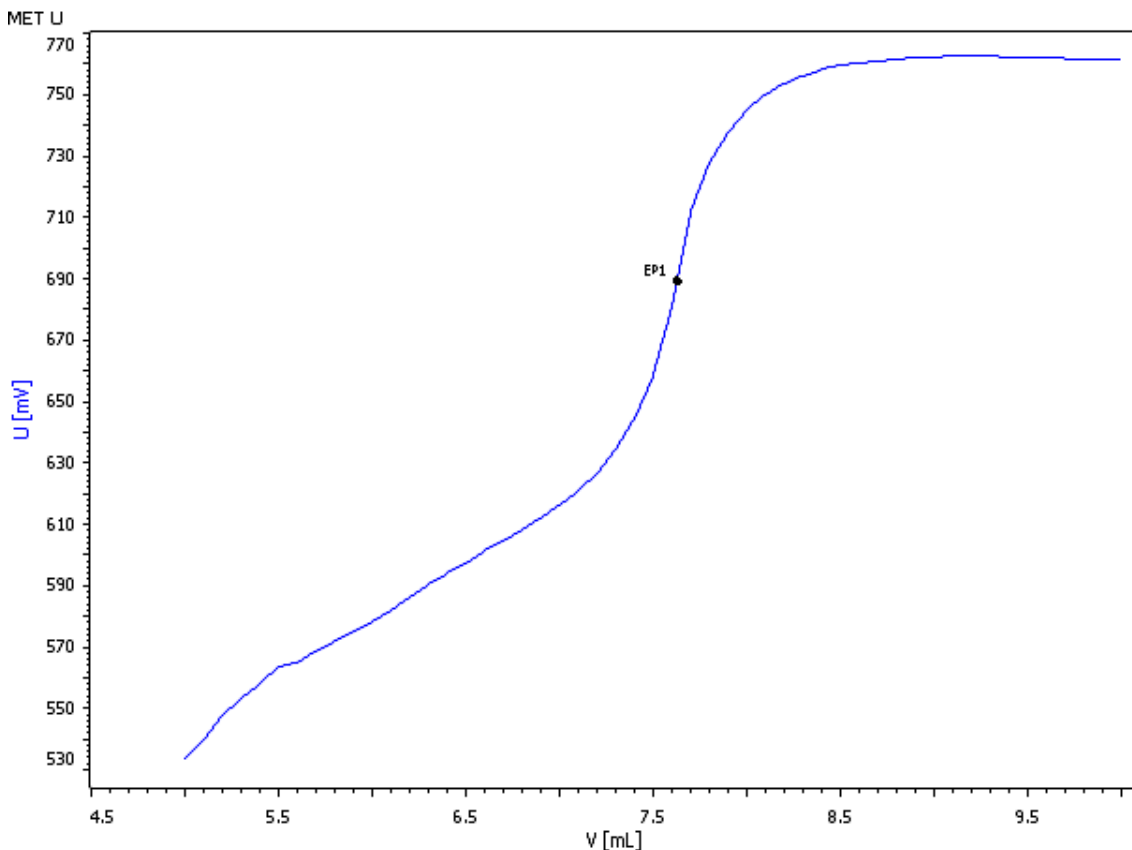


Titration Application Note T-194

Nitrite titration according to USP general chapter <451>



Sulfonamides are drugs used to treat allergies and cough. They also have some antifungal and antimalarial activities. USP<451> describes nitrite titration method for the determination of numerous pharmacopeial sulfonamide drugs and their dosage forms as well as of other pharmacopeial drugs with, for example, hydrazide (e.g., in isoniazid) and amine ester groups (e.g., in procaine) or amide derivatives of amino acids.

Here, for illustrating the analysis of the latter, the assay of the diagnostic agent aminohippuric acid is described.

Method description

Sample

Aminohippuric acid

Sample preparation

No sample preparation is required.

Configuration

905 Titrand	2.905.0010
801 Magnetic stirrer	2.801.0040
800 Dosino	2.800.0010
Combined Pt-ring electrode	6.0451.100
20 mL Dosing unit	6.3032.220
Tiamo 2.5 full CD: 1licence	6.6056.252

Solutions

Titrand	$c(\text{NaNO}_2) = 0.1 \text{ mol/L}$ Around 6.9 g sodium nitrite is weighed accurately and transferred into a clean 1000 mL volumetric flask. It is then dissolved and diluted up to the mark with carbon dioxide-free water.
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Analysis

Around 150 mg of sample is weighed accurately and transferred into a 100 mL beaker. 50 mL of carbon dioxide-free water is added. The content is dissolved and cooled to about 15 °C. The content is then titrated against sodium nitrite until the first equivalence point.

Parameters

Titration mode	MET U
Stirring rate	8
Pause	90 s
Start volume	5 mL
Signal drift	50 mV/min
Min waiting time	0 s
Max waiting time	26 s
Volume increment	0.1 mL
Stop volume	10 mL
EP criterion	30 mV
EP Recognition	Greatest

Results

Aminohippuric acid assay/(%), (n = 5)	s(rel)/%
98.47	0.19

*USP criteria – Assay NLT 98% to 100.5 %

Comments

Besides aminohippuric acid, this method is also suitable for samples such as

- Aminobenzoic acid topical solution,
- Aminohippurate sodium injection,
- Chlortetracycline and sulfamethazine bisulfates soluble powder,
- Inamrinone,
- Isoniazid oral solution,
- Procaine hydrochloride,
- Sulfadiazine sodium injection,
- Sulfadiazine sodium,
- Sulfamethazine,
- Sulfapyridine tablets,
- Sulfapyridine,
- Sulfathiazole,
- Sulfisoxazole acetyl oral suspension
- Sulfisoxazole acetyl.

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