

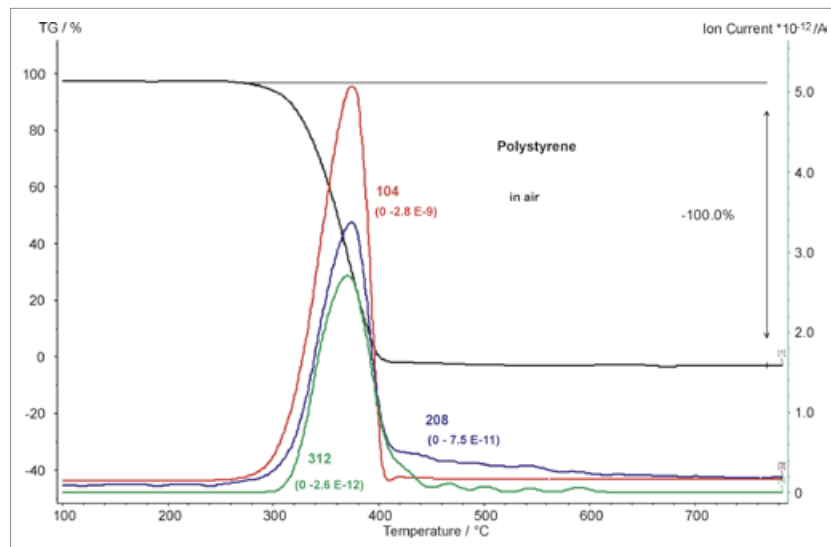
APPLICATION SHEET

POLYMERS – POLYMER MANUFACTURING

POLYSTYRENE

Polystyrene (PS) is an amorphous and transparent thermoplastic, which is frequently used. Because of its chemical inertness, PS can be employed for food packaging. As PS

foam (EPS or XPC), it is widely used as an insulating material in buildings because of the low thermal conductivity (0.02 - 0.04 W/mK), easy handling and low price.



Instrument

STA 409 C – Skimmer®

Test Conditions

Temperature range	RT ... 900°C
Heating/cooling rates	10 K/min
Atmosphere	Air at 75 ml/min
Sample mass	3 mg
Crucible	Alumina
Sensor	TG-DSC type S

Results

During the combustion of PS in an air atmosphere, decomposition products as benzene (not shown), styrene (104), dimer and trimer of styrene (208, 314) etc. were detected. Even these gaseous products might not be toxic enough to cause human death immediately, they can cause a long-term sickness and health problems. Styrene, for example, is classified as carcinogen and mutagen. Therefore the thermal waste management (combustion) should be performed with an excess of oxygen to guarantee that only CO₂ and H₂O are formed.