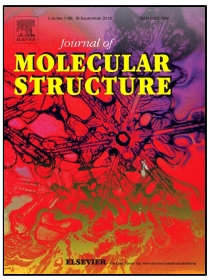
Accepted Manuscript



FTIR spectroscopic study of possible interactions of N–*tert*–butylformamide with ethers

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PII:	S0022-2860(18)30689-6
DOI:	10.1016/j.molstruc.2018.05.108
Reference:	MOLSTR 25281
To appear in:	*Journal of Molecular Structure*
Received Date:	01 March 2018
Accepted Date:	30 May 2018

Please cite this article as: B. Jović, S. Petrović, B. Kordić, M. Kovačević, FTIR spectroscopic study of possible interactions of N–*tert*–butylformamide with ethers, *Journal of Molecular Structure* (2018), doi: 10.1016/j.molstruc.2018.05.108

FTIR spectroscopic study of possible interactions of N–*tert*–butylformamide with ethers

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Abstract

IR spectroscopic investigation of intramolecular interactions of N-*tert*-butylformamide (NtBF) in presence of selected ethers as the O–electron donors was carried out. Following ethers were selected based on the different size of sidechain: diethyl ether (DEE), diisopropyl ether (DiPE), methyl-*tert*-buthyl ether (MtBE), dibutyl ether (DBE), tetrahydrofuran (THF) and tetrahydropyran (THP). Frequency shifts of carbonyl stretching vibration ν(C=O) of NtBF in ether solvents were also investigated. The spectroscopic characteristics for N-H···O hydrogen bonded complexes are given. Also, the equilibrium constants for 1 : 1 complex formation in carbon tetrachloride, at 298 K were determined using IR measurements. Further, the wavenumbers of carbonyl stretching vibration ν(C=O) were correlated with the Catalan and the linear solvation energy relationships (LSER) solvatochromic parameters.

Keywords*:* Hydrogen bonding, N-*tert*-butylformamide, Ethers, Molecular complex, Spectroscopy