

APPLICATION SHEET

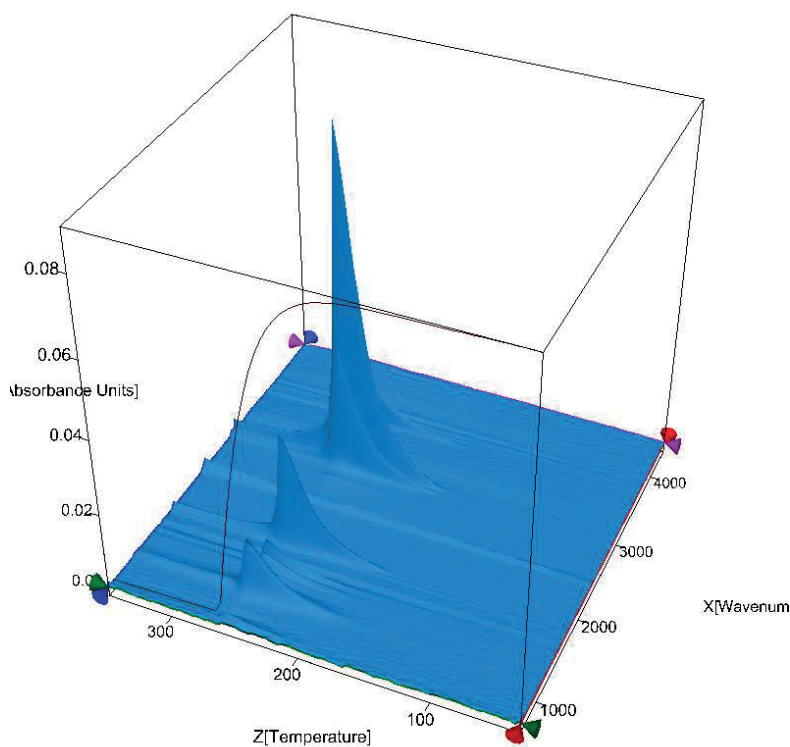
Organics · Polymers
TG 209 **F1 Iris**[®] – FT-IR

Stearic Acid

Introduction

Stearic acid (octadecanoic acid) is one of the saturated fatty acids that comes from many animal and vegetable fats and oils. It is a waxy solid, and its chemical formula is $\text{CH}_3(\text{CH}_2)_{16}\text{COOH}$. The term stearate is applied to the salts and esters of stearic acid. Stearic acid is used as an

ingredient in making candles, soaps, plastics, oil pastels and cosmetics, and for softening rubber. Stearic acid is also used as a parting compound when making plaster castings from a plaster piece mold or waste mold. In this use, powdered stearic acid is dissolved in water and the solution is brushed onto the surface to be parted after casting.



Test Conditions

Temperature range:	RT ... 400°C
Heating/cooling rates:	10 K/min
Atmosphere:	Nitrogen (40 ml/min)
Sample mass:	2.37 mg
Crucible:	Alumina
Sensor:	Platinel

Test Results

A 3-dimensional plot of the FT-IR spectra with the TGA curve of stearic acid is shown in figure 1. Figure 2 depicts the spectrum of stearic acid (red) and the library spectrum of octadecanoic acid (green). Stearic acid starts sublimating at about 160°C and vaporates completely. The spectrum of the sample can clearly be identified by the library spectrum.

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