

APPLICATION SHEET

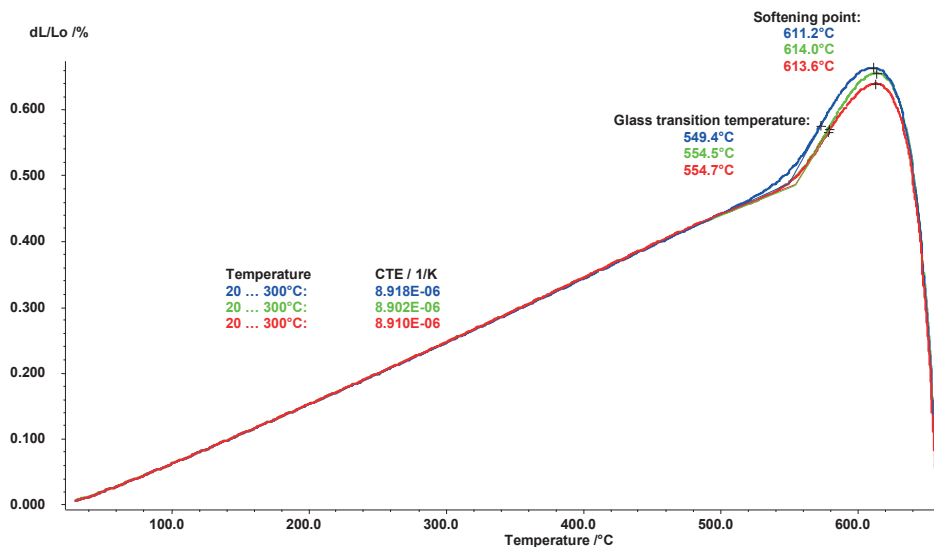
Ceramics · Chemical Industry
DIL 402

Soda Lime Glass

Introduction

Glass is a uniform amorphous solid material, usually produced when the viscous molten material cools very rapidly to below its glass transition temperature without sufficient time for a regular crystal lattice to form. The most familiar form of glass is the silica-based material used for windows, containers and decorative objects. In its pure form, glass

is a transparent, strong, hardwearing, essentially inert, and biologically inactive material which can be formed with very smooth and impervious surfaces. Glass is, however, brittle and will break into sharp shards. These properties can be modified or changed with the addition of other compounds or heat treatment. Common glass contains about 70% amorphous silicon dioxide, mixed with other oxides.



Test Conditions

Temperature range: RT ... 650°C
Heating rates: 5 K/min
Atmosphere: Air
Sample length: approx. 25 mm
Calibration: with fused silica

Test Results

Presented in the plot are three different measurement results for soda-lime glass. The samples were taken from the same production line but at different times. It can clearly be seen that the coefficients of thermal expansion are comparable for all three samples. However, sample #3 (blue curve) shows a slightly lower glass transition temperature (549°C versus 555°C) and softening point (611 versus 614°C) compared to the other samples. This indicates a slight difference in the composition.