

APPLICATION SHEET

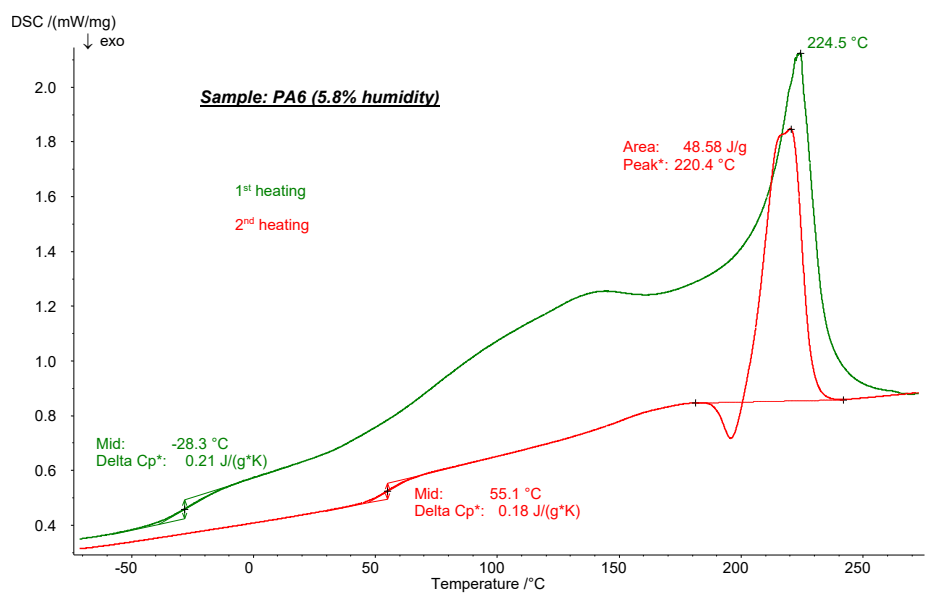
Polymers
DSC 3500 *Sirius*

Polyamide 6

Introduction

Polyamide is a polymer containing the amid group (-NHCO-) in the repeat unit. Polyamide 6 is one of the most important nylons commercially, being a major fiber-forming

polymer, as well as a useful engineering plastic. Polyamides can absorb the atmospheric moisture what affects their mechanical properties.



Test Conditions

Temperature range: -100°C ... 280 ... -100 ... 280°C
Heating rate: 20 K/min
Atmosphere: Nitrogen (20 ml/min)
Sample mass: 9.38 mg (with 5.8% water)
Crucible: Al, pierced lid

Test Results

The endothermic step at -28.3°C (midpoint) of the first heating indicates the glass transition of the humid polyamide 6. The endothermic effect between 20°C and 180°C is due to the evaporation of water contained in the sample. In the 2nd heating cycle, the sample is dry and the glass transition is shifted to 55.1°C (midpoint). Water reacts as a plasticizer and lowers the glass transition. The peak at 224.5°C (1st heating) and 220.4°C (2nd heating) is related to the melting of polyamide 6.