



Application Note

Measurement of Brix in Fruit Juice Using a Refractometer

Industry	:	Food & beverage
Instrument	:	Refractometer
Measurement method	:	Detection of critical angle of optical refraction
Standards	:	GB/T 12143

Brix is defined as the mass percent concentration (%) of an aqueous sucrose solution. There is a correlation between Brix and the refractive index, so the refractive index at 20 °C can be converted to Brix using a conversion table built into the device. When the refractive index of an aqueous sucrose solution with a known concentration is measured and then converted to the Brix value, it matches the sucrose concentration. This does not mean however that the Brix for actual samples indicates their sucrose concentration. This is because samples contain acids such as citric acid and sugars such as glucose as soluble solids other than sucrose. The Brix obtained from this measurement is generally used as an indicator of the sugar content of fruit juices for example. This Application Note describes an example of the measurement of Brix for fruit juices using a KEM refractometer. Note that orange, grape, and apple juice were used as the measurement samples.

After measurement is finished, use a paper wipe to remove the sample. Then clean the prism with pure water, and dry it with a paper wipe. Clean it three times with pure water. Then proceed to the next measurement.

3.

Refractometer

4. Reagents

Cleaning solution Pure water

-Sample preparation-

- 1) The juice is obtained by squeezing it out of the fruits.
- 2) If there is any skin, fiber, or other solids from the fruit in the juice, filter them out before using the fruit juice as the sample.

-Prepare to measurement-

- 1) Set the measurement temperature to 20 °C.
- 2) Calibrate with air and pure water.
(Calibrate each measurement day.)

- Measurement -

- 1) Drop the sample using a dropper to ensure ample coverage of the refractometer prism.
- 2) Measurement.

