COEI-2-MINERA Mineralisation methods of samples before determination by atomic absorption spectrometry

1. Mineralisation by dry process

Method applicable for determining the following elements: calcium, magnesium, sodium, iron, copper, zinc.

1.1. Obtaining cinders

- Weigh with precision 5 g of oenological product (or 1 g in the case of products rich in mineral matters), in a platinum or silice capsule cleaned and tared beforehand.
- Gently burn the sample with the flame of a Bunsen burner under a hood.
- Put the capsule in a muffle oven at 525°C ± 25°C for 12 hours.
- Take up the residue with a few ml of demineralised water.
- Evaporate water over a water bath at 100°C.
- Replace the capsule containing the sample in the oven.
- The mineralisation is over when the cinders are white.

2. Putting the cinders in a solution

- The cinders are solubilised with 2 ml of concentrated hydrochloric acid (R), bring to volume at 100 ml with demineralised water
- Complementary dilutions:
- Re-dilute the cinders solution in hydrochloric acid in order to be compatible with the sensitivity of the apparatus; see separately the method of each cation.
- For the determination of calcium and magnesium, add lanthanum chloride during this dilution.
- Do a blank test.

2. Mineralisation by wet process

Method applicable for determining the following elements: arsenic, cadmium, lead in oenological products containing water.

2.1. Case of aqueous products

- Weigh with precision in a 50 ml polypropylene tube 3 grammes of pulverised oenological product, add 5 ml of nitric acid at 65%; close with a screw cap; leave 12 hours at room temperature then after unscrewing the cap place the tube in a water bath at 90°C for 3 hours under a hood; allow to cool; adjust the volume to 20 ml with demineralised water; shake; filter on an ashless filter paper (if necessary).
- Do a blank test in the same conditions.

2. Case of dry products

The mineralisation is similar as for aqueous products but by using a test sample of 0.5 gramme of oenological product.