



Application Note AN-R-028

使用聚乙二醇(PEG)作为载体材料的 调味烈酒的氧化稳定性

Reliable and accurate determination of the oxidation stability of flavored spirits with the polyethylene glycol method

Distilled alcohol is otherwise known as «hard liquor» or «spirits». Classic spirits are often mixed with different flavors in order to reach new customers – thereby expanding a brand's market share. One such spirit, gin, is distilled from juniper berries and contains no additives. However, raspberry and blackberry flavored gin is also available. Such flavor additives often contain antioxidants and can affect the shelf life of the product. Using the Rancimat method with polyethylene glycol (PEG) as carrier material, the

oxidation stability of flavored and unflavored gin can be determined quickly and reliably. The sample is analyzed without any preparation, and the induction time can be related directly to the oxidation stability of the sample.

This Application Note demonstrates the feasibility of the Rancimat method. Reproducible and accurate determination of the oxidation stability of flavored spirits is possible with the 892 Professional Rancimat.

SAMPLE AND SAMPLE PREPARATION

This application is demonstrated on different flavored and unflavored (plain) gins. No sample

preparation is required.

EXPERIMENTAL

First, an appropriate amount of gin and PEG are weighed into the reaction vessel, and then the analysis is started.

The Rancimat method exposes the sample to an airflow at a constant temperature between 100–180 ° C. Highly volatile secondary oxidation products are transferred with the airflow into the measuring vessel where they are absorbed in

the measuring solution. Here, the conductivity is continuously measured since the secondary oxidation products lead to an increase in the conductivity. The time until occurrence of this marked conductivity increase is referred to as the «induction time», which is a reliable indicator for the oxidation stability (Figure 1).

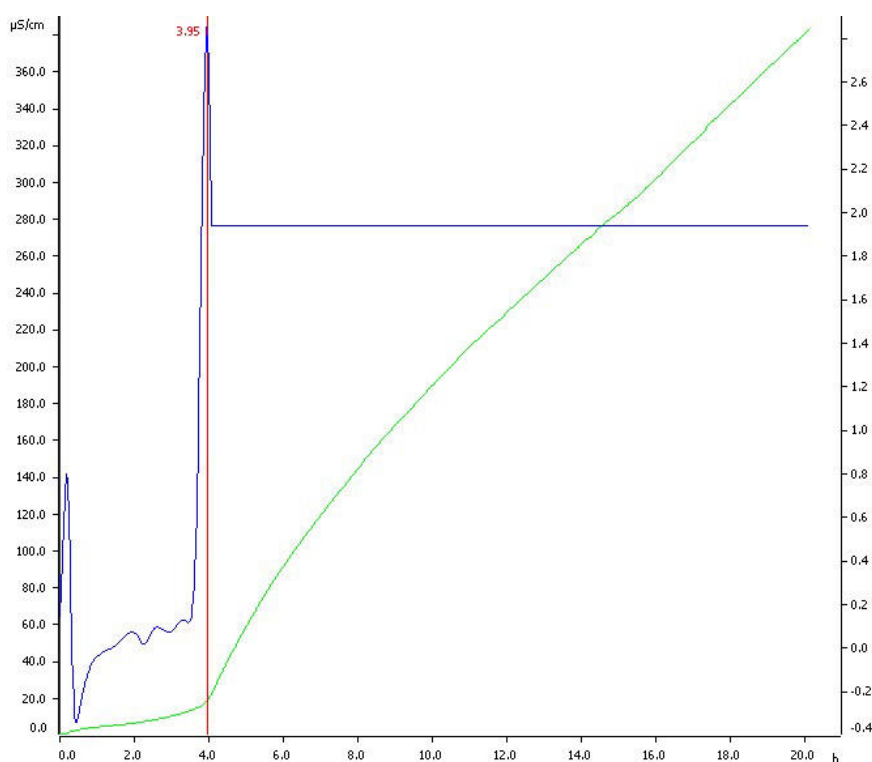


Figure 1. Determination of the oxidation stability of a flavored gin (Table 1, sample 4). Induction time is determined at 3.95 h.

Table 1. Summarized results for oxidation stability of different flavored and unflavored gins.

Sample	Mean value in hours	SD(rel) in %
1 (flavored, n = 4)	5.04	3.6
2 (flavored, n = 4)	4.20	3.5
3 (flavored, n = 6)	2.89	7.0
4 (flavored, n = 6)	3.87	4.0
5 (flavored, n = 6)	5.60	3.3
6 (unflavored, n = 4)	0.52	1.1
7 (unflavored, n = 4)	0.52	1.5

CONCLUSION

Most flavored spirits can be measured directly with the Rancimat for their oxidation stability in order to guarantee a consistent high quality of

the finished product. With the Rancimat, this parameter can easily and simultaneously be determined on eight different samples at a time.

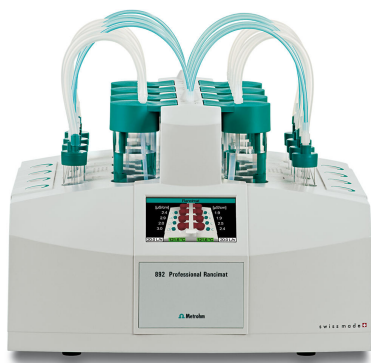
Internal reference: AW ST CH-0176-012022

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CONFIGURATION



892 Professional Rancimat

892 Professional Rancimat 是用于通过已使用多年的 Rancimat 方法来测定天然油脂的氧化稳定性的分析系统,即简便又安全。2 个加热块中共有 8 个测量位置。内置显示屏可显示设备状态和每个测量位置。每个测量位置都有启动按钮,可在仪器上启动测量。采用实用的一次性反应管和可使用洗碗机清洗的附件可将清洗工作降至低。这即可节省时间和费用,并且也可显著提高。

执行测定所需的所有附件均已包括在标准配置内。需要使用 StabNet 软件来进行仪器控制、数据记录和评估以及数据保存。