

# APPLICATION SHEET

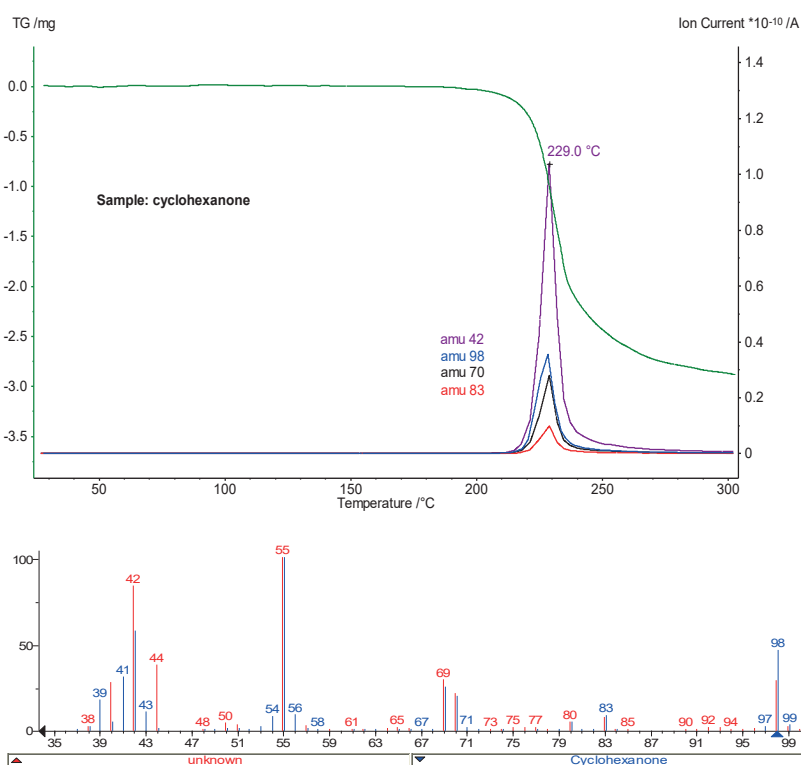
Organics · Chemistry  
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## Cyclohexanone

### Introduction

Cyclohexanone  $C_6H_{10}O$  (also known as oxocyclohexane, pimelic ketone, ketohexamethylene, cyclohexyl ketone or ketocyclohexane) is a six-carbon cyclic molecule with a ketone functional group. It is a colorless, oily liquid with

an acetone-like smell. Cyclohexanone is slightly soluble in water (5 - 10 g/100 ml), but miscible with the most common organic solvents. Cyclohexanone is employed as an industrial solvent and as an activator in oxidation reactions. It is also used in the production of adipic acid, cyclohexanone resins, caprolactam and nylon 6.



### Test Conditions

Temperature range: RT ... 300°C  
Heating/cooling rates: 5 K/min  
Atmosphere: Argon at 75 ml/min  
Sample mass: 2.90 mg  
Crucible: Pt  
Sensor: TGA-DSC type S

### Test Results

Cyclohexanone was studied using simultaneous thermogravimetry (TGA) and mass spectroscopy (MS). In the

temperature range between ~200°C and 300°C, the evaporation occurred as can be seen from both the TGA and MS curves (only a few exemplary mass numbers are shown). The temperature-dependent mass spectrometer signals exhibit a good correlation with the TGA curve indicating a fast response time of the coupled evolved gas analyzer (MS). The mass spectrometer detects mass spectra as a function of time and thus of temperature. An exemplary mass spectrum of the cyclohexanone sample measured at 231°C is shown above and compared with the literature spectrum of cyclohexanone. The literature database allows for a search of matching mass spectra.