

Oenology and metrology

As illustrated by Noah's story, planting vines and producing wine is one of the most ancient human activities which has now reached a state of near perfection, combining ancestral know-how and modern technology to produce the best possible wine according not only to soil and climatic conditions but also - of course - to the taste of potential consumers.

Measurements have contributed to this evolution; for example, appropriate temperature regulation is required for good fermentation and at the time of tasting, a significant element is the persistence of the taste (length of the final flavor) which is expressed in "caudalie" (a special name for the second!).

Owing to the economic importance of wine for producers, sellers and buyers as well as for public authorities which in many countries levy taxes on the alcohol content of wine, legal metrology has developed its controls on a number of measuring instruments used in the wine trade and the OIML has harmonized these practices internationally.

One of the most significant steps was the international harmonization of alcohol-strength measurements. Several national alcoholometry systems existed up to the mid-seventies based on different principles (Gay-Lussac degree, proof system, etc.), which rendered the international trade of alcoholic products complex.

The publication by the OIML in 1973 of the "International Alcoholometric Tables" (OIML R 22) was a decisive step which rapidly resulted in a complete international harmonization of national and regional alcoholometry systems: the symbol "% vol" (or any other equivalent symbol) may now be seen on practically all alcoholic

beverage bottles that are produced all over the world. (*Note: the OIML Tables refer to the IPTS₆₈ temperature scale. Since 1990, a new IPT₉₀ scale has been adopted by the Meter Convention; however, the differences between the two scales are relatively small and the figures in the 1975 OIML Tables - as well as those in any derived or practical table - are still valid).*)

Based on these Tables the OIML has published a Recommendation on alcoholometers (R 44) and a compatible ISO International Standard also exists, referring to OIML Tables.

Other alcohol-related measurements are covered, for example, by R 29 on capacity serving measures, R 45 on casks and barrels, R 86 on drum meters for alcohol, R 96 on measuring container bottles, or R 117 on measuring systems for liquids.

However, it is not sufficient to measure the qualities (and quantities) of wine when produced. It is also necessary to predict what these qualities will be, in order to define the most appropriate wine-making procedure. One of the relevant characteristics is the sugar content of grape must, which may be measured using the refractometry technique. An OIML Recommendation on refractometers was published recently (R 124). This Recommendation is now being implemented step by step by wine-producing countries such as Portugal, France, etc.

A paper about the verification of refractometers, developed by Portuguese and Dutch metrology and wine experts, is published in this issue of the OIML Bulletin; it is intended to organize an intercomparison of reference samples in order to check whether the verification of the instruments is sufficiently coherent amongst countries. ■