

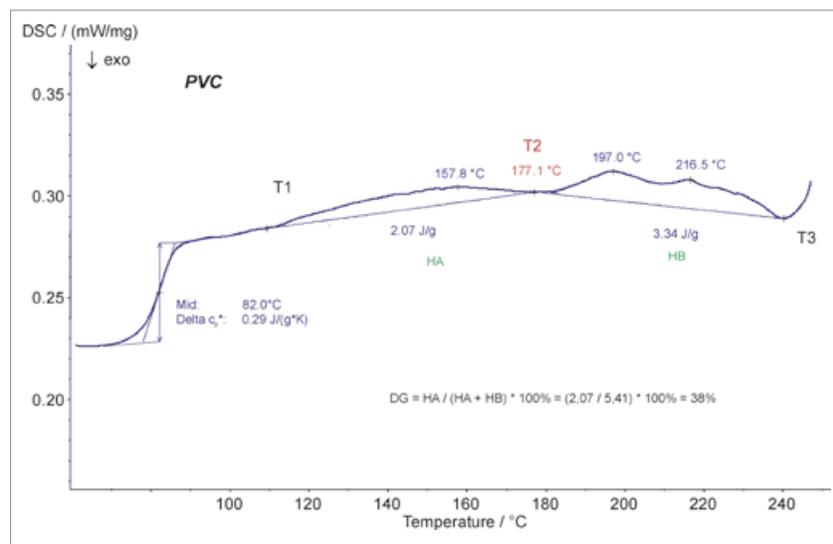
APPLICATION SHEET

POLYMERS – POLYMER MANUFACTURING

POLYVINYL CHLORIDE (PVC) – GELATION DEGREE

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.



Instrument

DSC 200 **F3 Maia**®

Test Conditions

Temperature range	RT ... 280°C
Heating/cooling rates	10 K/min
Atmosphere	Nitrogen at 40 ml/min
Sample mass	12.7 mg
Crucible	Aluminum, pierced lid

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 the degree of gelation is calculated to be 38%.