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Release Kinetics of Nicotinamide from Fatty Acid-Nicotinamide Equimolar Complexes. I Release Characteristics of Fatty Acid Complexes*

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The rates of release of nicotinamide (NAA) from fatty acid (FA)-NAA complexes, FA-NAA, were determined in a JP XI dissolution test apparatus in 500 ml of JP XI disintegration test medium No.1 at 37 °C. The release rate constant (k) and the activation Gibbs energy ($\Delta G^\ddagger$) for the release of NAA from FA-NAA were estimated. The results obtained for FA-NAA were compared with previous results obtained for the thiamine disulfide (TDS) complex, (FA)₆(TDS).

The plots of $\log k$ against the carbon number of the constituent FA (n) presented a zig-zag line which indicates a downward convex at an odd-numbered position. The plots of $\Delta G^\ddagger$ against n showed a zig-zag line with an upward convex at an odd-numbered position, though the positive value of $\Delta G^\ddagger$ increased rather regularly with an increase of n for either even-numbered or odd-numbered FA.

The phenomena that the plots of $\log k$ vs. n and $\Delta G^\ddagger$ vs. n show zig-zag lines due to the difference between even- and odd-numbered FA were the same as observed previously for the release of TDS from (FA)₆(TDS).

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