

## **OIV-MA-VI-02 Determination of the fixed acidity content**

### Type II method

#### **1. Definition**

The fixed acidity of a vinegar refers to all the fixed (non-volatile) acids titled in the presence of phenolphthalein in an alcoholic solution, used as indicator.

#### **2. Principle**

Elimination of volatile substances from the vinegar by evaporation. Neutralization of the (non-volatile) acids of the residue in an aqueous solution using an alkali solution.

#### **3. Reagents**

3.1. Sodium hydroxide solution 0.1 M

3.2. Indicator - alcoholic solution of phenolphthalein at 1 g per 100 ml.

In a calibrated 100 ml flask, dissolve 1 g of phenolphthalein with a sufficient quality of ethanol at 95% (v/v) and bring up to the line.

#### **4. Equipment and utensils**

Standard laboratory equipment including:

4.1. Water bath at 100 °C

4.2. 200 ml capacity porcelain capsules.

#### **5. Preparation of sample**

Homogenize the sample by stirring and filter if necessary.

#### **6. Technique**

In a 200 ml porcelain capsule, add 10 ml of vinegar. In a water bath at 100 °C, evaporate until dry. Add 5 to 10 ml of water. Evaporate again until dry. Repeat this step five times, add approximately 180 ml of recently boiled and cooled water, add a few drops of indicator (3.2) and title with the sodium hydroxide solution (3.1) until a persistent pink color is obtained.

#### **7. Results**

7.1. Calculation

Considering:

- V to be the volume in ml of the sodium hydroxide solution using in titling.

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The fixed acidity content expressed in grams of acetic acid per l of sample is given by

- 0.6 V.

### 2. Presentation

Round off the results expressed in grams of acetic acid by L, to the nearest decimal.

### 8. Interlaboratory validation (Hitos *et al.*, 2000)

Units: % (m/V)

Sample	r	S <sub>r</sub>	RSD <sub>r</sub>	R	S <sub>R</sub>	RSD <sub>R</sub>	RSD <sub>R</sub> (Horwitz)	Horrat Index
1 - 0.17% (m/v)	1.0125	0.004	2.69	0.0428	0.015	9.18	5.22	1.76
2 - 0.17% (m/v)	0.0103	0.004	2.19	0.0431	0.015	9.15	5.22	1.75
3 - 0.08% (m/v)	0.0103	0.004	4.88	0.0201	0.007	9.57	5.85	1.64
4 - 0.07% (m/v)	0.0083	0.003	4.20	0.0246	0.009	12.38	5.97	2.07
5 - 0.08% (m/v)	0.0077	0.003	3.26	0.0285	0.010	12.11	5.85	2.07

### 9. Bibliography

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- Llaguno C. et Polo M.G., 1991. *El Vinagre de Vino*, Consejo Superior de

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