

APPLICATION SHEET

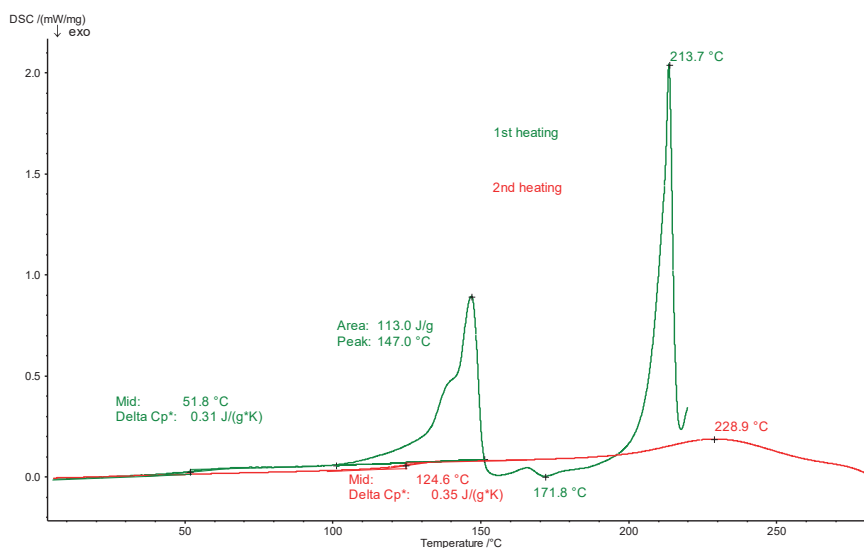
Organics · Food
DSC 204 F1 Phoenix®

Lactose

Introduction

Lactose is a disaccharide that consists of β -D galactose and β -D glucose molecules bonded through a β 1-4 glycosidic

linkage. Lactose makes up around 2 to 8% of the solid content in milk. The name comes from the Latin word for milk, plus the -ose ending used to name sugars.



Test Conditions

Temperature range: -50 ... 220 ... -50 ... 300°C
Heating/cooling rates: 5 K/min
Atmosphere: Nitrogen at 20 ml/min
Sample mass: 4.96 mg
Crucible: Al, pierced lid

Test Results

The endothermic change in the specific heat-flow rate, detected at 51.9°C (midpoint) during the 1st heating, is due to the glass transition of the sample. Lactose dehydrates at 147°C (peak temperature) and then crystallizes at 171.8°C (peak temperature). Lactose anhydrate melts at 213.7°C (peak temperature). During the controlled cooling, lactose does not crystallize. Therefore, the sample is amorphous and shows only a glass transition at 124.6°C during the 2nd heating. The exothermic trend above 229°C results from the degradation of lactose.