

Hanna Titration Procedure

Peroxide Value Titration Method Via AOAC 965.33



Description

Method for the determination of peroxide value (PV) in refined and unrefined edible oils, following the AOAC 965.33 to a mV endpoint.

The results are expressed in **meq/kg PV (Peroxide Value)**.

Reference

Reference Method AOAC 965.33.

Electrodes

- ORP Electrode - [HI3149B](#)
- Temperature Probe - [HI7662-T](#)

Reagents

- 3.5 M KCl Electrode Fill Solution - [HI7082](#)
- 0.1 N Sodium Thiosulfate
- 0.01 N Sodium Thiosulfate
- Deionized Water- [HI70436](#)
- Saturated Potassium Iodide (KI)
- Solvent (3:2 glacial acetic acid/chloroform))

Accessories

- Scientific Scale/Balance
- Paper
- Transfer Pipette
- 1 mL Eppendorf Pipette
- 1 mL Eppendorf Pipette Tips
- 250 mL Beakers
- PVDF Propellers
- Class A Graduated Cylinder

Device Preparation

- Connect the electrode and temperature probe to Analog Board 1 of the titrator.
- Press "Select Method" from the main screen. Use the arrow keys to highlight your desired Peroxide Value method and press "Select".
- Install a 25-mL burette with either 0.1N sodium thiosulfate or 0.01N sodium thiosulfate* on pump one and verify that no air bubbles are present in the burette or tubing. If necessary, prime the burette until all the air has been removed completely.

For the determination of the exact concentration of the titrant, the standardization method HI0003EN can be adapted to suit.

*Your titrant strength is determined by whether you are testing refined or unrefined oils.

Electrode Preparation

- Unscrew the fill cap.
- Fill the electrode to within 2cm of the fill hole with the HI7082 electrolyte fill solution.
- Replace the fill hole cap on the electrode, but do not screw it back in all the way. (If you have issues with the screw cap falling off, you can remove it for the duration of the titration).

Blank Preparation and Analysis

- Measure precisely 50 mL of solvent into a clean beaker.
- Using an Eppendorf pipette, aliquot 0.5 mL of saturated KI (potassium iodide) into the beaker.
- Mix the beaker continuously for exactly 1 minute.
- Measure exactly 30 mL of deionized water, and add it to the mixture in the beaker.
- Titrate the mixture immediately.
- Place the beaker under the stirrer assembly and lower it to immerse the electrode, temperature probe, and stirrer*. Ensure that the sensing portion of the electrode is 5-6 mm below the surface. **NOTE:** The dispensing tip should be in contact with the surface of the sample (slightly submerged).

Hanna Titration Procedure

Peroxide Value Titration Method Via AOCS Cd 8b-90



- Press "Start". The titrator will start the analysis.
- At the end of titration, when the equivalence point is reached, 'titration complete' will appear with the Peroxide Value concentration. The result is expressed in **meq/kg**.
- Record the result, as well as the mL of titrant dispensed.
- Perform one additional blank titration, and then average the results.
- Select "Method Options".
- Scroll down and select "Blank Option".
- Select the option "V-Blank".
- Enter the blank volume in liters (you will need to convert the mL of titrant dispensed to L (liters), divide the mL dispensed by 1000).
- Select "Accept".
- Make sure to save the method before returning to the main titration screen.

Sample Preparation

- Mass 5g of sample.
- Measure precisely 50 mL of solvent into a clean beaker.
- Using an Eppendorf pipette, aliquot 0.5 mL of saturated KI (potassium iodide) into the beaker.
- Mix the beaker continuously for exactly 1 minute.
- Measure exactly 30 mL of deionized water, and add it to the mixture in the beaker.

Analysis

- Titrate the mixture immediately.
- Place the beaker under the stirrer assembly and lower it to immerse the electrode, temperature probe, and stirrer*. Ensure that the sensing portion of the electrode is 5-6 mm below the surface. **NOTE:** The dispensing tip should be in contact with the surface of the sample (slightly submerged).
- Press "Start". The titrator will start the analysis.
- At the end of titration, when the equivalence point is reached, 'titration complete' will appear with the Peroxide Value concentration. The result is expressed in **meq/kg**.