Fresh Squeeze Bottle

FSB

Advanced Airless Bottle

Performance

Preservation test of the olive oil

● Verification of quality retention assuming consumers to use olive oil

Method It was measured the acid value, peroxide value, UV absorbance and the gross Polyphenol content under the following two conditions by squeezing out the oil. (Category 1 :10ml, Category 2 :20ml)
The analysis interval was 10, 24, 38 and 52 days after the start of the test.

Category 1

Test environment: Shaded storage at 40 degrees Celsius
Sample: Virgin Olive Oil (made by Shodo-shima, Japan)
Container: FSB, PET bottle, Glass bottle (all 200ml)

Category 2

Test environment: Storage under light irradiation (24 hours) at 20 degrees Celsius
Sample: Virgin Olive Oil (made by Spain)
Container: FSB, FSB (shading shrink processing), FSB (EVOH processing), Glass bottle (all 450ml)

Category 1 Sample

Category 2 Sample

Examination Institution:
Industrial Technology Institute of Kagawa Prefecture

Result **FSB has kept quality until end of use in international standard evaluation.**

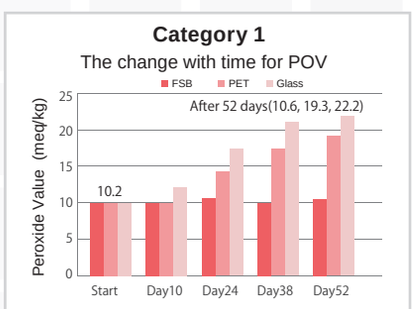
Acid Value

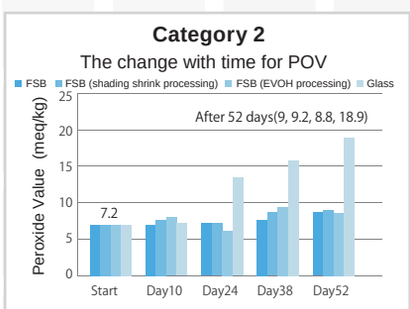
In both categories no significant difference of acid value was confirmed.

Peroxide Value (POV)

In category 1, the increase in POV was confirmed for PET and Glass bottle. (PET: 10.2→19.3, Glass: 10.2→22.2)
In category 2, the increase in POV was confirmed for Glass bottle. (Glass: 7.2→18.9)

▶ **Peroxide value is hard to rise in FSB regardless of light shielding under usage conditions after opening.**





UV absorbance

In category 1, the increase in K232 was confirmed for PET bottle. Moreover, it was exceeded the IOC international transaction value after 24 days. In category 2, no significant difference was confirmed.

▶ **Protection performance of FSB against UV is equivalent to Glass bottle and superior to PET bottle.**

Aging Effect for UV ABSORBANCE (Category 1)

Sample(Bottle)	K232 (≦2.5)					K270 (≦0.22)					△K (≦0.01)				
Retention Period (Day)	0	10	24	38	52	0	10	24	38	52	0	10	24	38	52
FSB	2.38	2.30	2.33	2.23	2.20	0.17	0.14	0.15	0.15	0.12	0.00	0.00	0.01	0.01	0.00
PET	2.38	2.38	2.55	2.90	3.04	0.17	0.14	0.16	0.13	0.14	0.00	0.00	0.00	0.00	0.00
Glass	2.38	2.38	2.38	2.17	2.17	0.17	0.14	0.16	0.13	0.15	0.00	0.00	0.01	0.00	0.00

The gross Polyphenol content

In category 1, the decrease rate of gross polyphenol content in FSB was the lowest. In category 2, no significant difference was confirmed.

▶ **In FSB, the gross polyphenol content hardly decreases even at high temperature.**