

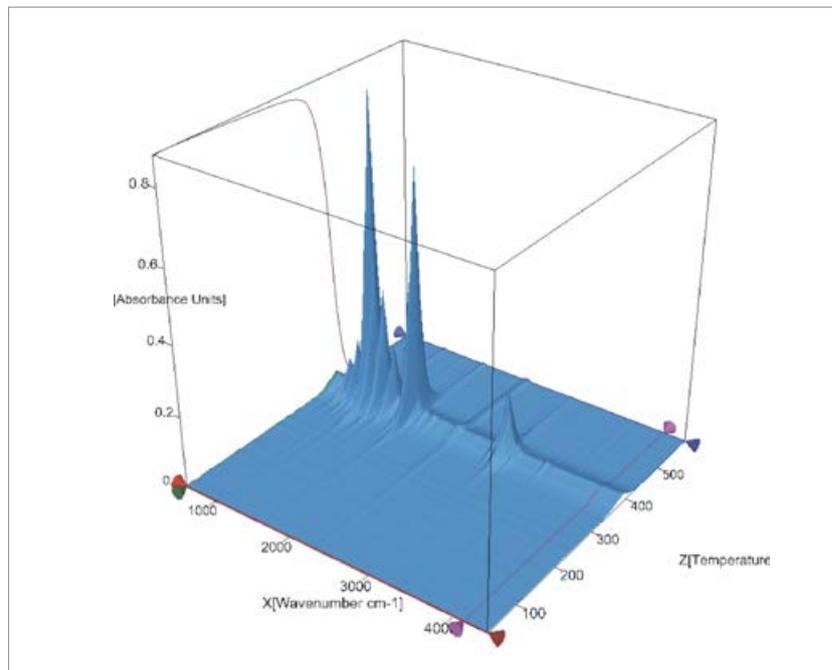
APPLICATION SHEET

POLYMERS – POLYMER MANUFACTURING

PMMA (POLYMETHYL METHACRYLATE)

Polymethyl methacrylate (PMMA) or poly(methyl 2-methylpropenoate) is the polymer of methyl methacrylate. This thermoplastic is transparent and is sold by the trade names Plexiglas, Perspex, Acrylite, Acryplast, and Lucite and is

commonly called acrylic glass or simply acrylic. The material is often used as an alternative to inorganic glass. PMMA is lighter than glass, does not shatter and can be easily formed, by heating above the glass transition temperature.



Instrument

TG 209 **F1** Iris® – FTIR

Test Conditions

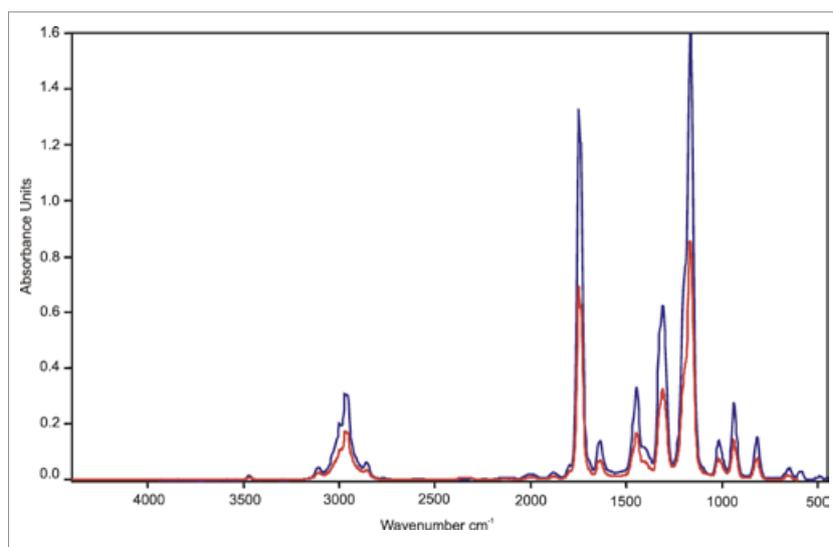
Temperature range	RT ... 600°C
Heating/cooling rates	20 K/min
Atmosphere	Nitrogen (40 ml/min)
Sample mass	5.1 mg
Crucible	Alumina
Sensor	Platinel

Results

PMMA reacts totally to CO₂ and H₂O upon heating in an air atmosphere. A 3-dimensional plot of the PMMA pyrolysis with FTIR and TG curves is depicted in figure 1. During pyrolysis (heating in an inert gas atmosphere) the monomer (methacrylic acid, methyl ester) can be detected. This is shown in figure 2 depicting a library search result (blue - library spectra).

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