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A new method for online measuring the concentration of working fluids in absorption refrigeration systems

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Highlights

- A new method for concentration measuring of absorption working pair is present.
- Electrical conductivity with different temperatures and concentrations is obtained.
- A new correlation for solution concentration calculation is provided.

Abstract:

This paper proposes a new method for online measuring the concentration of working fluids in absorption refrigeration systems: electrical conductivity is measured to determine the concentration of the solution. Compared with the common density-concentration method, electrical conductivity-concentration method has the similar accuracy but helps to save the cost when applied in absorption systems with ammonia-salt solutions. This novel method is also suitable for systems with traditional working fluids like water-lithium bromide solution. Electrical conductivities of ammonia-lithium nitrate, ammonia-sodium thiocyanate and water-lithium bromide solutions were measured between (293.15 and 333.15) K, using an Industrial Conductivity Meter. The ammonia mass fraction varied from 0.35

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