

HZYN-1122
High Temperature Viscosity
Tester

USER MANUAL

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I. Overview

The HZYN-1122 kinematic viscosity tester is designed and manufactured in accordance with the GB/T 265 standard, which can accurately measure the kinematic viscosity of petroleum products in strict accordance with the standard description.

HZYN-1122 Kinematic Viscosity Tester is suitable for measuring the kinematic viscosity of liquid petroleum products (Newtonian liquid), and its unit is mm²/s.

The HZYN-1122 Kinematic Viscosity Tester has beautiful and generous appearance design, reasonable structure design, convenient operation and accurate results.

II. Standard description

At a certain constant temperature, measure the time for a certain volume of liquid to flow through a calibrated glass capillary viscometer under gravity. The product of the capillary constant of the viscometer and the flow time is the kinematic viscosity of the liquid at that temperature.

III. Structural features

The HZYN-1122 kinematic viscosity tester uses a digital temperature control meter to control the temperature of the constant temperature bath. The temperature control range is 40 ~ 180℃, and the temperature control accuracy is ±0.1℃. The use of digital temperature control table can visually display the set temperature and actual temperature, and it is easy to set the temperature and correct the temperature difference.

The HZYN-1122 kinematic viscosity tester is equipped with two viscometer clamps, which can keep other samples to be tested at the same time during sample measurement, which improves work efficiency.

The constant temperature bath of the HZYN-1122 kinematic viscosity tester is circular, which is conducive to the constant temperature of the constant temperature bath. The bottom feet can be adjusted to make the constant temperature bath in a horizontal state. It is in full compliance with the standard description, which improves the accuracy of the measurement results.

IV. Technical parameter

Power supply: AC 220V \pm 10% 50 HZ

Heating power: 1400W

Temperature control range: 40 \sim 180 $^{\circ}$ C

Temperature control accuracy: \pm 0.1 $^{\circ}$ C

Capillary type: Ubbelohde capillary viscometer

Viscometer clamp: 2 sets

Bath size: 250 mm in diameter, 300 mm in height

V. Instrument installation

1. After unpacking the instrument, carefully remove the packaging, and check whether the instrument accessories are complete and free of damage against the instrument packing list.

Note: If the instrument accessories are not complete or the accessories are damaged, please contact our company as soon as possible.

2. Put the instrument on the test bench and adjust the foot screws of the instrument to make the instrument appear horizontal.

3. Connect the power cords of each part of the instrument.

4. After installing the constant temperature bath, fill the constant temperature bath with medium.

Note: The medium in the constant temperature bath must be higher than the heating tube to avoid dry heating of the heating tube.

5. Start the power supply, set the temperature of the constant temperature bath, and make sure that the motor is working normally.

Note: After the instrument is powered on, the temperature control system starts to work, so the power must be turned on after the medium is filled in the constant temperature bath.

VI. Features

This chapter mainly introduces the operation of the interface functions of the HZYN-1122 Kinematic Viscosity Tester. The operator can use the various functions of the instrument through the introduction of this chapter.

1 Constant temperature bath temperature setting

After turning on the power, the "PV" digital tube displays the current temperature of the constant temperature bath, and the "SV" digital tube displays the set temperature. Press the "SET" key to enter the constant temperature bath temperature setting state, the "PV" digital tube displays "SP", and then press the "▲" and "▼" keys to enter the constant temperature bath temperature setting. After the input is completed, press the "SET" key to return to the initial state, and the constant temperature bath will begin temperature control.

Remarks: If you do not press any key in the "setting" state, the temperature control meter will automatically return to the temperature control state after 5 seconds.

Note: After the instrument is powered on, the temperature control system starts to work, so the power must be turned on after the medium is filled in the constant temperature bath.

2 Temperature correction of constant temperature bath

After the temperature of the constant temperature bath is stable, the deviation is calculated by comparing with the thermometer, and the set value is changed to correct the temperature of the constant temperature bath.

VII. Test operation

1. If the sample contains moisture, it must be dehydrated before the test. (For details, see section 4.1 in GB/T 265).
2. Use petroleum ether or mineral spirits to clean the capillary viscometer, and then dry it in an oven (see section 4.2 in GB/T 265 for details).
3. Mount the viscometer with the sample on the capillary viscometer clip, and immerse it in a well-prepared constant temperature bath to keep the sample constant (see section 4.4 in GB/T 265 for details).

4. Test procedure

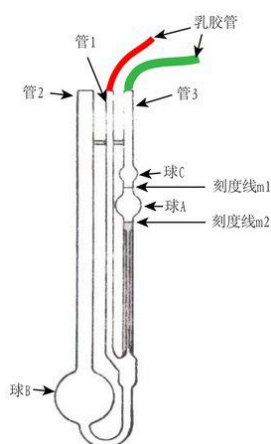
(1) Take out the Ubbelohde viscometer, make a solution of a certain concentration according to the regulations, filter with a vertical melting glass funnel No. 3, and discard the initial filtrate (about 1ml);

(2). Take the continuous filtrate (not less than 7ml) and inject it into B along the inner wall of tube 2 of the clean and dry Ubbelohde viscometer, and fix the viscometer vertically in a constant temperature water bath (the temperature of the water bath should be 25 ± 0.05 °C), and make the liquid level of the water bath higher than ball C, after 15 minutes;

(3) Connect nozzles 1 and 3 to a latex tube, clamp the rubber tube of nozzle 1, and draw air from nozzle 3, so that the liquid level of the test solution slowly rises to the middle of ball C. Open nozzle 3 first, and then open nozzle 1 to allow the test solution to fall naturally in the tube, and use a stopwatch to accurately record the outflow of the liquid level from the measurement line m<[1]> to the measurement line m<[2]> time;

(4) Repeat the measurement twice, the difference between the two measured values shall not exceed 0.1 second, and take the average of the two times as the outflow time (T) of the test solution.

(5) Take the solvent filtered through the vertical melting glass funnel No. 3 in the same operation, repeat the measurement twice, the two measured values should be the same, which is the outflow time of the solvent ($T_{[0]}$).



Remarks: During the constant temperature of the sample, the operator can adjust the 3 positioning nuts on the capillary viscometer clamp to adjust the viscometer to the vertical position.

Refer to the table below for the constant temperature time of the sample in the constant temperature bath (see section 5.1 of GB/T 265 for details).

Test temperature, °C	Constant temperature time, min
80, 100	20
40, 50	15
20	10
0~-50	15

Note: When aspirating the sample, be careful not to create bubbles or cracks in the capillary and expansion part of the liquid.

6. After the test, take out the capillary viscometer for cleaning.

VIII: Fault analysis and troubleshooting

Fault description	Failure analysis	Troubleshooting
No power input	Fuse blown	Replace the fuse
	No power at socket	Make sure the outlet has power
	The instrument power switch is damaged	Replace the power switch
Constant temperature bath does not heat up	The solid state relay is broken down	Replace solid state relay
	Damaged heating tube	Replace heating tube
Cannot set temperature	Temperature control table is damaged	Replace the temperature control table
	Not in setting state	Set in the setting state
Stirring motor does not work	Stirring motor damaged	Replace the mixing motor
PV temperature	Poor contact of sensor plug	Reconnect

display is chaotic		
	Sensor damaged	Replace sensor

IX.Precautions

1. Keep the instrument clean to prevent the sample from splashing on the instrument.
2. The instrument should be well grounded before use to ensure the safety of operators.
3. After the instrument fails, contact our company in time, and don't disassemble it at will.

X.Packaging List

Product model & name		HZYN-1122 Kinematic Viscosity Tester GB/T 265			
Random documents and accessories					
No.	Name	Specification model			Quantity
1	Certificate of conformity				1
2	User Manual				1
3	Tester				1
4	thermometer	100℃--1pcs			Total 1
5	Fuse tube	15A			1
6	Capillary viscometer	Ushi			Total 4
7	Capillary clamp	Ushi			2
8	Timer				1
Packer		Inspector		Packing date	2021-1-25