

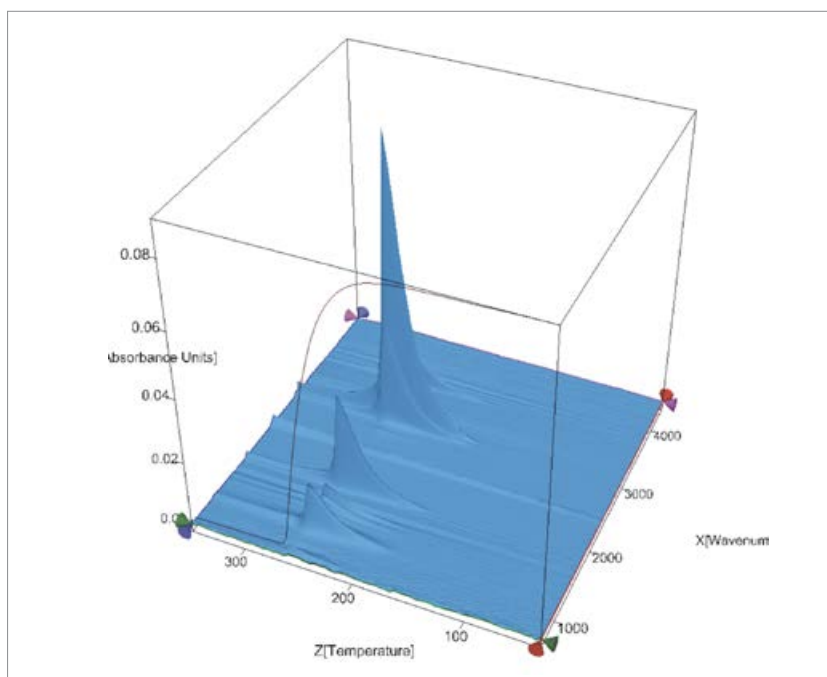
# APPLICATION SHEET

## ORGANICS – POLYMERS

### STEARIC ACID

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.



#### Instrument

TG 209 **F1 Iris**® – FTIR

#### Test Conditions

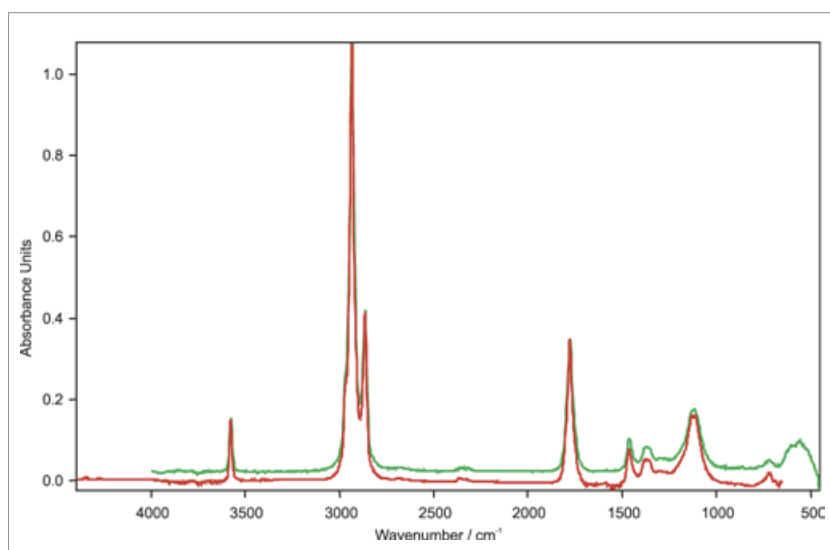
|                       |                       |
|-----------------------|-----------------------|
| Temperature range     | RT ... 400°C          |
| Heating/cooling rates | 10 K/min              |
| Atmosphere            | Nitrogen at 40 ml/min |
| Sample mass           | 2.37 mg               |
|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

#### Results

A 3-dimensional plot of the FTIR spectra with the TG 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 evaporates completely. The spectrum of the sample can clearly be identified by the library spectrum.

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