

**ТЕКНЕКА**

**170 Cooking Oil Tester**

**User Manual**

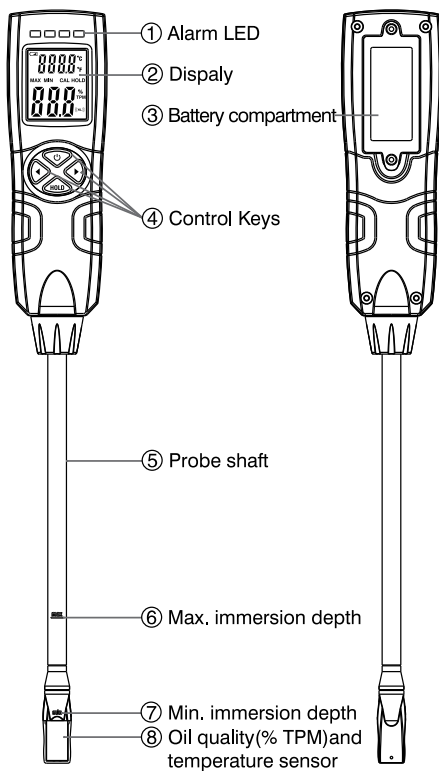


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## 1. Introduction

The Tekneka 170 is a deep-frying oil tester that helps you determine the quality of frying oil with a measuring range of 0 to 40% TPM. It can also measure temperatures from 30 to 200°C (86 to 392°F). This deep-frying oil tester has an LCD screen that shows both the total polar material (TPM) value and temperature. You may evaluate the cooking oil's age and quality using the TPM value. The quality deteriorates over time due to the effects of heating. The TPM value measures the level of thermal-oxidative stress in frying oil, and the multi-color LED indicator directly shows the oil quality.



## 2. Safety

Please read this manual carefully and completely before you use the device for the first time. Only trained personnel may use this device, and only they may repair it. Our liability is disclaimed, and our warranty does not apply to damage or injuries brought on by a failure to follow the manual.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, etc.) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity, or moisture. The device is intended for indoor use.
- Before the measurement, the device should have stabilized at ambient temperature, which is important when moving from cold to warm rooms and vice versa.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by manufacturer/qualified personnel.
- Before making a measurement, make sure the device is entirely closed.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should be cleaned with a damp cloth after each use. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from TEKNEKA or equivalent.
- When the frying oil tester is not used for a longer period of time, remove the batteries.
- Do not store the meter together with any chemicals.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Wear your personal protective equipment during each measurement to avoid injury. This also applies to other people near the measuring location as oil splashes can cause serious injury to human skin and eyes.
- To avoid burns, never touch the sensor or the metal shaft directly after the measurement as these parts can become very hot when they are immersed into hot oil
- Remove the oil quality meter from the oil when you leave the place.
- Do not use the instrument in explosive atmospheres. Also avoid proximity to explosive, easily flammable or chemical substances when the sensor is hot.
- Only use the device in systems that are electrically tested on a regular basis. Never connect the conductive metal parts of the meter with a source of voltage. Inspect the system visually before each measurement. If there are any signs of damage, do not carry out any measurements until the problem has been resolved.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.

We do not assume liability for printing errors or any other mistakes in this manual. We expressly point to our general guarantee terms, which can be found in our general terms of business. If you have any questions, please contact [info@tekneka.com](mailto:info@tekneka.com). The contact details can be found at the end of this manual.

### 3. Technical Specification

Function	Parameters
Temperature measurement	30 to 200°C/ 86 to 392°F
Accuracy	±1.5°C
Resolution	0.1°C
TPM Measurement	0 to 40% polar fractions
Accuracy	±3% (@30 to 90°C)
Resolution	0.1%
Display	LCD, 3 digits
Response Time	<30s
Alarm Function	LED (Green, Blue & Red) and beep alert
Protection Rating	IP68
Temperature sensor	PTC sensor
Oil Sensor	Capacitive Sensor
Operating Temperature	0 to 50°C
Storage Temperature	-20 to 70°C
Material	ABS
Measurable oils	rapeseed oil, olive oil, soybean oil, peanut oil, sesame oil and palm oil, as well as other vegetable oils or animal fat
Power Supply	2 x 1.5V AAA battery
Lifetime	about 25 hours of continuous usage (500 measurements)
Dimension	365x48x31mm
Weight	185g

## ▶ 4. Measurements

- Oil testers can achieve rapid continuous measurement, so after the completion of a measurement, without waiting for the next direct measurement, they can carry out another.

What kind of oil | grease can this instrument apply to?

- In principle, all frying oils and lipids can be measured. such as rapeseed oil, soybean oil, sesame oil, palm oil, olive oil, peanut oil, and other vegetable oils.
- Animal fat can also be measured. Depending on the type of grease, the TPM value of the fresh oil will fluctuate by a few percent, and the maximum use time of the frying oil is different.

For example, fresh palm oil has a higher % TPM value than other oils, but its aging is much slower than that of other oils.

### ▶ 4.1 The Effect of Additives

Oil Tester is designed for the measurement of pure oil/fat products. If additives are used, the results may be offset.

### ▶ 4.2 Contrast with Laboratory Methods

- Frying oil is a mixture of different polar substances. In the process of aging of frying oil, the number of high polarity ingredients will increase. Laboratory chromatography can distinguish between polar and non-polar materials, the content of the total component of the frying oil is defined as % TPM (total polar group Minute).
- The value of the % TPM measured may produce subtle changes by the column method due to the setting of the polar component and the non-polar component boundary.
- Depending on the type of grease, the polarity of the polar and nonpolar components may also produce subtle changes. But the change in the column method is not recognized.
- On the other hand, Oil Tester can measure the entire polarity of the frying oil and thus get the actual polar component and the nonpolar component. Therefore, in some measurements. Oil Tester measured values may be higher or lower than the results of the column method.

For example, coconut oil, Oil Tester on its measured TPM value higher than the column method, this oil is not suitable for deep frying, mainly suitable for a short panic frying pan.

### ▶ 4.3 Measuring

- Free Fatty Acids (FFA)


The oil Tester measures the total amount of polar components in the frying oil evaluate the deterioration of oil after deep frying. While free fatty acids are used to determine the degree of aging of the grease at room temperature after long-term storage, the indicators are not suitable for judging the fry of oil flesh. oil Tester is not used to measure free fatty acids.

- Polymerized triglycerides (PTG)

Polyglycerol is increasingly being used to assess the quality of frying oil. The measurement results of this method can be proportional to % IPM values in most cases.

PTG  $\approx$  % TPM/2


## 4.4 Start Measuring





1. Press the Power [  ] button and release it.
2. The temperature bar shows "LO"
3. TPM measurement shows - - -
4. Press the HOLD button in the measurement mode to activate the HOLD mode
5. The temperature bar flashes "HI" to indicate that the measured temperature is above the range.
6. The temperature bar flashes "LO" to indicate that the measured temperature is below the range.

## 4.5 Please follow the points below to get the most accurate results in the measurement

- Turn off the induction frying pan during the measurement because the electromagnetic field will affect the measurement result.
- Remove the fried objects from the frying oil in the measurement and wait for 5 minutes.
- Clean the probe before each measurement or before the next continuous measurement
- Try to avoid touching metal objects, such as frying baskets, pots, because these things can affect the measurement results, and the minimum distance from the metal should be at least 1 cm.
- Uneven oil temperature in the frying oil may cause a measurement error. Please stir the instrument in the frying oil.
- If the measurement results are suspected to contain an error due to water inclusion: Please repeat the measurement after 5 minutes (do not fry during this period). If the new reading goes low, measure it again after 5 minutes until the reading is stable.
- Please replace frying oil when 24% TPM is reached. Refer TPM limits as per your county regulation/standards. Be sure to replace frying oil before reaching limit.
- We recommend that you wear your hand strap while using this instrument to prevent the instrument from slipping.

## 5. Configuration Mode

Turn on the instrument and press [Hold] and [  ] at the same time at least 3 s while instrument is under test mode

1. Units changing °C or °F
  - Use [  ] or [  ] to set the temperature unit (° C / °F).
  - Press [Hold] to confirm the set temperature unit.
2. Audible Alarm (ALA) mode
  - Press [  ] or [  ] to turn ON or OFF the buzzer alarm.
  - Press [Hold] to confirm.
3. Auto Power Off (APO) mode

- Press [◀] or [▶] to enable or OFF Auto power off option
  - Press [Hold] to confirm.
1. LED colour code indication (LEO) mode
    - Press [◀] or [▶] to turn the LED on or off.
    - Press [Hold] to confirm.
  2. Device Calibration (CAL) mode
    - Press [◀] or [▶] to turn on or off to enter calibration mode.
    - Press [Hold] to confirm.
  3. Display backlight (BL) option
    - Press [◀] or [▶] to turn the backlight ON or OFF.
    - Press [Hold] to save and exit.

Press the power [⏻] key in configuration mode to save the configurations and exit

## ► 6. Configuration Options

Configuration	Options
Shift Temperature Units	select °C or °F
Audible Alarm Sound (ALA)	on: enable sound alarm (beep)
	off: disable alarm
Device Auto Power Off (APO)	on: select to enable APO
	off: disable APO
LED Light flash (LEO)	on: LED flash indication (Green,Blue,Red)
	off: disable LED flash
Perform Calibration (CAL)	on: perform calibration
	off: disable calibration mode
Factory Reset (RST)	on: enable factory reset
	off: disable RST mode
Display backlight (BL)	on: enable display backlight option
	off: disable BL mode

## ► 7. Set the high and low alarm

### 7.1 Set the TPM alarm

1. Turn on the instrument Press and hold [◀] for at least 3 seconds in the test mode, it enters the high alarm setting, and the LED turns into RED.
2. Then click or press [◀],[▶] to set the high & Low limits
3. Click [Hold] to save and exit. Click [⏻] power to exit only



## 8. User calibration

1. Heat the calibration oil to about 50°C.
2. After entering the user calibration immerse the sensor into the calibration oil, pay attention to the depth of invasion.
3. When the TPM value shown in the table is stable, short press [◀] or [▶] to increase /decrease the measured value by increments 0.5 %TPM
4. When the displayed TPM value matches the value of the calibration oil, short press [Hold] to save the user calibration value




## 9. Restore Factory Settings

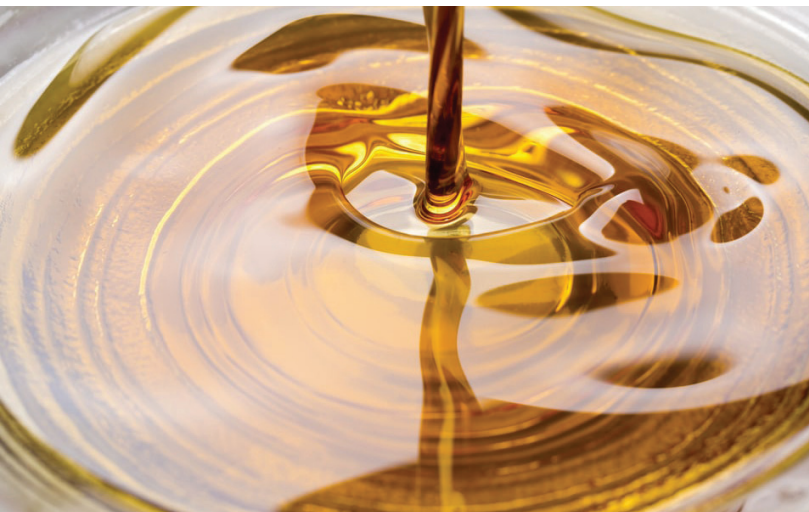
1. After entering the factory settings, the screen displays RST.
2. Press the [▶] and [Hold] keys simultaneously to reset the user calibration data to the factory settings.

## Warning

If the instrument is overheated, it may cause a risk of burns (probe and probe rod)

- Do not touch the hot parts on the instrument.
- Allow the instrument to cool before cleaning.
- If you are burned, immediately rinse the wound with cold water. If necessary, to see the doctor health.
- Use a clean cleaner, standard water or soapy water.
- Clean the probe gently with a soft paper towel or rinse it in water.
- Wipe dry the probe with a soft paper towel

Interpretation of the measured values	% TPM	LED Flash
Oil is new and good to use	0 ... 18.5 %	GREEN 
Oil quality classified as critical It is recommended to renew the oil partly or completely.	19 ... 24 %	BLUE 
The oil in the fryer should no longer be used. If the set threshold value has been exceeded, it will flash RED colour code. The oil must be change/refill the oil completely.	>24 % (default setting: 24 %)	RED 



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