

## Application Note

# Measurement of pressure in tea beverage cans using a by Gas volume and air content analyzer

Industry	Food & beverage
Instrument	Gas volume and air content analyzer
Measurement method	Gas volume measurement method
Standards	

## 1. Scope

The measurement of pressure inside the containers of beverage products, is an important step in preserving container strength, amongst other things, and is vital in maintaining product quality and safety. This Application Note introduces an example of measuring commercially available tea beverages (cans) using a gas volume and air content analyzer.

## 2. Precautions

- Measurements should be conducted within a temperature-controlled laboratory room, and the temperature of the instrument and samples must be equalized to that of the room.
- Either the instrument's onboard air system, or an independent air compressor, (both of which can adjust to pressures between 0.5 and 0.7 MPaG), is required for the piercing and rotation of sample bottles and cans.
- For soft containers such as lightweight PET bottles, measurement is not possible using a can folder. We recommend that users purchase a bottle holder for PET bottles (optional parts).

## 3. After measurement

- The measurement instrument should be rinsed properly at the end of the day.

## 4. Apparatus

Equipment      Gas volume and air content analyzer

## 5. Reagents

Rinse solution      Pure water

## 6. Procedure

- 1) Select “PRESS (Pressure)” on the measurement mode, and enter the following parameters into the measurement conditions.

```

< Mode >
  Meas. Mode    PRESS
< Method >
  Temp. Meas.   ON
  Start Time    0 sec
  Rot1 Time     70 sec
  End Press     .015 MPa

```

Note that the above measurement parameters are an example and optimizing these parameters might be necessary depending on the sample's property.

- 2) Set the sample bottle/can on the sample stage and press the Start button.

## 7. Example

Table 1 shows the measurement results of a sample tea beverage.

Table 1. Measurement results of tea beverage (160mL can) \*

n	PRESS [MPa]	Press [MPa]	Temp. [°C]
1	-0.046	-0.043	21.9
2	-0.045	-0.042	21.9
3	-0.043	-0.039	22.0
4	-0.043	-0.039	22.0
5	-0.041	-0.037	22.0
6	-0.043	-0.040	22.0
7	-0.044	-0.041	22.0
8	-0.041	-0.037	22.0
9	-0.043	-0.039	22.0
10	-0.044	-0.041	22.0
Mean	-0.043	-0.040	22.0
SD	0.002	0.002	0.04
RSD(%)	-3.6	-5.0	0.2

\* Measurement items

PRESS      Converted pressure in sample bottle/can at 20 °C (MPa)  
 Press      Measured pressure (MPa)  
 Temp.      Measured sample temperature (°C)