COEI-1-ARGON

Argon Ar = 40.0

N° SIN: 938

N°CAS = 7440-37-1

1. **Object, origin and field of application**

   Neutral gas, used for operations of inerting or degassing, it is used in a mixture of nitrogen and/or of carbon dioxide.

2. **Labelling**

   The label must mention the nature of the gas and refer to its composition and purity. The safety conditions must also be indicated on the packages.

3. **Characteristics**

   Colourless and odourless gas without flavour. Non flammable, it does not support combustion.

   The weight of a litre of argon under the pressure of 760 mm of mercury is 1.784 g at 0°C. A volume of water dissolves 0.0336 volume of argon at 20°C.

4. **Test trials**

   The global purity of the argon used in oenology must not be less than 99% of argon in volume.

   Before any measurement it is advisable to allow any gas to escape for a few minutes in order to purge the piping.

   4.1. Chromatographic dosage

   The search and determination of gases: Nitrogen, carbon monoxide (less than 10 µl/l), oxygen (10 ml/l), hydrogen, carbon dioxide (less than 300 µl/l), etc., are quickly obtained by chromatography in gaseous phase according to the method in chapter II of the International Oenological Codex.

   The total surface are of hydrogen chromatographic peaks, of oxygen and nitrogen must not exceed 1% of gas surfaces to be examined.

   The following chemical methods can also be used for oxygen.

4.2. Oxygen dosage by chemical method

Preparation of the flask for searching oxygen:

- Introduce in a 24 ml flask about two fragments of copper turnings of 2 cm, 16 ml of ammoniac solution of copper sulphate (R), then 2 ml of hydrazine dihydrochloride solution (R).
- Seal the flask with a rubber stopper that is easy to pierce with a needle for hypodermic injections. Crimp the neck with a metallic capsule. Then cover the capsule with wax in order to ensure perfect water tightness. Shake the flask and allow to stand away from light until complete discolouration is obtained after about eight days.

Conduct of the test trial:

- Pierce the flask's stopper to search for oxygen with a needle of 8/10 millimetre for hypodermic injection (take care so as not to plunge it into the liquid) that then will be used for evacuating the gas after bubbling. Then introduce a second needle of the same diameter releasing the gas and plunging it into the liquid. After a minute of bubbling, a noticeable colouration should not be observed. In the presence of oxygen, the liquid quickly becomes blue and the colour darkens with time.

5. Packaging

The argon is supplied in highly resistant steel cylinders painted in white with needle valves. The resistance of these cylinders must be checked periodically.