## OIV-MA-AS315-02B Ethyl acetate

## Type IV method

## 1. Principle of the method

Ethyl acetate is separated by distillation of wine brought to pH 6.5 . After saponification and suitable concentration in an alkaline environment, the distillate is acidified and the vapor condensed to separate the acetic acid liberated by saponification; the acid portion is titrated with the alkaline solution.

## 2. Method

2.1 Reagents
2.1.1. Sodium hydroxide solution, 1 M
2.1.2. pH 6.5 Buffer solution

Potassium di-hydrogen phosphate, $\mathrm{KH}_{2} \mathrm{PO}_{4} \quad 5 \mathrm{~g}$
Sodium hydroxide solution 1 M 50 mL

Water to 1 L
2.1.3. Crystalline tartaric acid
2.1.4. Sodium hydroxide solution, 0.02 M
2.1.5. Neutral phenolphthalein solution, $1 \%$, in alcohol, $96 \%(\mathrm{~V} / \mathrm{V})$.
2.2. Usual method

Into a 500 mL volumetric flask, place 100 mL of non-decarbonated wine neutralized with $n \mathrm{~mL}$ of 1 M sodium hydroxide solution, $n$ being the volume of sodium hydroxide solution, 0.1 M , used for measuring the total acidity of 10 mL of wine. Add 50 mL of pH 6.5 buffer solution and distill. The distillation must be conducted using a tapered tube into a 500 mL round-bottom flask containing 5 mL of 1 M sodium hydroxide solution, on which a mark has been made indicating a volume of approximately 35 mL . Collect 30 mL of distillate.
Stopper the flask and allow to stand for one hour. Concentrate the contents of the flask to approximately 10 mL by placing it in a boiling water bath and blowing a rapid stream of air into the bowl of the flask. Allow to cool. Add 3 g tartaric acid (2.1.3). Eliminate carbon dioxide by shaking under a vacuum. Transfer the liquid from the

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concentrating flask to the bubbling chamber of a steam distillation apparatus and rinse the flask twice with 5 mL of water. Steam distill and recover at least 250 mL of distillate.
Titrate with a 0.02 M sodium hydroxide solution, in the presence of phenolphthalein.

### 2.3. Calculation

Let $n$ be the number of milliliters of sodium hydroxide solution, $0.02 \mathrm{M}(2.1 .4)$ used. 1 mL corresponds to 1.76 mg ethyl acetate.
The concentration of ethyl acetate in milligrams per liter is given by:

## $17.6 \times n$

## Bibliography

## Usual method:

- PEYNAUD E., Analyse et contrôle des vins, Librairie Polytechnique Ch.Béranger, 1958.

