

APPLICATION SHEET

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

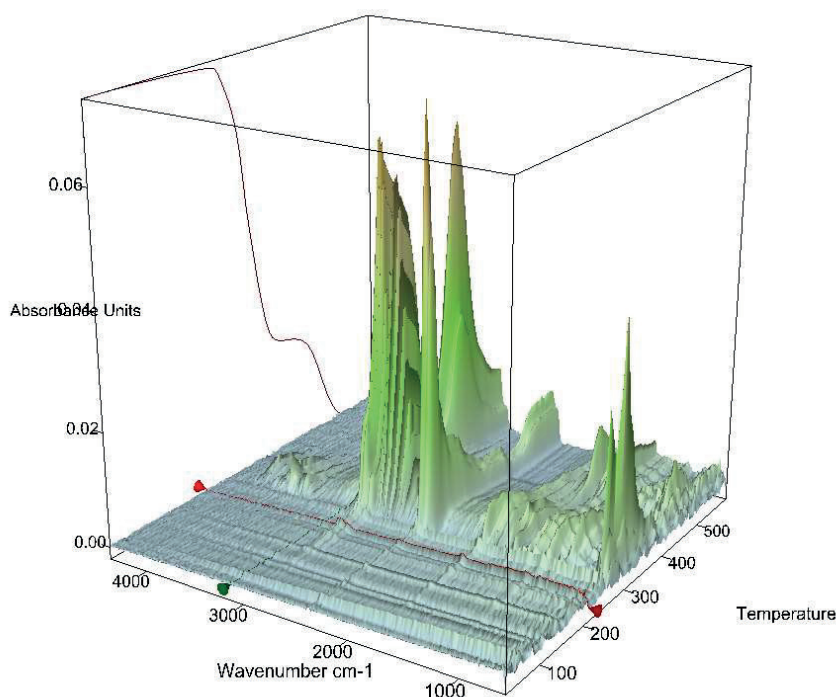
Polyvinyl Chloride

Introduction

Polyvinyl chloride is a widely used plastic produced by polymerization of the monomer vinyl chloride. Globally, over 50% of PVC manufactured is used in construction. As a building material, PVC is cheap and easy to assemble. There are many uses for PVC including window profiles,

pipes, plumbing fixing, roofing membranes, flooring, and electrical cables. Other applications are, i.e., in clothing, upholstery and magnetic stripe cards, etc.

Waste management of PVC is either done by recycling (mechanical, chemical), deposit or thermal by waste combustion.



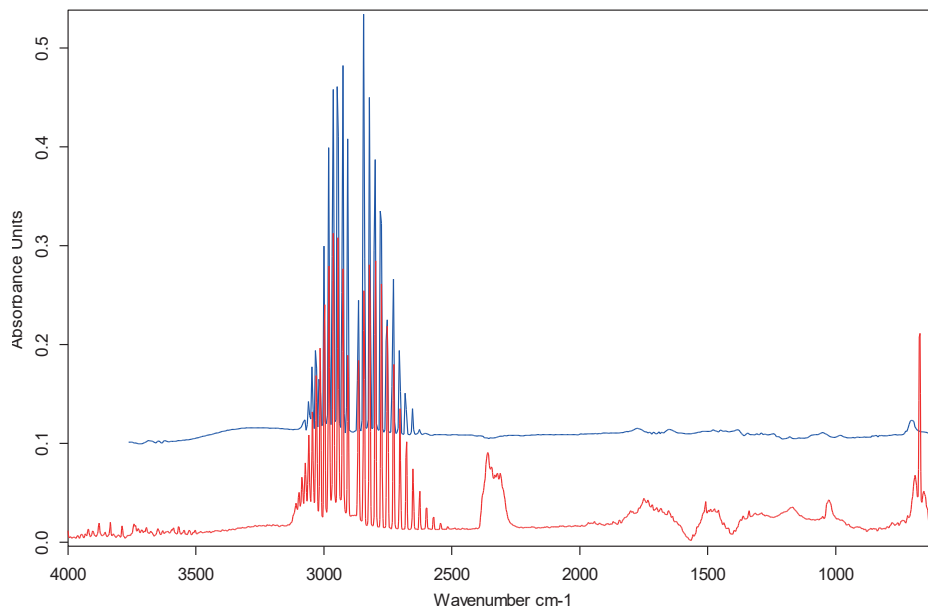
Test Conditions:

Temperature range: RT ... 1000°C
Heating/cooling rates: 20 K/min
Atmosphere: Nitrogen at 40 ml/min

Sample mass: 10 mg
Crucible: Alumina
Sensor: TGA type Platintel

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Test Results

PVC decomposes in two main TGA steps (figure 1). During the 1st TGA step, hydrochloric acid and chlorinated alkanes are the main decomposition products (figure 2, red = sample spectrum, blue = library spectrum of HCl).

During the 2nd TGA step, mainly chlorinated alkanes occur. From the point of waste disposal by combustion, appropriate flue gas filters must be installed.