APPLICATION**SHEET**

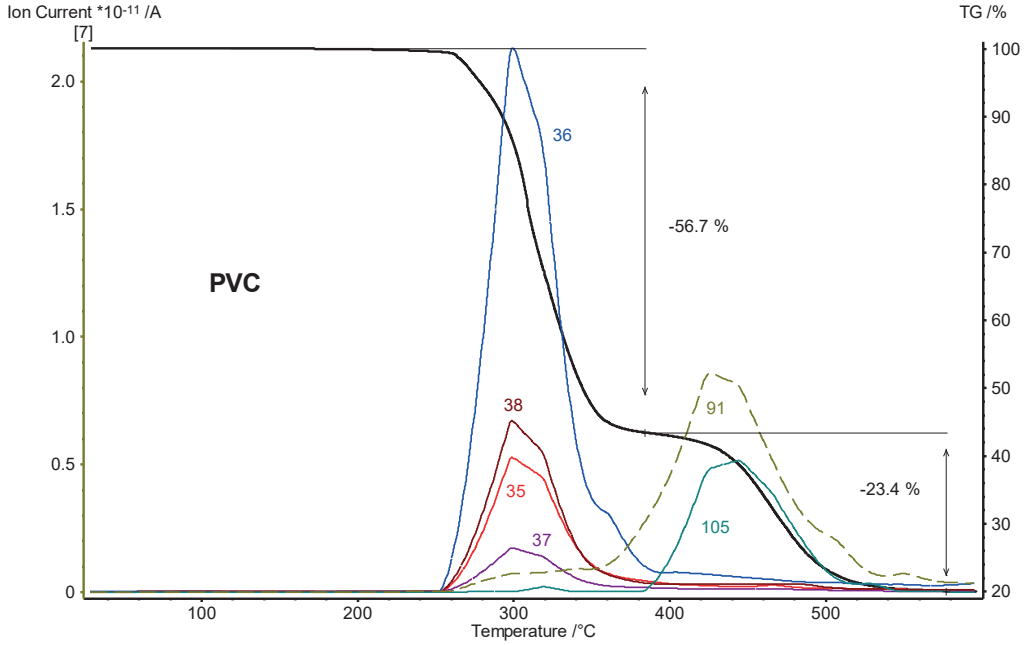
Polymers · Building Material
TG 209 ***F1*** *Libra*® - QMS 403 *Aëlos*

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, upholstering and magnetic stripe cards, etc. Waste management of PVC is either done by recycling (mechanical, chemical), deposit or thermally by waste combustion.



Test Conditions

Temperature range:	RT ... 1000°C
Heating rate:	10 K/min
Atmosphere:	Air at 40 ml/min
Sample mass:	21.7 mg
Crucible:	Alumina
Sensor:	TGA type Platinel

Test Results

PVC decomposes in two main TGA steps in an air atmosphere. Depending on the additives (flame retardants, plasticizers, stabilizers, etc.), decomposition starts at temperatures higher than 200°C. During the 1st TGA step, chlorine (35, 37 amu) and HCl (36, 38 amu) are evolved as can be seen from the picture. Fragments with higher mass numbers occur during the 2nd TGA step where the polymer backbone cracks. From the point of waste disposal by combustion, appropriate flue gas filters have to be installed.

NGB · Application Sheet 078 · E · 2006 · Technical specifications are subject to change.

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