

Polytetrafluoroethylene (PTFE)

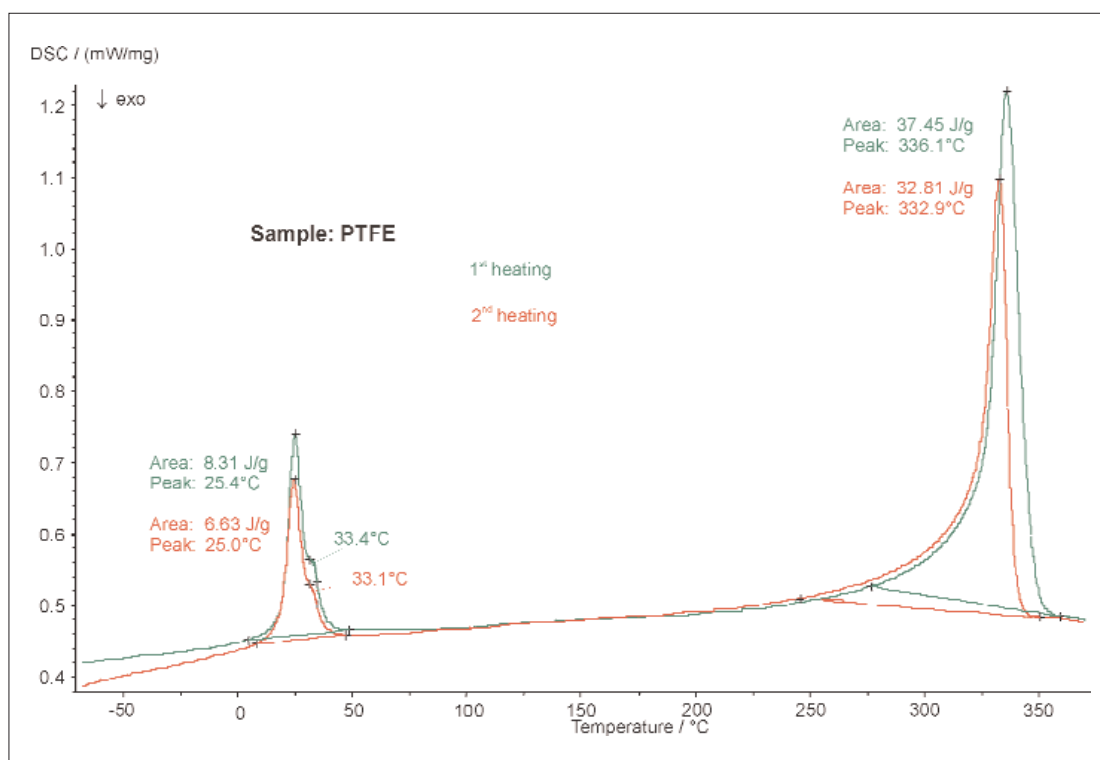
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PTFE is well-known under the brand name Teflon which is used as a non-stick coating for pans. Like other fluoropolymers, PTFE has exceptionally high thermal and thermo-oxidative stability and is completely solvent resistant, only certain fluorinated solvents dissolving it at temperatures near its melt temperature. It is also useful as a high-temperature and fire resistant electrical insulation material.

Test Conditions:

Temperature range: -80 ... 370°C ... -80°C ... 370°C
Heating rate: 20 K/min
Atmosphere: Nitrogen at 20 ml/min

Sample mass: 9.89 mg
Crucible: Al, pierced lid



Results:

An endothermic peak with a shoulder was detected between 20 and 50°C in both heating cycles. It is related to the crystal-crystal transitions of PTFE. The peak at 25°C is most probably due to the transition triclinic/hexagonal of the sample, the shoulder at 33°C to the transition hexagonal/pseudo-hexagonal. The peak at 336.1°C (first heating) / 332.9°C (second heating) can be attributed to melting of the PTFE.