

# APPLICATION SHEET

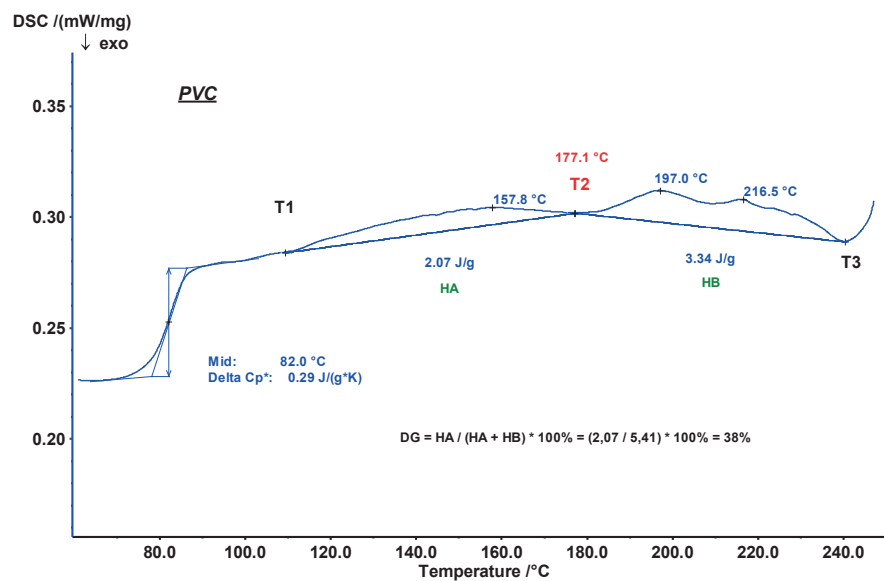
Polymers  
DSC 3500 *Sirius*

## Polyvinyl Chloride (PVC) – Gelation Degree

### Introduction

Polyvinyl chloride (PVC) is a widely used plastic. In terms of revenue generated, it is one of the most valuable products of the chemical industry. Globally, over 50% of PVC manufactured is used in construction. As a building material, PVC is cheap and easy to assemble. In recent years, PVC

has been replacing traditional building materials such as wood, concrete and clay in many areas. There are many other uses for PVC including vinyl siding, magnetic stripe cards, window profiles, pipe, plumbing and conduit fixtures, and, in its soft form, for clothing, upholstery, flooring, roofing membranes, and electrical cables.



### Test Conditions

Temperature range: RT ... 240°C  
Heating rate: 10 K/min  
Atmosphere: Nitrogen at 40 ml/min  
Sample mass: 12.7  
Crucible: Al, pierced lid

### Test Results

At 82°C (mid point), the glass transition was detected ( $\Delta c_p$  step). Between T1 and T2, the endothermic effect is related to the already gelled amount (HA = 2.07 J/g). T2 is representing the processing temperature. The endothermic effect between T2 and T3 (HB = 3.34 J/g) is related to the amount of PVC that gels during the heating treatment of the DSC measurement. The above-mentioned equation indicates that the degree of gelation is calculated to be 38%.