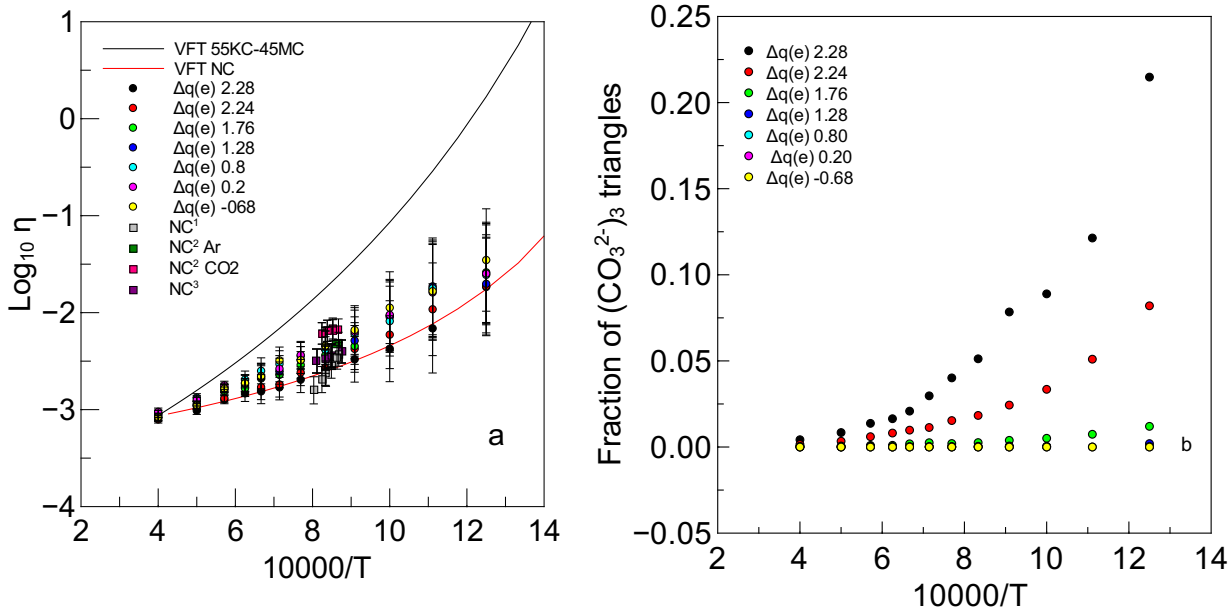

FIGURE A1. The VFT curves for sodium carbonate liquids (NC) at different degrees of charge separation (Wilson et al. 2018) (**a**) compared with NC data from 1. Janz and Saegusa (1963), 2, Di Genova et al. (2016) and 3, Sato et al. (1999). Also shown is the VFT curve for the $55K_2CO_3$-$45MgCO_3$ liquid studied here. The fraction of carbonate triangles is shown as a function of temperature (**b**) for different values of charge separation.

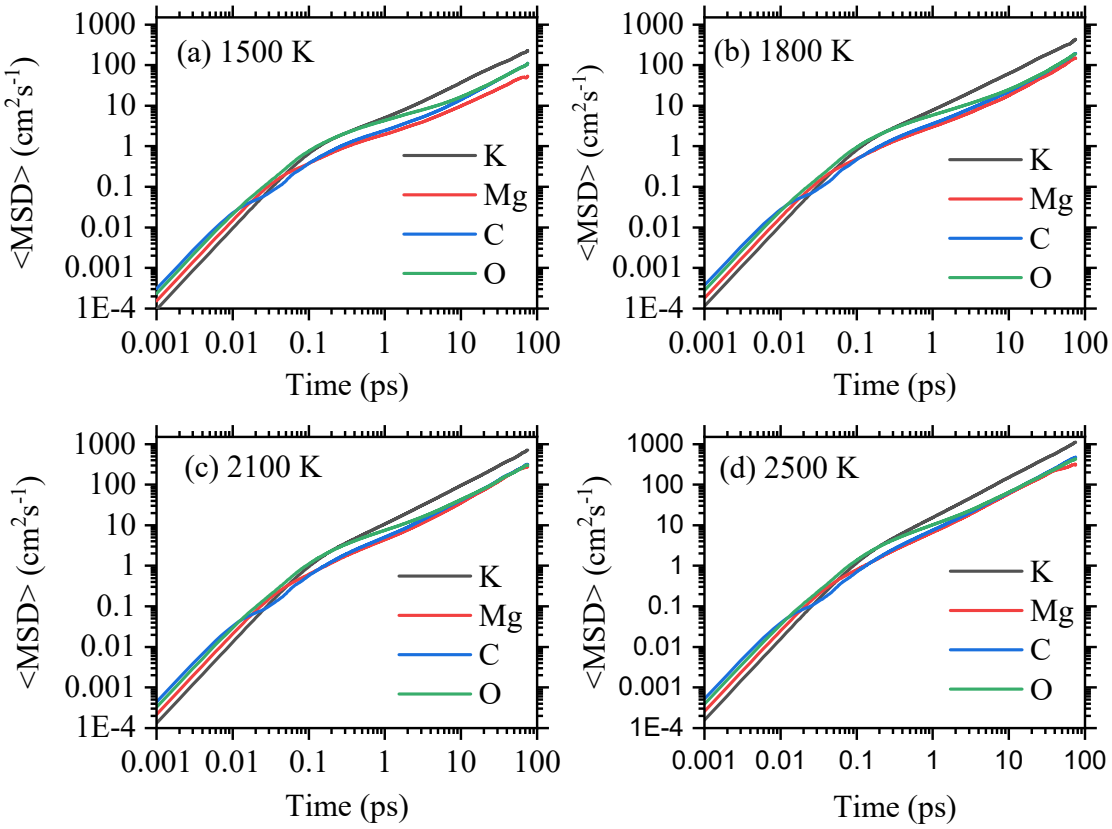

FIGURE A2. Mean squared displacement of K, Mg, O, and C obtained from the from the ab initio MD (VASP) simulation trajectories for liquid $55K_2CO_3$-$45MgCO_3$ for 1500, 1800, 2100 and 2500 K.

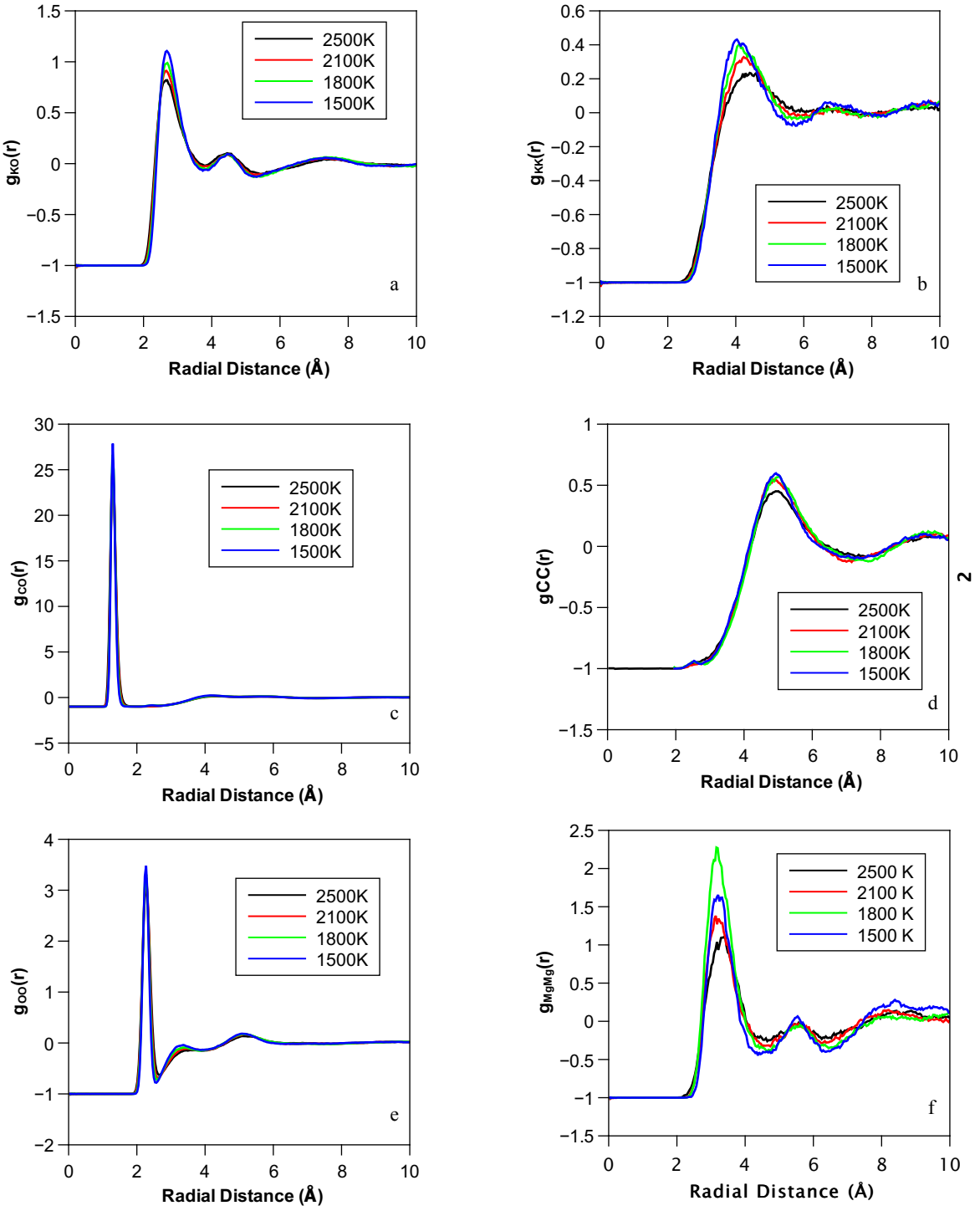

FIGURE A3. Partial contributions to the pair distribution function obtained direction from the simulation trajectories for liquid $55K_2CO_3$-$45MgCO_3$ as a function of temperature. The selected partial contributions are K-O (**a**), K-K (**b**), C-O (**c**), C-C (**d**), O-O (**e**), and Mg-O (**f**).