walls with diffuse reflectors show more enhancement in mixing coefficient compared with the specular reflectors.

کلمات کلیدی:

T-Shape micro channel, Rarefied Gas mixing, DSMC method, Rapid mixing

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