

COMPENDIUM OF INTERNATIONAL METHODS OF ANALYSIS FOR SPIRITUOUS BEVERAGES  
AND ALCOHOLS

OIV-MA-BS-31 Iron- Determination by atomic absorption in spirit drinks of viti-vinicultural origin

(Type IV)

Method OIV-MA-BS-31 : R2009

Type IV method

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**Iron- Determination by atomic absorption in spirit drinks of viti-  
vinicultural origin**

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**1. Principle**

Iron is determined by atomic absorption spectrophotometry by means of an oxidising air-acetylene flame, using an iron hollow-cathode lamp, at a wavelength of 248.3 nm on the alcoholised alcoholic beverage.

**2. Apparatus**

**2.1. Glassware.**

**2.1.1. 50 ml, 100 ml volumetric flasks (class A).**

**2.1.2. 1, 2, 3, 4, 10, 50 ml volumetric pipettes (class A)**

**2.1.3. 250 ml beaker (class A).**

**2.2. Spectrophotometer (sample setting for Varian 575 model)**

**2.2.1. Oxidising air-acetylene flame**

- Flow rates: air:: 7.5 l/min
- C<sub>2</sub> H<sub>2</sub>: 3.5 l/min

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**2.2.2. (Type IV) Iron hollow-cathode lamp; Wavelength: 248.3 nm, slit: 0.5 nm, lamp intensity: 5 mA.**

### **3. Reagents**

**3.1. Ultrapure demineralised water resistivity 18.2 M $\Omega$ .m (e.g. Milli-Q).**

**3.2. Stock solution to 1 g/l of iron: (e.g. Titrisol Merck).**

**3.3. Stock solution to 1 g/l of iron.**

Place 10 ml of stock solution (3.2) in a 100 ml flask (2.1.1), fill to volume with demineralised water (3.1).

**3.4. Calibration range: 2, 4, 6, 8 mg/1 of iron.**

Place successively 1.0, 2.0, 3.0, 4.0 ml of the solution at 100 mg/1 of iron (3.30) in four 50 ml vials (2.1.1), fill to volume with demineralised water (3.1).

### **4. Sample preparation**

**4.1. Evaporation of alcohol.**

Pipette (2.1.2) 50 ml of the alcoholic beverage in a 250 ml beaker (2.1.3). Evaporate the alcohol in a water bath to about one volume of 10 ml. Leave to cool, then pour the concentrate into a 50 ml vial (2.1.1), rinse the beaker and fill to volume with demineralised water (3.1).

Dilution in demineralised water (3.1) is only required if the concentration of iron is greater than 8 mg/l.

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## **5. Determinations**

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Successively present the calibration solutions (3.4), and samples (4.1);  
note the corresponding absorbances.

Establish the calibration curve absorbance = f (concentration in mg/1 calcium) by the  
least squares method.

Deduce the concentration of iron (mg/1) taking into account any dilution.

## **6. Bibliography**

1. Compendium of International Methods of wine and must analysis, 1990, O.I.V. ed.