



ALCOHOL CONCENTRATION MEASUREMENT

I. Principle

The alcohol concentration of ethanol was measured by densitometry method using a Gay-LUSSAC alcoholmeter, with a v/v scale.

The alcohol dosage should be performed:

- On raw material when no certificate is available guaranteeing the alcohol content (local production)
- On the finished product

II. Equipment and reagent

- Measuring cylinder of 1000mL
- Solution to be analysed
- Alcoholmeter (with temperature scale or with separate thermometer)

III. Analysis process

1. Check that the equipment required is clean and dry (alcoholmeter and cylinder).
2. The alcoholmeter and the solution to be analysed should both be at the same temperature. To this end, it is advisable to put them both in the same room for a few hours before performing the measurement.
3. Mix the solution well before measuring.
4. Then pour the solution into an appropriate sized transparent cylinder.
5. Immerse the alcoholmeter cautiously in the solution (be careful not to break it). If any bubbles attach themselves to the alcoholmeter, either gently shake it to make them disappear or lift it out of the liquid and immerse it again.
6. Take a reading once the alcoholmeter is balanced and floating freely without touching the sides of the cylinder.
7. Read the solution's temperature in the test tube immediately afterwards. If the temperature is lower than or over 20°C, the value should be adjusted.



IV. Correction of the alcohol content depending on the temperature

In principle, the alcoholmeter is used for the alcohol-water mixtures at a temperature of 20°C

- If the temperature of the reading is 20°C, the graduation reading is equivalent to the alcohol content of the studied solution.
- If the temperature is below or above 20°C, it is necessary to adjust the value by using a correction table or as following (simplification)

- Subtract 0.3% (v/v) for every degree above 20°C
- Add 0.3% (v/v) for every degree below 20°C

V. Acceptability

The acceptability limits are equal to **+/- 5% of the final concentration, that is to say 75-85% for ethanol**

VI. Comments for isopropanol:

For isopropanol alcohol content, the reading of results for a solution at 75%, will be of 77% ($\pm 1\%$) on the graduation at a temperature of 25°C.