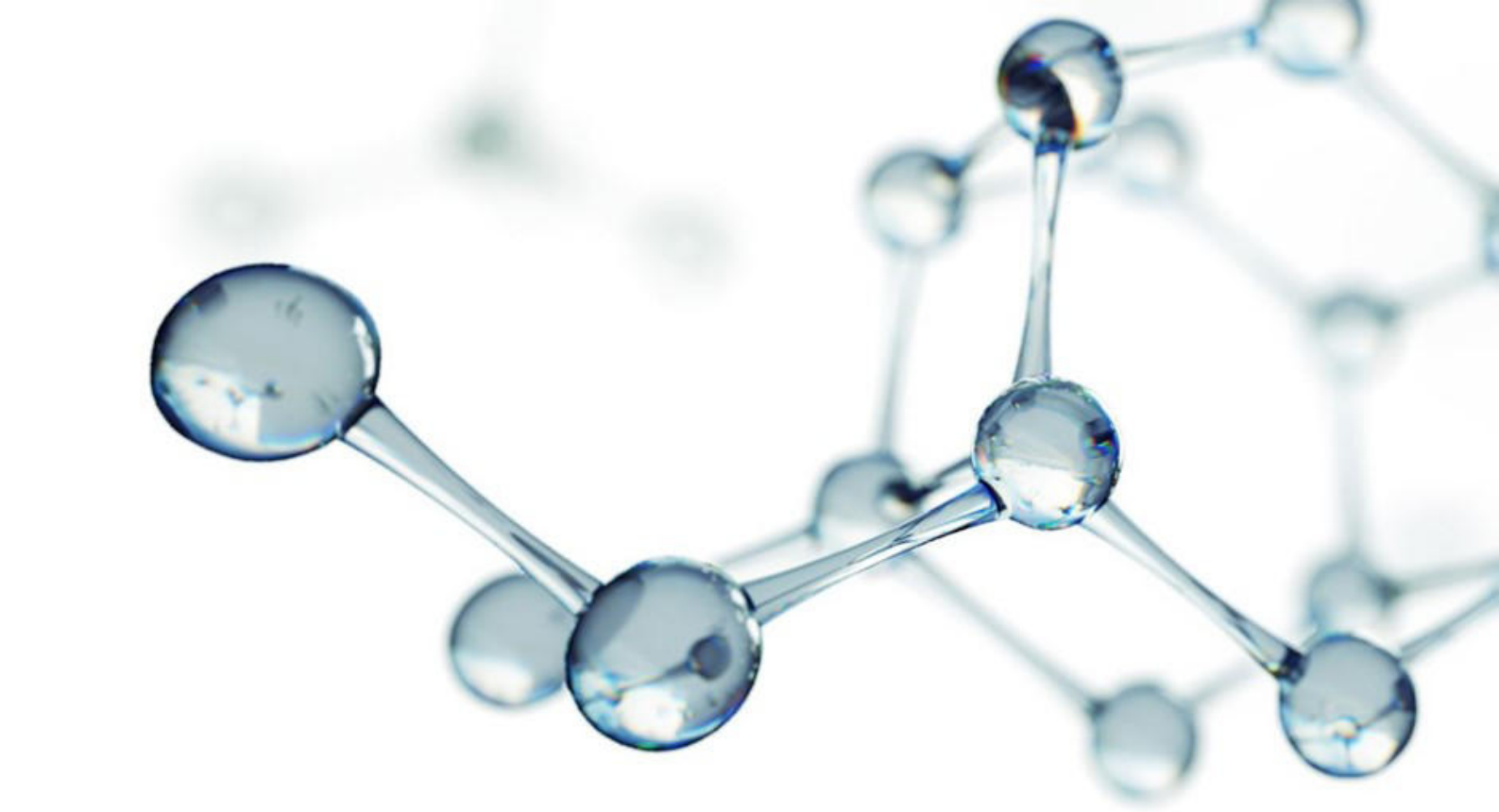

Application Note AN-V-070

Determination of iodide in glacial acetic acid

Iodide determination by cathodic stripping voltammetry (CSV) at the HMDE (hanging mercury drop electrode)

Methyl iodide is a key ingredient to facilitate chemical reactions during production of glacial acetic acid. However, this raises the chance of iodide ending up in the final product. This is a problem because manufacturers commonly use acetic acid as a reagent to produce other chemicals, such as vinyl acetate. Even trace amounts of iodide can poison the catalysts used in these processes, increasing costs, and negatively affecting product quality. Regular determination of the iodide concentration ensures the desired quality of acetic acid, safeguarding the integrity of various downstream industrial processes.

Using ICP-MS to measure iodine in glacial acetic acid faces challenges due to memory effects that cause high background signals. Cathodic stripping voltammetry (CVS) at the hanging mercury drop electrode (HMDE) overcomes these limitations and provides a robust, cost-effective, and convenient alternative.

SAMPLE

Glacial acetic acid, 99.8%

EXPERIMENTAL

Add 10 mL acetic acid sample and then 2 mL ultrapure water into the measuring vessel. Carry out the determination of iodide using the 884 Professional VA (**Figure 1**) and the parameters specified in **Table 1**. The concentration is determined by two additions of iodide standard addition solution.

Figure 1. 884 Professional VA manual for MME.

Table 1. Parameters

Parameter	Setting
Mode	HMDE
Deposition potential	0.1 V
Deposition time	30 s
Start potential	-0.15 V
End potential	-0.5 V
Sweep rate	13 mV/s
Peak potential iodide	-0.32 V

ELECTRODES

- Multi-Mode Electrode pro

RESULTS

The method is suitable for the determination of iodide in acetic acid samples. The limit of detection of the method (for a deposition time of 30 s) is approximately 1 µg/L.

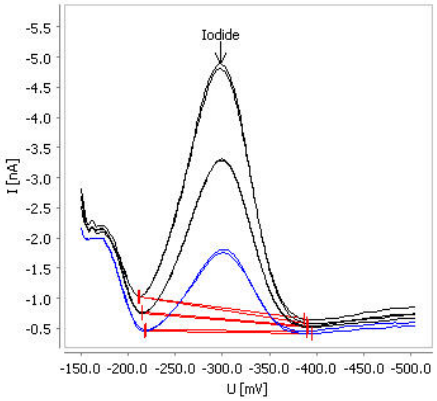

Figure 2. Determination of iodide in glacial acetic acid with CSV.

Table 2. Result

Sample	Iodide (µg/L)
Acetic acid	4.85

CONTACT

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CONFIGURATION

(MME) 884 Professional VA manual

用于多模式电极 (MME) 的 884 Professional VA manual 是借助多模式电极 pro 或 scTRACE Gold 或铋液滴电极使用伏安法和极谱法进行痕量分析的入门仪器。此项已经证实的瑞士万通电极技术与恒电位/恒电位仪以及外接的灵活 viva 软件联用,在重金属测定领域中展现了新的前景。带有经认证的校准器的恒电位仪在每次测量之前均自动冲洗进行校准,确保可能的高精度。

通过此仪器也可使用旋转圆盘电极进行测定,例如借助«循环伏安溶出法»(CVS)、«循环脉冲伏安溶出法»(CPVS)和计时电位法(CP)测定电镀池中的有机添加剂。借助可更换的测量头,可在使用不同电极的各种应用之间实现快速切换。

使用 viva 软件进行控制、数据采集和评估。

用于 MME(多模式电极)的 884 Professional VA manual 供货时配备大量附件,包括用于多模式电极 pro 的测量头。电极组和 viva 许可证则须单独订购。