ANISIDINE VALUE (AnV) | palm oil

DEFINITION AND SCOPE

Anisidine Value test is used to assess the secondary oxidation of oil or fat, which is mainly imputable to aldehydes and ketones, and is therefore able to tell the oxidation "history" of an oil or a fat. Furthermore, AnV analysis on oil is an indicators of excessive oil deterioration in deep frying process.

PRINCIPLE

Aldehydes, derived from the secondary oxidation of fat matrix, reacts with the p-anisidine determining a variation in the absorbance, measured at 366 nm. Anisidine Value is expressed as AnV (Anisidine value) following AOCS (Cd 18-90) the reference method.

COMPOSITION OF THE KIT AND REAGENTS

Reagent test kit *300510, suitable for 100 tests, contain:
- R1: 4 Bottles containing 25 mL of reagent R1 (mixture of alcohols and chromogenous compounds).
- 100 test cuvettes with caps.

Stability / Storage conditions: Reagent is stable through expiration date if stored at 2 - 8 °C. Avoid light exposure.

SAMPLE AND CURVES

Solid samples at room temperature must be heated and dissolved before they can be analyzed.

<table>
<thead>
<tr>
<th>Curve</th>
<th>Measuring range</th>
<th>Unit of measurement</th>
<th>Sample volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-Anisidine</td>
<td>0,5 - 100</td>
<td>AnV</td>
<td>20 µL of melted oil</td>
</tr>
</tbody>
</table>

CALIBRATION CURVE / CORRELATION DATA

PalmOilTester shows a good correlation with AOCS Official Method Cd 18-90.
ACCURACY AND LINEARITY

<table>
<thead>
<tr>
<th>Curve</th>
<th>Measuring range</th>
<th>Resolution</th>
<th>Accuracy</th>
<th>Repeatability</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-Anisidine</td>
<td>0.5 - 100</td>
<td>0.1</td>
<td>+/- 5%</td>
<td>CV &lt;5%</td>
</tr>
</tbody>
</table>

REAGENT PREPARATION

Before starting an analysis session, prepare a number of test cuvettes. Each cuvette is suitable for one single test. Follow the instruction below:

1. Dispense exactly 1 mL of reagent in each cuvette and close with its supplied cap.
   *In order to verify the correct filling level, make sure that reagent level matches the arrow tip on the reading side.*

**Note 1:** Filled test cuvettes, not used in the analysis session, can be stored at 2-8 °C, and used for the following test session. Avoid light exposure.

TEST PROCEDURE

1. Incubate filled test cuvette in the incubation cells for at least 5 minutes. *The stability of the reagent R1 declines if pre-warmed exceeding 2 hours.*
2. Press 2 on keyboard to display available analysis on reading cell 2.
3. Select p-Anisidine curve, confirm your selection by pressing ENTER (on display shows INSERT SAMPLE).
4. Remove the cap of the incubated cuvette and add in 20 µL of the sample using a pipette. Close the cuvette and mix vigorously. Insert the cuvette into the reading cell identified by green LED. Press ENTER to initiate the sample reading.
   *Homogenise the sample in the bottle before taking it.*
   *It is recommended to use a positive displacement pipette for oil samples for higher accuracy.*
   *To prevent cross-contamination between samples, take the sample with pipette and discard it.*
   *Repeat the procedure for 2-3 times before transferring it to the reagent.*
   *Remove excess oil by wiping the outer surface of pipette tip gently using a blotting paper.*
   *Immerse the pipette tip in the reagent while dispensing sample.*
   *Press and release the piston of pipette several times to ensure all sample has been transferred.*
   *Mix the sample with reagent, after adding, by inverting the cuvette several times.*
   *Do not remove the cuvette while the reading operation is in progress.*
5. If there are more samples to analyze, repeat the operations starting from point 4. Otherwise, press the ARROW KEY UP to end the test session and the test results will be printed automatically.

SYSTEM STANDARDIZATION

The system is supplied pre-calibrated and ready for use.
Results are expressed in accordance with the reference method.
It is also possible to standardize the system using samples with a known values.
For information on the operating procedure, see the manual provided with the system.