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Thermodynamic properties and evaluation of the lithium nitrate-imidazole IL-water ternary systems as new working fluids for a double-effect AHP cycle

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Highlights

- New working fluids were studied for a double-effect AHP cycle.
- The thermodynamic properties of the new working fluids were systematically measured.
- The COP based on $\text{LiNO}_3\text{-IL-H}_2\text{O}$ is close to that based on $\text{LiNO}_3\text{-H}_2\text{O}$ and $\text{LiBr-H}_2\text{O}$.
- $\text{LiNO}_3\text{-IL-H}_2\text{O}$ aids in solving the crystallization problem of $\text{LiNO}_3\text{-H}_2\text{O}$.
- Corrosion caused by $\text{LiBr-H}_2\text{O}$ is relieved by using $\text{LiNO}_3\text{-[BMIM]Br-H}_2\text{O}$.

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