

APPLICATION SHEET

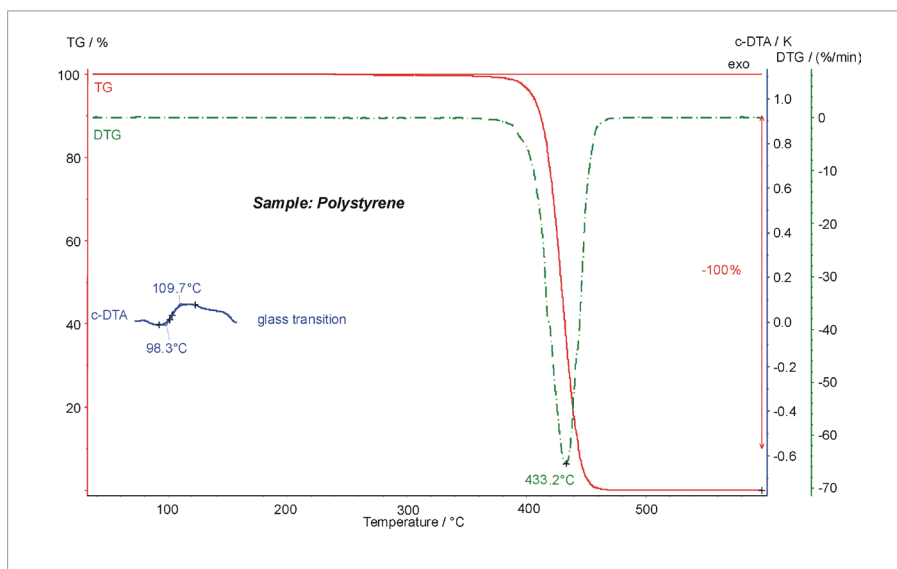
Polymers – Polymer Manufacturing – TG 209 **F3 Tarsus**[®]

Polystyrene

Introduction

Polystyrene is a polymer made of the monomer styrene, a liquid hydrocarbon that is commercially manufactured from petroleum. Pure solid polystyrene is a colorless, hard

plastic with limited flexibility. It can be expanded and is then the lightweight material of which coffee cups and takeaway food containers are made. EPS is also used in the packaging and insulation industries.



Test Conditions

Temperature range: 35 ... 600°C
Heating rate: 20 K/min
Atmosphere: Nitrogen at 20 ml/min
Sample mass: 10.02 mg
Crucible: Al₂O₃

Test Results

Prior to the degradation of polystyrene, an endothermal step was detected in the c-DTA[®] signal (calculated DTA) between 98.3°C and 109.7°C (onset and endset temperatures). It is due to the glass transition of the sample. A mass loss of 100% was detected at 433.2°C (peak temperature of the DTG curve). This is related to the complete degradation of polystyrene. No carbon black was formed during the pyrolytic decomposition.