



Application Note AN-T-220

面团和面包中的氯化钠含量

Determination of the sodium chloride content according to AOAC 971.27

For millenia, bread and salt—the staple food of humankind, has been vital for sustenance. Salt has been known as the «white gold» since ancient times and is what enhances the flavor in many products.

The increase of health consciousness in the past few decades has led to efforts in reducing the sodium chloride content in all food products. If consumed in excess, sodium may damage the cardiovascular system. It is therefore in the interest of food manufacturers to reduce the salt

content and while preserving the flavor of the food.

To ensure consistent quality, it is critical to know the exact salt content in the raw materials and the final products. This is only possible by performing precise measurements during the production process.

It is possible to determine sodium chloride in dough and bread quickly according to AOAC 971.27 with the Eco Titrator equipped with an Ag Titrode.

SAMPLE AND SAMPLE PREPARATION

This application is demonstrated on bread dough made from white flour and whole wheat bread.
An appropriate amount of sample is weighed

into the sample beaker and CO₂-free water is added. Then the sample is homogenized with the Polytron.

EXPERIMENTAL

The determinations are carried out on an Eco Titrator equipped with an Ag Titrode and a Polytron for sample preparation.
An appropriate amount of sample is weighed into the sample beaker and CO₂-free water as well as nitric acid solution is added.
While stirring, the solution is titrated until after the first equivalence point with standardized silver nitrate solution.



Figure 1. Eco Titrator equipped with an Ag Titrode.

RESULTS

Well-defined NaCl values and titration curves are obtained for the tested samples.

The results are summarized in **Table 1**. An exemplary titration curve is displayed in **Figure 2**.

Table 1. Results for the sodium chloride content according to AOAC 971.27 with an Eco Titrator equipped with an Ag Titrode.

Sample (n = 6)	Mean NaCl in %	SD(rel) in %
Bread dough	1.03	0.1
Whole wheat bread	2.31	0.1

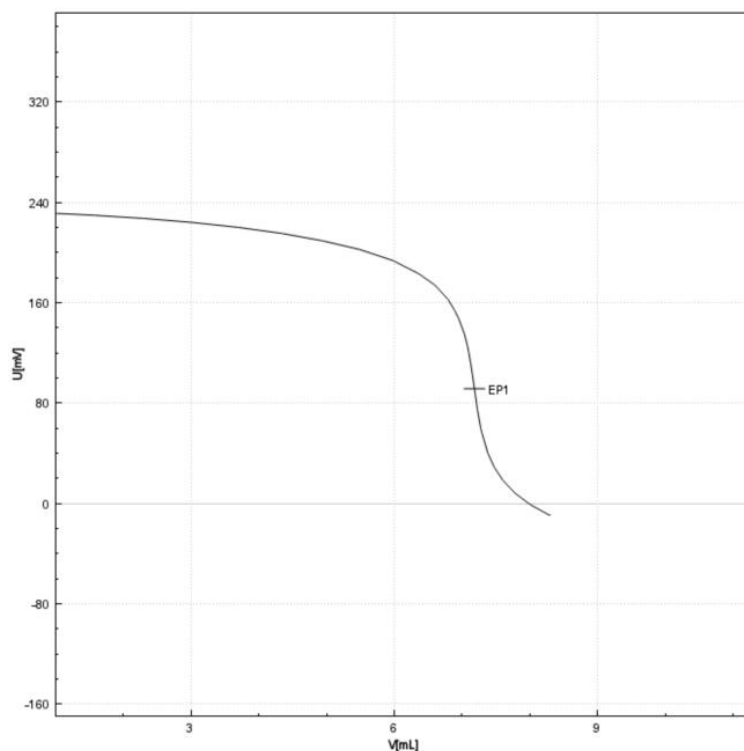


Figure 2. Titration curve of the determination of the sodium chloride content of whole wheat bread on an Eco Titrator.

CONCLUSION

Titration is a precise and reliable method to determine the sodium chloride content in dough and bread.

Using the Eco Titrator equipped with an Ag Titrode allows a fast determination. The system

offers both low-priced and user-friendly handling. Pre-installed methods on the Eco Titrator makes it easy for customers without laboratory experience to get started with precise and fast titrations, perfect for bakeries.

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CONFIGURATION



Eco Titrator Salt

紧凑型 Eco Titrator 具有内置磁力搅拌器和触摸感应式用户界面,可以满足日常分析需求。其始终提供符合 GLP 标准的结果。

用于 Eco Titrator 为您提供用于分析不同样品中氯化物的完整工具包。该套件包括了滴定仪、10 mL 计量管单元以及一个 Ag-Titrode、一个用于硝酸银沉淀滴定的免维护电极。



Polytron PT 1300 D

Polytron PT 1300 D-Metrohm 版本

均质匀浆仪,可直接通过 OMNIS Software, tiamoTM 或 Touch Control 进行控制。

Polytron PT 1300 D 由一个控制装置和一个驱动装置组成。通过驱动装置上的耦合系统可简便快速地更换设备,无需额外使用工具。

可轻松粉碎固体样品可。该设备也非常适用于粘性样品的良好混合。