Quantitative study of the dissociation of dimeric *cis*-9,*cis*-12-octadecadienoic acid in pure liquid by the FT-IR liquid film technique.

Autorzy

Mirosław A. Czarnecki

Yukihiro Ozaki

M. Suzuki

M. Iwahashi

Rok wydania

1993

Czasopismo

Applied Spectroscopy

Numer woluminu

47

Strony

2157-2161

DOI

10.1366/000370293406639

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

The study of the infrared spectra of neat*cis*- 9 , *cis*-12-octadecadienoic acid in the liquid phase has been carried out over a temperature range of 31 to 110°C. In the region of 1710 cm^{-1} a strong absorption band accompanied by two weaker bands appears. The strong band is assigned to a C=O stretching vibration due to the dimeric form of the acid, and the weaker bands near 1750 and 1650 cm^{-1} are attributed to a C=O stretching vibration due to its monomer and to C=C stretching modes arising from both forms, respectively. The shape of the band envelope strongly depends on temperature. Making a curve fitting, one can determine spectral parameters of the individual bands, and from them it is possible to calculate the degree of dissociation of the acid. The obtained values of the degree of dissociation enable us to determine enthalpy (ΔH) and entropy (ΔS) for the process of dissociation of dimeric species into free molecules, and the results seem to be reasonable as compared with the literature data for other fatty acids.

Adres publiczny

https://doi.org/10.1366/000370293406639