Natural Rubber / Ethylene Propylene Diene Rubber

Introduction

Elastomers like natural rubber (NR) / ethylene propylene diene rubber (EPDM) are materials with the mechanical property that can undergo elastic deformation under stress than most materials and still return to its previous size without permanent deformation. Natural rubber (NR) is a polymer of isoprene units; EPDM is a copolymer of ethylene, propylene and diene units.

Test Conditions

- Temperature range: -100°C ... 100°C
- Heating rate: 20 K/min
- Atmosphere: Nitrogen (20 ml/min)
- Sample mass: 14.34 mg
- Crucible: Al, pierced lid

Test Results

Two glass transitions were detected. The first one at -72.8°C (midpoint) with a change in specific heat of 0.13 J/(g·K) can be attributed to NR. The second one at -52.3°C with a change in specific heat of 0.04 J/(g·K) is most probably related to the glass transition of EPDM.

Graph showing the DSC measurement for Natural Rubber (NR) and Ethylene Propylene Diene Rubber (EPDM).