

# Total Acidity Measurements in Food & Beverage with the AT1000 Automatic Titrator

## Introduction

Acidity has an impact on taste and is an indicator of product quality. The AT1000 determines pH and Total Acidity safely and accurately within a few minutes and offers ready-to-use solutions to perform routine pH and Total Acidity analysis.



### Maximum Simplicity: Ready to Use

Simplified implementation makes analysis accessible to all at a competitive cost. No programming or technical knowledge is required. Place the sample into the beaker and press a button!

### Flexibility When You Need It

The AT1000 provides the ability to measure other additional parameters with one device, including Alkalinity (TA/TAC), Salt, and Free & Total SO<sub>2</sub> in wines. Automation of sample series is easy and cost effective by connecting an AS1000 Sample Changer. This multi-parameter automation solution releases operators' time from cumbersome and repetitive analyses.

### Safety

During titration, users of the AT1000 are not in direct contact with reagents. In addition, AT1000 titration methods do not use potentially dangerous color indicators, e.g. Phenolphthalein (CMR classified).

### Maximum Analytical Quality and Traceability

Automatic measurements guarantee accurate results, with repeatable and reliable operations. For complete traceability, AT1000 archives all analysis data and can be exported to USB in an Excel compatible format. PC software is also available as an option.

### AT1000 Total Acidity Methods in Brief

Total Acidity corresponds to the sum of titratable acids in food and beverages. It's an increasing acid/base titration of a weak acid by a strong base (NaOH). pH is monitored by a pH probe and the titrator will automatically stop when the programmed end point pH value is reached. The end point value depends on the sample type and can be easily changed in the method(s).

The AT1000 offers pre-programmed and optimized Total Acidity methods delivered on a USB key, which can be downloaded within a few seconds in the titrator:

- pH and Acidity in milk
- pH and Acidity in fruit juices / wines (or other liquid samples)
- pH and Acidity in tomato sauce (or other samples in weight)
- pH and Acidity in carbonated soft drinks
- pH and Acidity in beer and kombucha

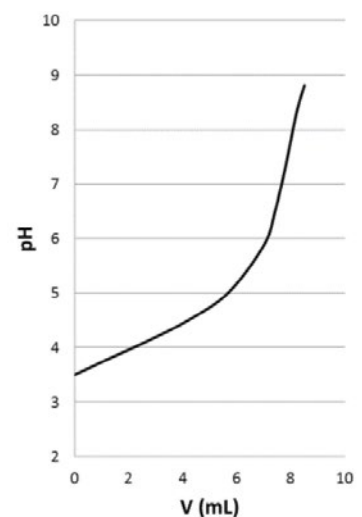


Fig 1: Titration Curve

**AT1000 Total Acidity Methods**

Method	Titrant*	Probe	End Point Value*	Sample Amount*	Results Units and Range**
Total Acidity in Milk	NaOH 0,1 N	IntelliCAL PHC725	pH 8.4	20 mL	4.5 to 57 dg/ of Lactic acid (°Dornic) 50 to 630 mL of 0.1N NaOH/L 2 to 25 °S-H (Soxhlet-Henkel)
Total Acidity in Tomato Sauce	NaOH 0,25 N	IntelliCAL PHC725	pH 8.1	2.5 g	4 to 76 mmol of H+/100gr gr of acid/100gr (Citric, Malic, Oxalic, Tartaric, Sulfuric, Acetic, Lactic acid...)
Total Acidity in Fruit Juice / Wines	NaOH 0,25 N	IntelliCAL PHC725	pH 8.2, or pH 7	30 mL	mL of NaOH 0.9 to 11.8 g/L of Tartaric acid 0.8 to 10.1 g/L of Citric acid g/L of acid (Malic, Sulfuric, Acetic acid...)
Total Acidity in Soft Drink	NaOH 0,1 N	IntelliCAL PHC725	pH 8.1, 8.75, and 8.3	30 mL	5 to 75 mL of 0.1N NaOH/L
Total Acidity in Beer and Kombucha	NaOH 0,1 N	IntelliCAL PHC725	pH 8.2	30 mL	5 to 75 mL of 0.1N NaOH/L Results expressed as: mL NaOH used to EP mL 1.0N NaOH used per 100g Total Acidity as % Lactic Acid

\*All these parameters can be changed in the settings if necessary

\*\*5 different results can be displayed at the same time at the end of the analysis.

**Ordering Information:**

- AT1102: Titralab AT1000 Series Potentiometric Titrator, 1 Burette or
- AT1222: Titralab AT1000 Series Potentiometric Titrator, 2 burettes
- AP0008.AT1102: Titration Application Pack "pH & Total Acidity in Food and Beverage" (1 burette) or
- AP0025.AT1102: pH, Total Acidity in Soft Drink, Beer & Kombucha Application Pack (1 burette) or
- AP0026.AT1222: pH, Total Acidity in Soft Drink, Beer & Kombucha Application Pack (2 burettes).

\* Application packages include a combined pH IntelliCAL smart sensor, the syringe(s), all necessary accessories and the pre-programmed methods (USB stick)

- Sample Changers AS1000: Ask for more information regarding the different models and capacities

To start immediate analysis on delivery, the following reagents must be purchased:

- Sodium hydroxide 1L: NaOH 0.1 N (19153) for milk or NaOH 0.25 N (1476353) for other samples
- pH Buffer Solutions, pH 4.01, 7.00 & 10.01 (500 mL): 2283449, 2283549 & 2283649
- ATS100: Sulfuric Acid, titrant standardization (US only)

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