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 Titrando 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 Titrando 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 Titrando 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

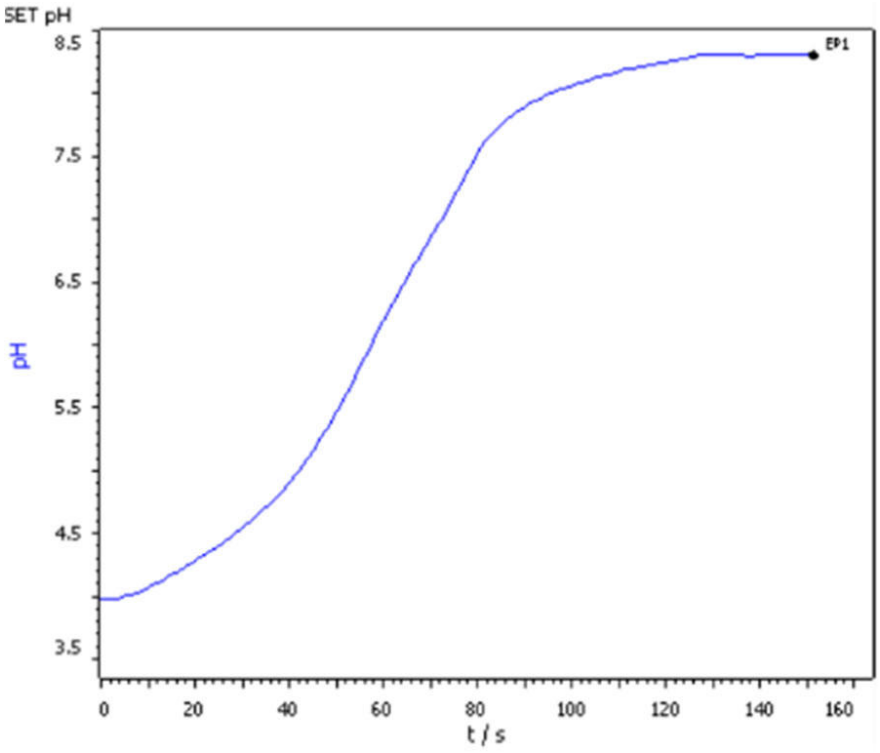

Figure 2. Example titration curve of the determination of titratable acidity in a dairy product.

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

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CONFIGURATION

905 Titrando

Dosino-トーシンク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ト滴定装置。

- タイフ800 Dosinoのトーシンクシステムか4つまて
- 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)
- モニタリンク、LQHを備えたトーシンク機能
- 追加スターラーまたはトーシンクシステムのための4つのMSBコネクタ
- インテリシェント電極「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

以下のサンフルにおけるpH測定/滴定のための複合pH 電極:

- タンハク質を含むサンフル (食料品、生体サンフル)
- 汚れの酷いサンフル
- 粘性のあるサンフル

特別に開発されたキャヒラリータイアフラムおよび参照内部液 Porolyt (6.2318.000) により、タンハク質を含む溶液において最適な性能か実現されます。保存液て保管。