



FOODLAB / OXITESTER / FOODLAB fat

PURPOSE OF THE TEST

The acid content of edible fats is given by the quantity of free fatty acids deriving from the hydrolytic rancidity of triglycerides. As this alteration occurs in unsuitable conditions for the processing and preservation of fats, acidity represents a basic indicator of the genuineness of the product. The test is particularly important during the refining of oils and fats, for the assessment of the processing cycle and for the definition of product categories. www.cdr-mediated.com/acidity-oils-fats.

REAGENTS

R (in cuvette): alcohol mixture with potash, phenophtaleine derivative.

METHODOLOGY

End Point test.
Colorimetric reaction at 630 nm.
Testing time: 3-6 minutes.
It is possible to carry out several test sessions with a maximum of 14 samples.
Calibration can be performed by aligning the test to reference values.

TEST PRINCIPLE

Sample fatty acids, at a pH < 7.0, react with a cromogen developing a color with an optical density that is proportional to the concentration of the fatty acid, when measured at 630 nm, and is expressed as % of oleic acid. CDR's innovative method simplifies and accelerates the standard procedure, because it enables the test to be carried with micro-quantities and to be applied to fats that are difficult to extract.

SAMPLE

Oil: collect as is (olive, seed, nut oil, etc.).
Solid fats: melted with bain-marie before collection (animal fats, palm oil, etc.).
Extractible fats: extract the fatty part following the instructions provided in the applicable methodology (butter, cream, margarine, semi-finished products, etc.).

KIT



Pre-vailed disposable test tube.

KIT CODE	SAMPLE VOLUME	RANGE
*300128 (10 tests)	1-10 μ L	0,01-25 % oleic acid
*300125 (100 tests)		

The sample volume and linearity range vary according to the selected calibration curve.

Optional accessories

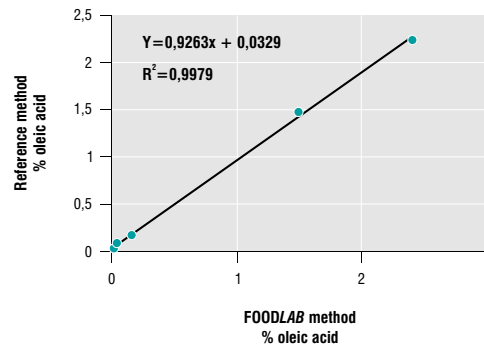
- Piston precision pipette used with the dilution KITS for matrices with a high value of acidity.
- System to extract fats from solid matrices (seeds, dry fruit, drupe, etc.) consisting of a mechanical press and centrifuge.
- Titrated fat sample to be used as reference sample.



COMPARATIVE TESTS

Tests aimed at comparing the reference ISO 660 test method (by titration) and the FOODLAB tests were carried out in a SINAL accredited test laboratory. The resulting correlation was very good.

FOODLAB method % oleic acid	Reference method % oleic acid
0,03	0,05
0,05	0,08
0,16	0,16
1,48	1,48
2,41	2,22



CDR collaborates, through the FOODLAB system, to the Ring Tests (correlation tests for vegetable oils) established by the reference companies operating in the sector, and has attained excellent results.

FOODLAB method % oleic acid	Reference method % oleic acid
0,04	0,04
0,23	0,24
0,78	0,80

Comparison between the results obtained by CDR with the FOODLAB system and values published by the organizing body of Ring Tests, which have been regarded as theoretical reference values for the examined samples.

REPEATABILITY TESTS

The following repeatability tests on oils and fats were carried in CDR laboratories with good results.

Test	Sample 1 % oleic acid	Sample 2 % oleic acid	Sample 3 % oleic acid
1	0,07	0,13	0,78
2	0,08	0,12	0,77
3	0,07	0,12	0,78
4	0,07	0,13	0,79
5	0,07	0,13	0,78
MEAN	0,07	0,12	0,78
SD	0,002	0,001	0,007
CV	2,63%	1,04%	0,91%

SUMMARIZED TABLE

LINEARITY	ACCURACY	REPEATABILITY	CORRELATION COEFFICIENT	SENSITIVITY	TOTAL TESTING TIME	TEST/HOUR	UNIT OF MEASUREMENT
25 % oleic acid	+/- 5%	CV <3%	R>0,99	0,01 % oleic acid	3-6 min	80	% oleic acid

