1.Applicable standards

This instrument is designed and manufactured in accordance with the national standard GB/T3536-2008 "Petroleum products flash point and ignition point determination method" (Cleveland open cup method), the national standard for petroleum and petroleum products test methods.

This instrument is also suitable for JTG E20-2011 Highway Regulations T0611-2011 "Asphalt Flash Point and Fire Point Test" (Cleveland Open Cup Method), the international standard ISO-2592 test method and the American National Association for Testing and Materials Standard ASTMD 92 test.

2. Purpose and scope of application

This instrument is suitable for Cleveland Open Cup (COC) to determine the flash point and ignition point of viscous petroleum pitch, coal pitch, and liquid petroleum pitch materials with a flash point above 79℃ to assess the safety of construction.

3. Operating conditions of the instrument

1、power supply：220V±10% 50Hz

2、Ambient temperature：-10℃ -50℃

3、Relative humidity；≤85%

4、Main features and technical parameters

1、Automatic sweep ignition

2、Electric furnace heating power 0~1000W continuously adjustable

3、The heating wire is protected by a transparent quartz tube, no open flame, explosion-proof, and fast heating speed

4、Temperature measurement range: 0-360℃.

5 Main structure and principle block diagram

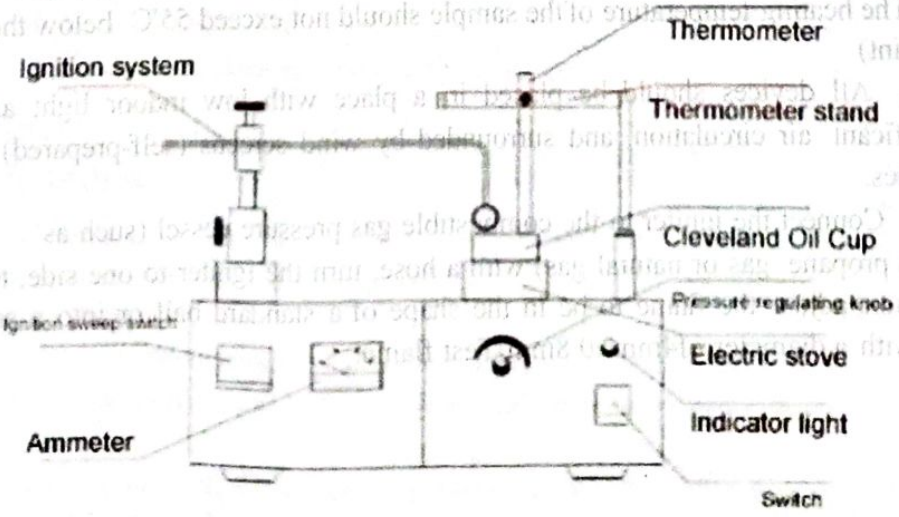


Figure 1 Schematic diagram of the structure

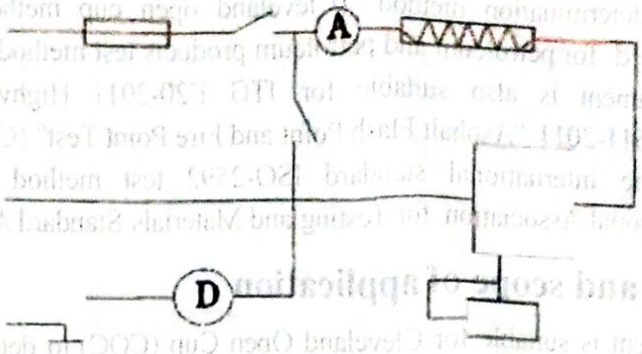


Figure 2 Schematic diagram

6. Installation and use

1、Open the packing box and check the appearance of the instrument and related accessories according to the complete set and technical documents of the instrument. If there is no damage or missing, install it according to the schematic diagram.

2、Check whether the power supply is well grounded.

3、Turn on the power switch, the indicator light is on, and then the test operation can be carried out.

4、Wash the sample cup with solvent, dry it, and install it on the support.

5、Install the thermometer and insert the thermometer vertically into the sample cup. The mercury ball of the thermometer is about 6.5mm away from the bottom of the cup, and the position is about 16mm away from the edge of the cup on the side opposite to the igniter.

6、After preparing the sample, inject it into the sample cup to the marking line, and make the other parts of the sample cup not be stained with asphalt. (Note: The heating temperature of the sample should not exceed 55℃ below the flash point)

7、All devices should be placed in a place with low indoor light and no significant air circulation, and surrounded by wind screens (self-prepared) on three sides.

8、Connect the igniter to the combustible gas pressure vessel (such as liquefied propane gas or natural gas) with a hose, turn the igniter to one side, test the ignition, adjust the flame to be in the shape of a standard ball or into a small sphere with a diameter of4mm±0.8mm Test flame.

7. Experiment procedure

1.Start the heating test, and make the heating rate quickly reach 14 ℃/min-17 ℃ /min. When the sample temperature reaches 56° C before the expected flash point, adjust the heater to reduce the heating rate so that the heating rate can be controlled at 5.5° C/min ±0.5°C/min at 28°C before the expected flash point.

2 、When the sample temperature reaches 28°C before the expected flash point, press the igniter button once every 2°C to make the test flame of the igniter sweep horizontally along the center of the test cup with a radius of 150mm in an arc; from one side of the test cup The elapsed time to the other side is about 1s. At this time, it should be confirmed that the test flame of the igniter is a fireball with a diameter of 4mm±0.8mm and is located 2.5mm above the mouth of the test cup. (Note: Do not breathe into the sample cup during the test)

3、When an instantaneous blue flame appears on the wave surface of the sample, immediately read the temperature from the thermometer as the flash point of the sample. Be careful not to mistake the blue and white flames around the test flame as flash point flames.

4 、Continue heating, maintain the sample temperature rise rate of 5.5°C/min±0.5°C/min, and use an igniter to ignite the test according to the above operation requirements.

5 、When the sample touches the flame and immediately catches fire and can continue to burn for no less than 5 seconds, stop heating, and read the temperature on the thermometer as the ignition point of the sample.

6 、The same sample is tested in parallel twice, and the difference between the two measurement results does not exceed the allowable difference of 8°C in the repeatability test, and the integer of the average value is taken as the test result.

7、Precision or tolerance

The allowable difference of repeatability test is: flash point 8 ℃, ignition point 8℃;

The allowable difference for the reproducibility test is: the flash point is 16°C, and the ignition point is 14°C.

8 . After the test, clean up and cut off the power supply.

8. Precautions

1 、In order to ensure a clear observation of the flash fire, the instrument should choose a sheltered and dark place as much as possible during the experimental test.

2 , The instrument should be placed in an environment where it is dry, insulated, free from pollution, acid and alkali and other corrosive gases, and kept clean.

3 、During the test, the copper cup should be handled with care to prevent the glass tube from breaking and causing electric leakage.

4 、After the power is turned on, turn the positioner knob clockwise, the current indication still has not crossed zero, please turn it to the right a little angle.

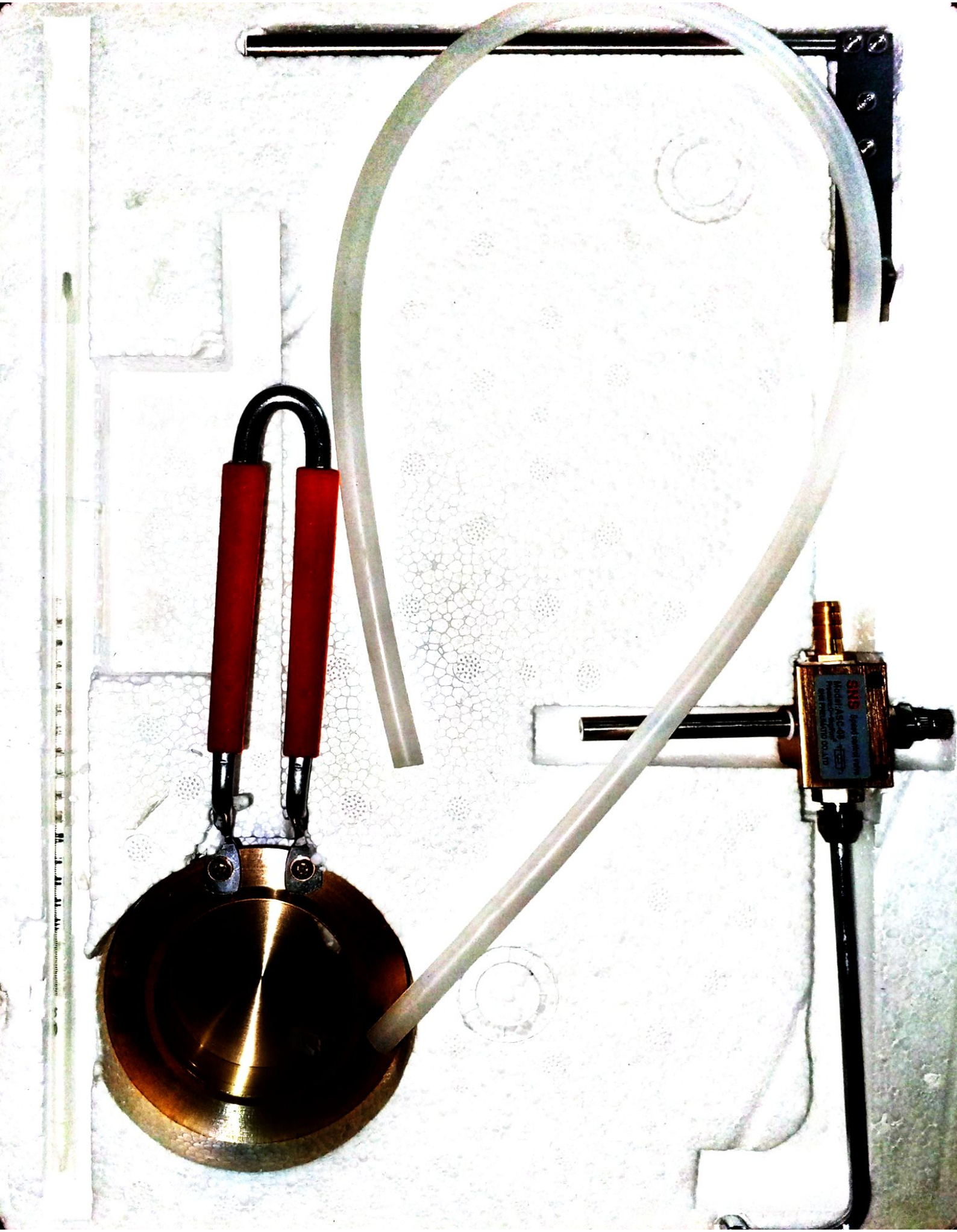
5, When adjusting the heating rate, care should be taken not to make the heating current exceed 3.8A for a long time to ensure the long-term stable use of the instrument.

9. Common faults and troubleshooting methods

Common malfunctions	Cause Analysis	elimination method
The power indicator is not lit	1、The indicator light is broken 2、The fuse is broken 3、The power is not connected	1、Replace the power switch or power indicator 2、Replace the fuse 3、Check whether the external power supply is powered
Chassis charged	Poor grounding of the instrument	Check the grounding wire to make it well grounded
The heating wire does not heat or the power cannot be adjusted	1、The potentiometer is broken 2、The solid state regulator is broken 3、The heating wire is blown	1、Replace the potentiometer 2、Replace the solid state voltage regulator 3、Replace the heating wire
The ammeter has no current indication	The ammeter is broken	Replace the ammeter

10. Packing List

1、Cleveland open flash point tester 1
2、Cleveland Oil Cup 1
3、Igniter 1
4、Thermometer 1
5、Thermometer stand 1
6、Power cord 1
7、Connecting hose 1
8、Manual 1
9、Certificate of conformity 1


SNS


Flash Point Tester


Cleveland Open Cup Flash Point Tester
0
1
2
3
4
5
A
GB/T7676-98
85L1
Scan
Heat Adj.
Power


FFP-C1
MC
02000187
Flash & Fire Piont Test
Bitumen Apparatus
Grade:
No
Date 20
CL-CivilLab Manufacturer Company,China