

K270 Olive Oil Analysis

The K270 test provides useful information on the quality of olive oil and on its degree of oxidation. It differs from other quality control analyses performed on oil (free fatty acids, peroxide value and polyphenols) because it enables identification of rectified or alternative oils that may have been added to virgin olive oil.

To identify the oxidative condition of the oil and to remove any doubts about its genuineness it is necessary to determine parameters like K270, that measure the absorption of the ultraviolet light by the oil matter.



Natural oils that are mechanically extracted do not contain fatty acid chains formed by double or triple conjugated bonds. Typically these kinds of bonds (Fig. 1) are created during rectification, the process in which the oil is mixed with other refined or old oils. They are not present in pure and freshly extracted olive oils.

The presence of these bonds in rectified oils means they exhibit high UV absorbance values specifically in the 270 nm region, which are significantly higher if compared to those of virgin and extra virgin oils. Moreover ketone groups form during the most advanced oil oxidation stages, provoking a greater absorbance at 270 nm. K270 can identify the significant change that occurred in the oil structure and the parameter can be easily kept under control.

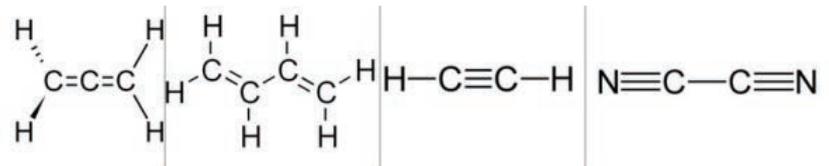


Figure. 1

A simple reading of the oil at 270 nm is sufficient to perform the test. The so called coefficient of extinction (K) is measured and gives the value of the K270 in the oil. The OxiTester analysis system can be used instead of expensive laboratory spectrophotometers to perform this measurement with the following benefits:

- Colour reading at 270 nm
- Reference method compliance
- No requirement for sample preparation
- Disposable low cost cuvettes
- Instantaneous test
- Up to 14 samples per test session
- Supplied pre-calibrated and ready to use

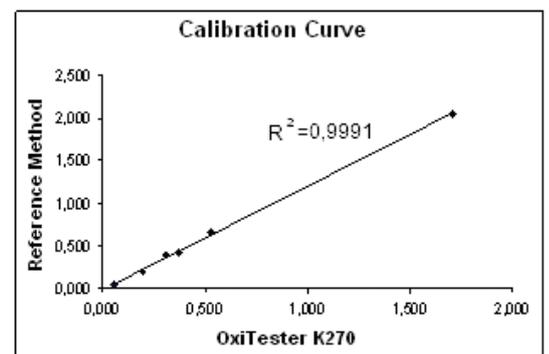


Figure. 2 perfect correspondence between the laboratory spectrophotometer and the OxiTester system reading

In the table below you can see the different K270 values of some oil types, illustrating the capability of the parameter to identify a particular type of oil.

Oil Type	Extra Virgin Olive Oil	Refined Olive Oil	Olive Pomace Oil	Maize Oil	Peanut Oil
K270 Values	< 0.20	0.65	1.3	2.00	7.90