

APPLICATION NOTE - POLARIMETRIC IDENTIFICATION OF THE ISOMALT CONCENTRATION

What is ISOMALT

ISOMALT is a disaccharide consisting of two sugar types (glucose and mannitol). It is a white, crystalline, odorless substance containing approx. 5 % water of crystallization.

Use of ISOMALT

ISOMALT is a very tasty sugar free sweetener with a much lower energy content compared to sucrose (sugar). It is won in a chemical reaction from sugar. In the alimentary production it substitutes sugar in a ratio of 1:1. Products being produced with ISOMALT do not differ in consistency or appearance from products being produced with sugar. Its advantages for health as well as its stability regarding heat and acids turns ISOMALT into a valuable and multi purpose raw material for various reduced calorie alimentary products as well as medicines.

Method

ISOMALT is a sugar alcohol which belongs to the optically active materials due to its molecular structure. Dissolved in water, the concentration of ISOMALT can be identified in a quick, reliable and non-destructive way in a Polarimeter.

Specific rotation ISOMALT: $[\alpha] = + 91,5^\circ$ (at 20°C and 589 nm)

The calculation/identification of the ISOMALT concentration contains, among the measured value of the Polarimeter, the length of the used measuring tube, the concentration of the solution and the DN (dry substance content). Fill a clean 100 mm long polarimeter tube with the diluted (or pure) essential oil. Place the filled sample tube in the polarimeter and record the measured value.

$$\text{Conc ISOMALT} = \frac{\alpha * l}{DN * 2 * c}$$

α optical rotation of the sample

DN dry substance content

c concentration

L length of the measuring tube

This constitutes an additional effort for the laboratory staff because the measured value of the Polarimeter has to be converted into the concentration of ISOMALT, usually in a manual way.

The Reichert Polar1 is now available with the ISOMALT method. The formula for the calculation of the concentration is included in the device. In case the values “concentration of solution” and “dry substance content” change for the samples to be measure, they can be entered anew quickly and reliably via “Hot Key” on the keyboard of the Polarimeter before each measurement.

Product Recommendations:

Polar 1 Polarimeter – Reichert Cat #14001000



Benefits

- Time Saving
- Error Control