

# TRANSPORT PARAMETERS OF ALKALI METAL IONS IN DXE FOR TECHNOLOGICAL APPLICATIONS

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*Abstract*—In this paper we select most probable reactions of alkali metal ions ( $\text{Li}^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ) with dimethoxy ethane (DXE) molecule and its fragment ions are selected in order to obtain appropriate gas phase enthalpies of formation for the products. Calculated cross sections were compared with existing experimental results obtained by guided ion beam tandem mass spectrometry. Three body association reaction of ions with DXE for three different pressures is studied and compared to experimental results. The scattering cross sections set as a function of kinetic energy and transport parameters for  $\text{Na}^+$  in DXE gas as a function of  $E/N$  ( $E$  -electric field;  $N$ -gas density) were obtained by using the Monte Carlo technique.