

# Thermochemistry of Pyridinium Based Ionic Liquids with Tetrafluoroborate Anion

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## Abstract

© 2017 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim Enthalpies of vaporization of five pyridinium based ionic liquids (ILs): 1-R-pyridinium (with R = ethyl, butyl-, and hexyl), 1-butyl-3-methyl-pyridinium, and 1-butyl-4-methyl-pyridinium with tetrafluoroborate anion were studied using Quartz Crystal Microbalance (QCM). Enthalpies of solution of these ionic liquids were measured by high-precision solution calorimetry. Gas-phase enthalpies of formation of ILs were calculated by using the high-level quantum-chemical method G3MP2. From combination of experimental and theoretical results, enthalpies of formation of aqueous pyridinium based cations were derived for the first time.

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## Keywords

Ionic liquids; Enthalpy of vaporization; Quartz Crystal Microbalance (QCM); Solution calorimetry; Quantum chemical calculations

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