



Application Note AN-T-132

Titratable acidity in milk and yogurt

Accurate determination according to DIN 10316, ISO/TS 11869, and IDF/RM 150

The titratable acidity gives an indication of the freshness of milk and yogurt as well as other fermented milk products. The determined titratable acidity in milk is mainly given through the absorption of hydroxyl ions by milk proteins and milk salts. The acidity increases with bacterial acidification and with enzymatic lipolysis.

The titratable acidity corresponds to the amount of sodium hydroxide required to titrate 100 g sample to a pH value of 8.30.

In this Application Note, an easy and accurate method to determine the titratable acidity in milk according to DIN 10316 and in yogurt according to ISO/TS 11869 and IDF/RM 150 is demonstrated.

SAMPLE AND SAMPLE PREPARATION

The method is demonstrated for UHT milk and natural yogurt. The samples are prepared

according to the standard.

EXPERIMENTAL

This analysis is performed on a 905 Titrande equipped with a magnetic stirrer and a Porotrode for pH measurement. Prior to the analysis, the Porotrode must be calibrated in order to ensure accurate results. A reasonable amount of milk or prepared yogurt sample is used for the titration. An endpoint titration is carried out with standardized sodium hydroxide to a pH value of 8.3.



Figure 1. 905 Titrande with tiamo. Example setup for the determination of the titratable acidity in dairy products.

RESULTS

The analysis demonstrates acceptable and reproducible results. The results are summarized

in **Table 1**. An example titration curve is displayed in **Figure 2**.

Table 1. Mean titratable acidity of a milk and a yogurt sample determined with a Titrande system (n = 5).

Sample	Mean titratable acidity	SD(rel) in %
Milk	144.40 mL c(NaOH) = 0.1 mol per L milk	0.28
Yogurt	12.87 mmol NaOH / 100 g	0.17

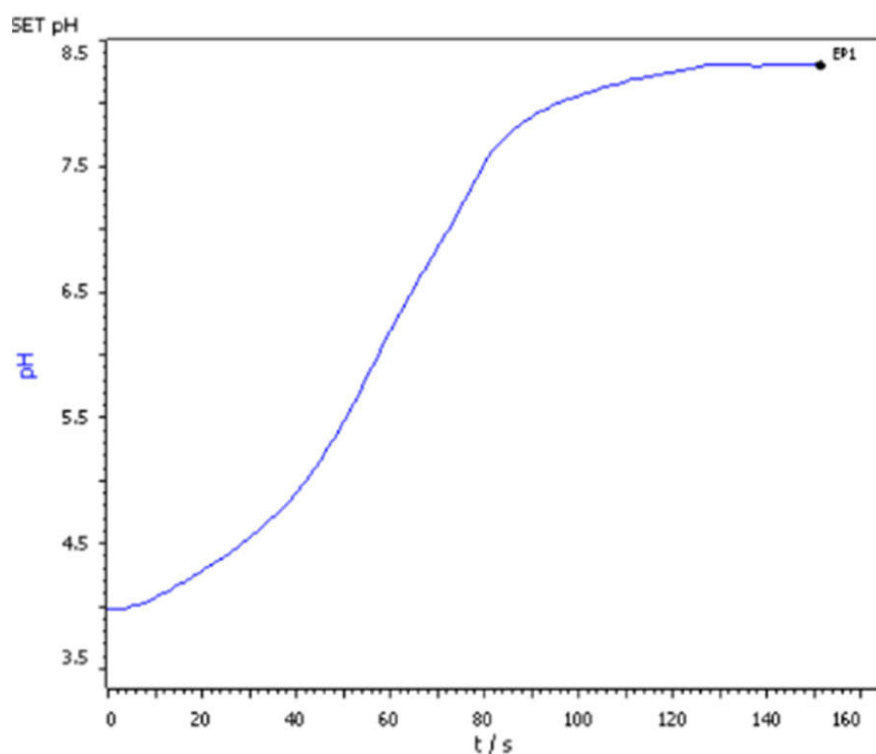


Figure 2. Example titration curve of the determination of titratable acidity in a dairy product.

CONCLUSION

After sample preparation, the determination of the titratable acidity can be performed reliably and cost-efficiently by using a Metrohm

autotitrator. Fast and precise determination according to **DIN 10316**, **ISO/TS 11869**, and **IDF/RM 150** is possible.

Internal reference: AW TI CH1-1156-042014

CONTACT

メトロームジャパン株式会社
 143-0006 東京都大田区平和島6-1-1
 null 東京流通センター アネックス9階

metrohm.jp@metrohm.jp

CONFIGURATION



905 Titrando

Dosino-ドージングシステムを用いた用途のための測定インターフェースを備えた電位差滴定のためのハイエンド滴定装置。

- タイプ800 Dosinoのドージングシステムが4つまで
- 変動滴下量当量点滴定 (DET)、等量滴下当量点滴定 (MET)、終点滴定 (SET)
- イオン選択性電極を用いた測定 (MEAS CONC)
- モニタリング、LQHを備えたドージング機能
- 追加スターラーまたはドージングシステムのための4つのMSBコネクタ
- インテリジェント電極「iTrode」
- USB コネクタ
- OMNISソフトウェア、*tiamo*ソフトウェアもしくはTouch Controlを適用
- GMP/GLP基準およびFDA 基準21 CFR Part 11の要件を満たしています(必要な場合)



Porotrode

以下のサンプルにおけるpH測定/滴定のための複合pH 電極:

- タンパク質を含むサンプル (食料品、生体サンプル)
- 汚れの酷いサンプル
- 粘性のあるサンプル

特別に開発されたキャピラリーダイアフラムおよび参照内部液 Porolyt (6.2318.000) により、タンパク質を含む溶液において最適な性能が実現されます。保存液で保管。