

APPLICATION SHEET

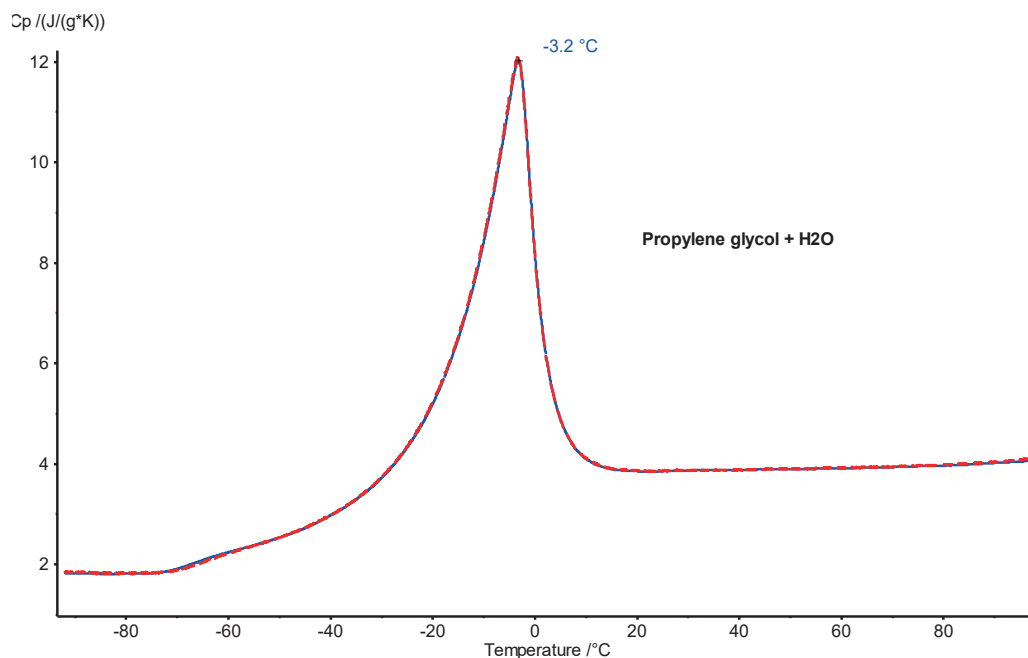
Polymers · Automotive
DSC 3500 *Sirius*

Propylene Glycol – Water Mixture

Introduction

Propylene glycol, also known as 1,2-propanediol, is a tasteless, odorless, and colorless clear oily liquid that is hygroscopic and miscible with water, acetone, and chloroform.

It is, for example, used as a moisturizer in medicines, cosmetics, food, and tobacco products. It is also employed as a base ingredient in aircraft de-icing fluid and automobile anti-freeze.



Test Conditions

Temperature range: -90 ... 100°C
Heating rate: 10 K/min
Atmosphere: Nitrogen at 50 ml/min
Sample mass: 29 mg
Crucible: Al, closed
Sensor: DSC

Test Results

The specific heat values of a mixture of propylene and water were measured in sealed aluminum crucibles. The figure shows the 1st and 2nd heatings of the sample and demonstrates the very good reproducibility of the measurement. The determined c_p values are close to the values of water because of the high amount of water in the mixture. The melting point of the mixture with about -3°C has, of course, not very much decreased. With increasing amounts of propylene glycol, the freezing point can be lowered but then, the specific heat values would also be smaller.