OIV-MA-F1-06 pH

Type IV method

1. Principle

The difference in potential between two electrodes immersed in the liquid under test is measured. One of these two electrodes has a potential which is a function of the pH of the liquid, while the other has a fixed and known potential and constitutes the reference electrode.

2. Reagents

2.1. Buffer solutions

2.1.1. Saturated solution of potassium hydrogen tartrate, containing at least 5.7 g of potassium hydrogen tartrate per litre ($C_4H_5KO_6$) at 20 °C. (This solution may be kept for up to two months by adding 0.1 g of thymol per 200 ml.)
pH/temperature

- 3.57 at 20 °C
- 3.56 at 25 °C
- 3.55 at 30 °C

2.1.2. Solution of potassium hydrogen phthalate, 0.05 M, containing 10.211 g of potassium hydrogen phthalate ($C_8H_5KO_4$) per litre at 20 °C.

(Maximum keeping period, two months.)

pH/temperature

- 3.999 at 15 °C
- 4.003 at 20 °C
- 4.008 at 25 °C
- 4.015 at 30 °C

2.1.3. Solution containing:

monopotassium phosphate, KH_2PO_4	3.402 g
dipotassium phosphate, K_2HPO_4	4.354 g

Water to	1000 ml

(maximum keeping period, two months)

pH/temperature

- 6.90 at 15 °C
- 6.88 at 20 °C
- 6.86 at 25 °C
- 6.85 at 30 °C

Note: commercial reference buffer solutions traceable to the SI may be used.

For example:

- pH 1.679 ± 0.01 at 25°C
- pH 4.005 ± 0.01 at 25°C
- pH 7.000 ± 0.01 at 25°C

3. Apparatus

1. pH meter with a scale calibrated in pH units and enabling measurements to be made to at least ± 0.01.
2. Electrodes:
    1. Glass electrode.
    2. Calomel-saturated potassium chloride reference electrode
    3. Or a combined electrode.

4. Procedure

1. Preparation of the sample for analysis

Dilute the rectified concentrated must with water to produce a concentration of 25 ± 0.5 % (m/m) of total sugars (25° Brix).

If P is the percentage concentration (m/m) of total sugars in the rectified concentrated must, weigh a mass of:

2500/P

and make up to 100 g with water.

The water used must have a conductivity below 2 microsiemens per cm.

4.2. Zeroing of the apparatus

Zeroing is carried out before any measurement is made, according to the instructions provided with the apparatus used.

4.3. Calibration of the pH meter

The pH meter must be calibrated at 20°C using standard buffer solutions traceable to the SI. The pH values selected must encompass the range of values that may be encountered in musts. If the pH meter used is not compatible with calibration at sufficiently low values, a verification using a standard buffer solution linked to the SI and which has a pH value close to the values encountered in the musts may be used.

4.4. Determination

Dip the electrode into the sample to be analysed, the temperature of which should be between 20 and 25 °C and as close as possible to 20 °C.

Read the pH value directly off the scale.

Carry out at least two determinations on the same sample.

The final result is taken to be the arithmetic mean of two determinations.

5. Expression of results

The pH of the 25 % (m/m) (25 ° Brix) solution of rectified concentrated must is quoted to two decimal places.

6. Characteristics of the method

Repeatability (r)

- r = 0.07

Reproducibility (R)

- R = 0.07