Title	Release kinetics of nicotinamide from fatty acid-nicotinamide equimolar complexes. II. activation thermodynamic quantities
Sub Title	
Author	横山, 祥子(Yokoyama, Shoko) 上田, 文雄(Ueda, Fumio) 藤江, 忠雄(Fujie, Tadao)
Publisher	共立薬科大学
Publication year	1992
Jtitle	共立薬科大学研究年報 (The annual report of the Kyoritsu College of Pharmacy). No.37 (1992.) ,p.82- 82
JaLC DOI	
Abstract	
Notes	抄録
Genre	Technical Report
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00062898-00000037-0082

No. 37 (1992)

Release Kinetics of Nicotinamide from Fatty Acid-Nicotinamide Equimolar Complexes. II. Activation Thermodynamic Quantities*

Shoko YOKOYAMA, Fumio UEDA,** and Tadao FUJIE

横山祥子，上田文雄**，藤江忠雄

The rates of release of nicotinamide (NAA) from fatty acid (FA)-NAA complexes, FA-NAA, were determined at various temperatures, and the thermodynamic quantities for the release of NAA were estimated. The results were compared with the previous results obtained for FA-thiamine disulfide (TDS) complexes, $(FA)_6(TDS)$.

The values of activation enthalpy ($\Delta H^{\neq}$) and activation entropy ($\Delta S^{\neq}$) for the release of NAA from FA-NAA were positive and negative, respectively, indicating that the release of NAA is disadvantageous from not only enthalpic but also entropic viewpoints. The plots of $\Delta H^{\neq}$ against the carbon number (n) in the constituent FA showed a zig-zag line with an upward convex at an odd-numbered position and the plots of the absolute values of $|-\Delta S^{\neq}|$ showed a zig-zag line with a downward convex at an odd-numbered position, though the positive value of $\Delta H^{\neq}$ increases and the negative value of $\Delta S^{\neq}$ decreases with an increasing n for either even-numbered or odd-numbered FA. It was found that the release of NAA from FA-NAA formed with odd-numbered FA is more disadvantageous enthalpically but more advantageous entropically as compared with that from FA-NAA formed with even-numbered FA. This phenomenon was similar to that observed for $(FA)_6(TDS)$. Furthermore, it is suggested that FA-NAA is formed at least by van der Waals forces and hydrophobic interactions and that van der Waals forces are dominant for the formation of FA-NAA formed with odd-numbered FA and hydrophobic interactions are dominant for the formation of FA-NAA formed with even-numbered FA.

* 本報告は *Chem. Pharm. Bull.*, **39** (12), 3114—3119 (1991) に発表.

** 河合製薬株式会社研究所