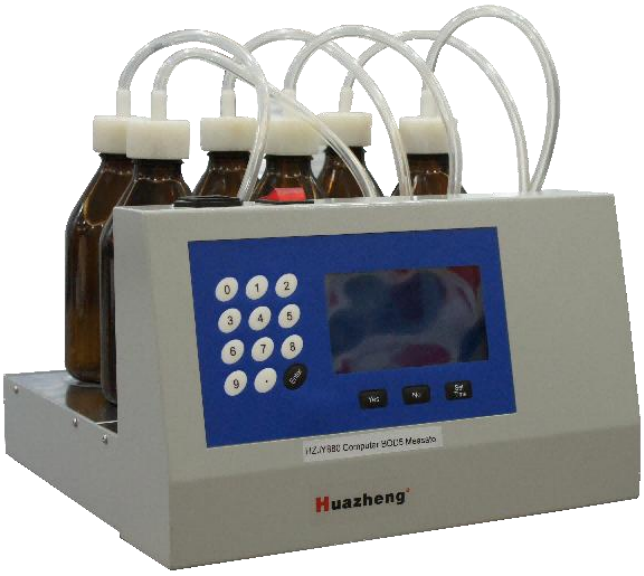
Huazheng®

HZJY880
Computer BOD5 Measator



Huazheng Electric Manufacturing (Baoding) Co., Ltd

Contents

I. Introduction to the instrument and its scope of use

Biochemical oxygen demand (BOD5) is a must-measured item for water quality evaluation and an important quality indicator for measuring the pollution of water by organic matter.

880 type microcomputer BOD5 measuring instrument is a new type of instrument for BOD measurement by air pressure difference method, which is processed by microcomputer and liquid crystal display. It can accurately provide measurement results comparable to chemical dilution method, directly display BOD value, and the biochemical reaction curve is clear at a glance. The most ideal instrument for internal BOD determination. It can be widely used in environmental monitoring, petrochemical, medical and health, teaching and scientific research and other departments to monitor water quality.

II. Working principle

1、B0D_5 Fundamental

Definition
Biochemical Oxygen Demand(BOD_5)is defined as the consumption of dissolved oxygen by aerobic microorganisms in water. The amount of oxygen when the sample is placed in the incubator and the incubation temperature is 20°C After five days of culture, the dissolved oxygen consumed was measured to determine the BOD value

Biochemical oxygen demand refers to the amount of dissolved oxygen consumed or required to decompose organic substances in water through the reproduction and respiration of aerobic microorganisms in water under specific conditions.The BOD_5 value in water is usually expressed by the amount of dissolved oxygen (mg/L) consumed by the sample placed at 20°C for 5 days, and recorded as“BOD_5”。

2、Determination principle

The stirrer is placed in the incubator, and according to the pre-selected range and measurement range, a quantitative volume of water sample is poured into the culture flask, and placed on the stirrer for continuous stirring. The temperature in the incubator was controlled at

20°C ± 1°C, and the water samples were incubated for five days after being kept at a constant temperature. Sufficient dissolved oxygen must be ensured in the culture flask. The organic matter in the sample undergoes biological oxidation, which is converted into oxides of nitrogen, carbon and sulfur, during which the only gaseous carbon dioxide that escapes from the water sample is absorbed by sodium hydroxide (or potassium hydroxide). Therefore, the reduction of air pressure in the bottle is equivalent to the amount of dissolved oxygen consumed by microorganisms. In this way, the BOD_5 value of the sample is proportional to the degree of air pressure reduction in the bottle. The BOD_5 value can be obtained by measuring the change of air pressure. Increasing or decreasing the amount of sample taken can increase or decrease the pressure reduction value. This allows the operator to accurately measure a wide range of BOD_5 values without complicated dilution steps. The change of air pressure in the culture flask is detected by a semiconductor pressure sensor, and the BOD_5 value and biochemical reaction curve of each sample are displayed cyclically by the LCD display.

III. Main technical indicators

1、Measuring range：0～1000 mg/L（when the BOD_5 value exceeds the measuring range, it needs to be diluted）

2、Simultaneous determination of the number of samples: 6 samples or 8 samples each time

3、Accuracy: in line with the national standard "GB7488-87"

（The BOD_5 value of the standard solution of glucose and glutamic acid is in the range of 180 mg/L to 230 mg/L）

4、Display: The LCD display cyclically displays the BOD_5 value and biochemical reaction curve of each sample.

5、Culture temperature：20℃±1℃

6、Power supply：AC 220V±22V　　50Hz±0.5Hz

7、Power consumption：Instrument≤50W，Incubator≤300W

8 、The instrument can save the BOD_5 values and biochemical reaction curves of the eight samples analyzed last time

IV. Installation and use

（I）Environmental conditions for the installation of this instrument:：

1、Ambient temperature：0℃～40℃。

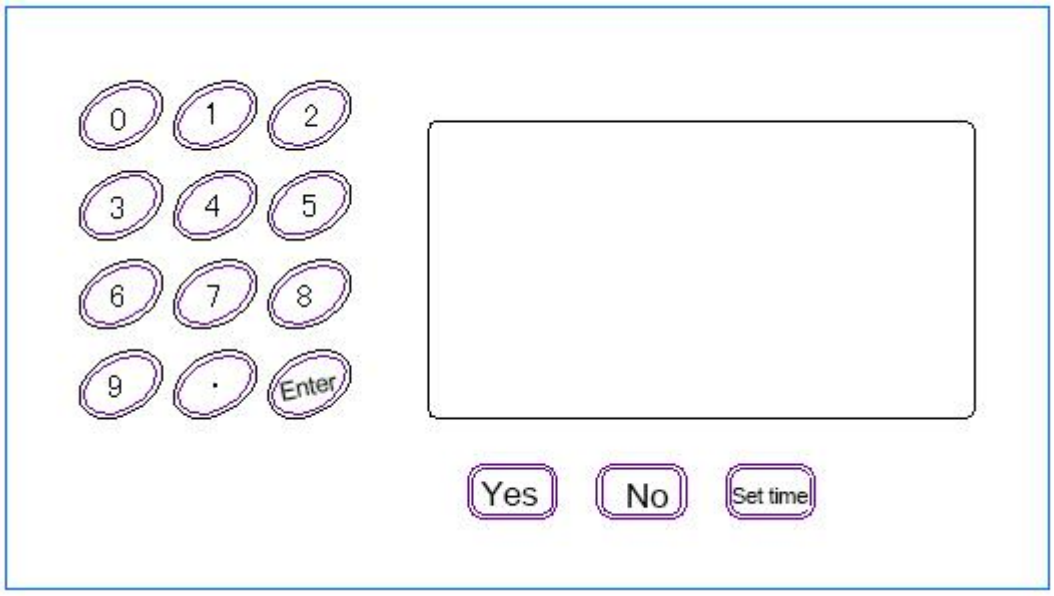
2、Relative humidity：≤80％

3、There is no strong vibration and strong electromagnetic field in the surrounding environment.

4、The instrument should avoid direct exposure to strong light.

（II）Description of the functional components of the instrument

1、Front panel of the instrument host



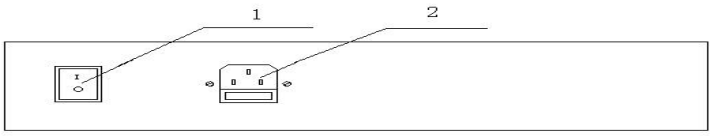
Schematic diagram of the front panel of the instrument host

0-9：Numeric keys Yes/No: Operation prompt Yes/No key

Enter: Operation prompt and digital input confirmation key

Set time: press the "set time" button under the system time to modify the time;

2、The top of the instrument panel



Schematic diagram of the rear panel of the instrument host

1. Power switch 2. Power socket 3. Stirrer

During the experiment, it drives the stirrer in the culture bottle to stir the sample solution, so as to promote the oxygen in the air in the culture bottle to dissolve in the sample solution.

4、BOD culture bottle

The samples are put into culture flasks for biochemical culture. The culture flasks have been specially screened and cannot be interchanged between each instrument, let alone replaced by other similar flasks.

（III）Inspection steps of the instrument system

1、Check whether it is normal according to the instructions of the incubator. When the control temperature is 20 °C, the accuracy after constant temperature should meet the requirements of 20 °C ± 1 °C.

2、Place the host in the incubator, connect one end of the power cord to the host, and plug the other end into the incubator.

3、Turn on the power of the instrument host.

4、Add a small amount of tap water to any culture bottle, put a stirrer as shown in Figure 3, and place the bottles in sequence on the corresponding position of the upper cover of the instrument stirrer. vortex. If all the above checks are normal, the experiment can be carried out.

V. Analysis method and analysis steps

(I)preparation of four kinds of inorganic salts (nutrient solution);

Take four cleaned volumetric flasks with a capacity of 1 liter and prepare as follows:

1、Buffer

Dissolve the following reagents in distilled water and dilute to 1 liter.

（1）21.75g dipotassium hydrogen phosphate（K_2HPO_4）。

（2）8.5g potassium dihydrogen phosphate（KH_2PO_4）。

（3）33.4g disodium hydrogen phosphate （$Na_2HPO_4 \cdot 7\ H_2O$ humidity is stable at 61.07％～80.51％）。

（4）1.7g of ammonium chloride（N H_4Cl）。

2、Magnesium sulfate solution

Dissolve 22.5 g of magnesium sulfate（$MgSO_4 \cdot 7H_2O$）in distilled water and dilute to 1 liter.

3、Calcium chloride solution

Dissolve 27.5 grams of calcium chloride（$CaCl_2$）in distilled water and dilute to 1 liter.

4、Ferric chloride solution

Dissolve 0.25 g of ferric chloride（$FeCl_3 \cdot 6H_2O$）in distilled water and dilute to 1 liter.

5、Nitrification inhibitor solution: Dissolve 500 ml of propylene thiourea in 1000 ml of distilled water; generally, nitrification inhibitor does not need to be added to the water sample. Add 1 ml of nitrification inhibitor solution per liter of dilution water.

（II）Measurement of actual sample BOD_5

1、Turn on the power supply of the incubator, so that the displayed temperature of the incubator is 20°C (see the instruction manual of the incubator for details). Put the host into the incubator, connect the host and the incubator with the power cord, and turn on the power of the instrument host.

2、Pre-estimate the range of the BOD_5 value of the sample to be tested, and select the closest range. If it is impossible to estimate, the COD value of the sample can be measured first, and then the BOD_5 value of the sample can be determined according to the COD value of the sample (usually, the BOD_5 value of the sample is 0.8 times the COD value of the sample). For samples with BOD_5 value below 1000mg/L and containing enough aerobic microorganisms, no inoculation is required, and the sampling amount can be directly obtained from the water sampling scale according to the selected measurement range. According to the number of samples to be tested (up to 6 samples can be measured, the instrument displays 8, and the latter two are not used) to determine the use of several culture flasks to measure one of the samples. If there are only two water samples, choose 2 to 4 culture bottles to measure one of the water samples, estimate the range of the BOD_5 value of the water sample in advance, determine the sampling amount of each culture bottle, and determine the required amount of several culture bottles. total sample size. Place the water sample in a large beaker (1000mL or 2000mL) and add 1mL of each of the four inorganic salts per liter of

water sample. Put the beaker into the incubator and stir on a stirrer at a constant temperature (2-3 hours). At the same time, the pH value of the water sample must be adjusted, which should be 6.7 to 7.5 (the optimum point is pH 7.2). If it exceeds this range, it can be neutralized with an appropriate concentration of sodium hydroxide or sulfuric acid. Then measure the water sample with the measuring cylinder according to the determined sampling amount and pour it into the culture bottle. Similarly, other water samples can be measured.

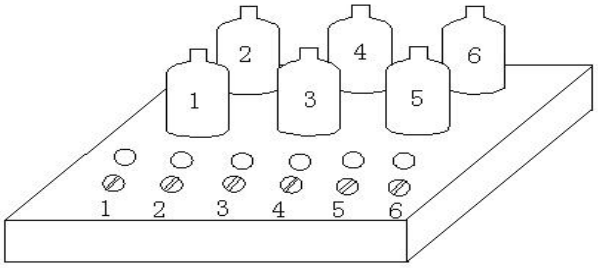
Table 1 Water sampling scale

Sample BOD_5 value range（mg/L）	Sampling volume （mL）
0～25	485
0～50	433
0～100	358
0～200	265
0～300	211
0～400	175
0～600	130
0～800	104
0～1000	86

Note: If inoculation and dilution are required, samples should be taken according to the above table after inoculation and dilution.

3、Put a stirrer in each culture bottle, and place the culture bottle on the corresponding position of the agitator. Pay attention to the correspondence between the culture bottle number and the channel number on the mixer panel. Generally, the shorter the connection distance, the better, and specify the inside The bottle numbers are "2", "4", "6", and numbers from the left, and they are located on the inside of the incubator; the bottle numbers that are close to the plastic tube are "1", "3", "5", and numbers from the left. , the position is outside the incubator; the order left of the 6 pressure sensors is "1", "2", "3", "4", "5", "6", and the position is outside the incubator. Stir the test water sample

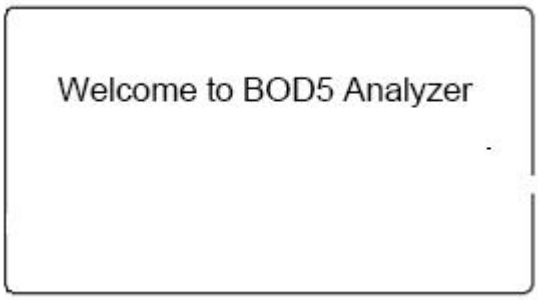
until the temperature of the water sample reaches 20°C ± 1°C (about 1 to 2 hours).



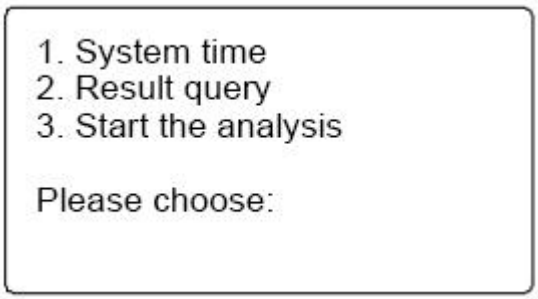
4、Take 6 cleaned sealed cups, put solid NaOH or KOH (or 5 to 6 NaOH particles) in the cups that account for about 1/4 of the total height, and smear the two surfaces of the sealed cups that are in contact with the bottle mouth and the connector Apply a thin layer of vacuum silicone grease to the mouth of each bottle. If the sealing is good, it can be left unpainted. Tighten the cap of the bottle connected to the hose on the culture bottle, and at the same time plug the stoppers on the 6 reference air pressure chambers on the stirrer. During this process, do not let NaOH or KOH fall into the culture bottle.

5、After 30 minutes of stability, operate the instrument host.

6、After the instrument host is turned on, the display is as follows:



7、The instrument will display the system settings after about 1 second



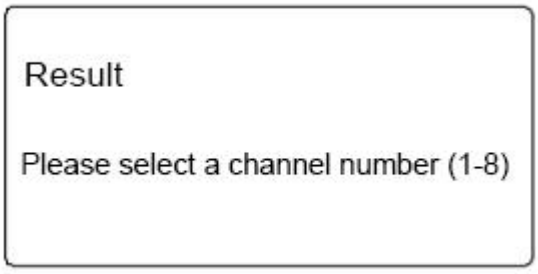
8、Press 1 and press Enter to modify the system time

Modification method:

Press the set time key, enter the system time to be modified, such as: July 23, 2005; 8:19:00. Enter 05-07-23-08-19-00 respectively, and press the Enter key to confirm, and press the Enter key again to return to the system setting screen. If you do not need to modify the system time, this step can be omitted.

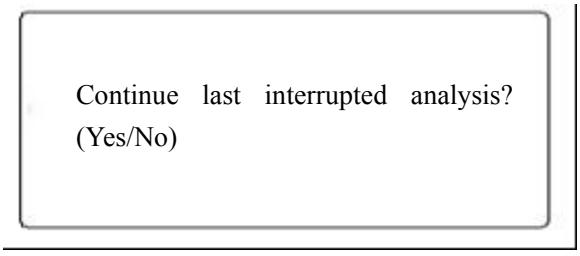
Note: In July, you can't just enter a 7, you should enter 07, and the system will respond.

9、Press 2 and press Enter to query the experimental results. The following screen is displayed:



This step is used to query the BOD_5 value and biochemical reaction curve of the last six samples (channels 7 and 8 are random) stored in the instrument. Input the channel number to be displayed and press Enter to confirm, the BOD value and biochemical reaction curve of the channel will be displayed, press Enter again to return to the query result screen, and press Enter again to return to the system setting screen. If the query result is not required, this step can be omitted.

10、Press 3 and press Enter to automatically analyze. The following screen is displayed:



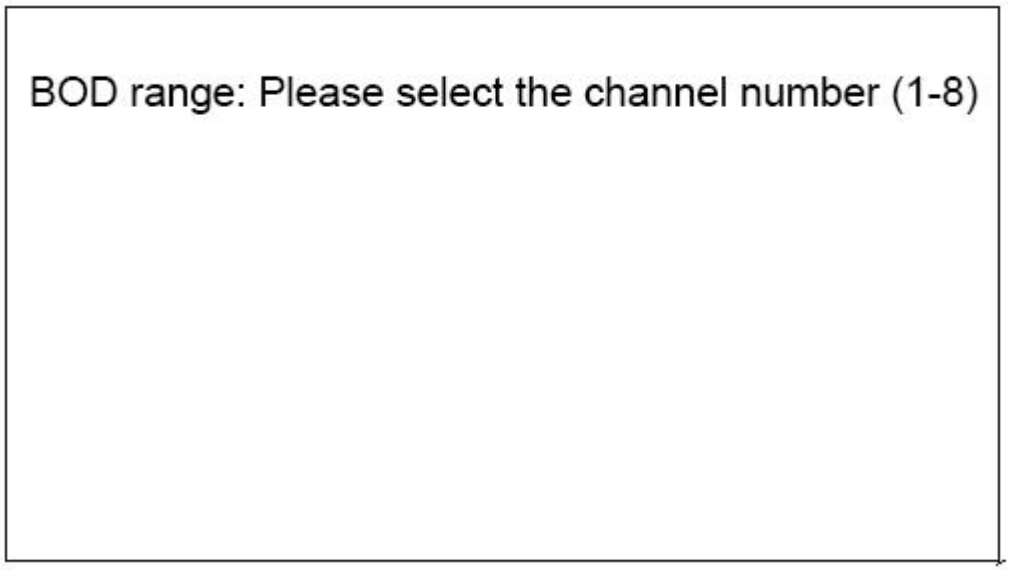
This sentence means that if the instrument fails to analyze continuously for some short-term reason, if it has been analyzed for 30 hours, such as continuous analysis

from 30 hours after restarting, select Yes, then only after another 90 hours of analysis can be achieved. 120 hours of five-day analysis.

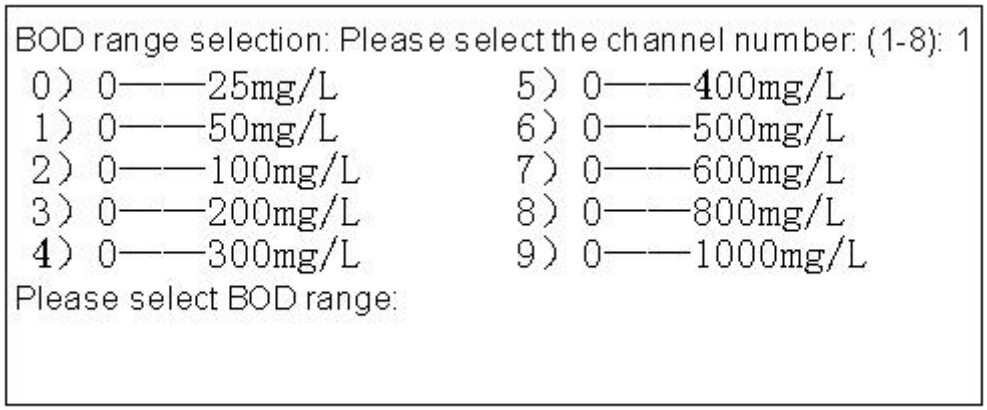
If you select **No**, the instrument will wait for about 10 seconds to display as follows: 1, 5 days of biochemical culture; 2, 10 days of biochemical culture; input 1, start 5 days of biochemical culture; input 2, start 10 days of biochemical culture. At the same time, the instrument enters the next screen.

Coefficient: Please select the channel number (1-8; the 7th and 8th channels are not used), if you do not need to modify the coefficient of each channel, please press the Enter key to enter the next screen. If you need to modify the coefficient, please enter the channel number, enter the coefficient to be modified, and press the Enter key after all channels have been modified. The so-called coefficient is the actual result of each channel multiplied by the coefficient to get the displayed result.

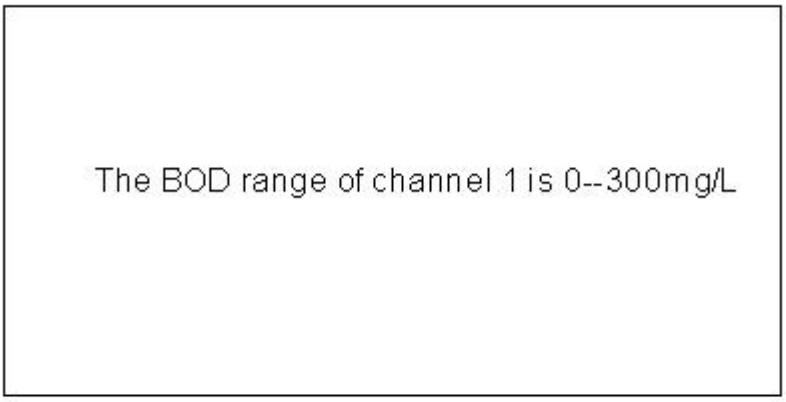
When the modification is completed, press the Enter key to enter the next screen:



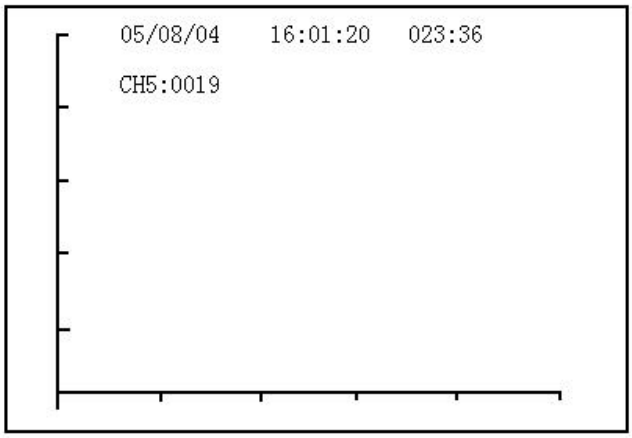
Enter the channel number to be modified (channels 7 and 8 are not used), such as 1, after pressing the Enter key, the display is as follows:



Select the appropriate range, for example, press 4, then press the Enter key, the instrument displays



After about two seconds of display, the instrument returns to the previous screen. The default range of the instrument is 0-100mg/L. After each channel is set, please press the Enter key to enter the next screen. The instrument starts from 0 hours, after 120 (or 240 hours of analysis. At this time, the instrument enters to display the BOD value and biochemical reaction curve of each channel, and displays the current system time and system running time at the same time, and the instrument displays the BOD of a channel every minute. Values and biochemical reaction curves are printed every half hour.



After the analysis of the instrument is completed, the values of 8 channels are displayed in a circular manner, waiting for the operator to shut down.

（III）Measurement data processing:

1、For undiluted samples, simply read the reading displayed on the instrument to get the sample BOD value.

2、For the samples that have been diluted and inoculated, the readings on the display can be read out, and then calculated according to the following formula:

$$\text{Sample actual } BOD_5 = \frac{\text{Sample } BOD_5 \text{ reading-Inoculum } BOD_5 \text{ reading} \times \text{Inoculum \%}}{\text{Sample liquid\%}} \times \text{Dilution factor}$$

Example 1. There is a sewage sample whose BOD5 value is estimated to exceed 1000mg/L, so dilution pretreatment is done (no need to add inoculum). Select the range from 0 to 600 mg/L, and the display reads 550 after five days of culture.

The actual BOD_5 value of the sample（mg/L）=550×2＝1100（mg/L）

Example 2. There is an industrial wastewater sample, the microorganisms are insufficient to inoculate, and the BOD_5 value is about 60mg/L. The inoculation is carried out with domestic sewage, and the inoculation amount is 10% (that is, 90 samples to 10 inoculum solutions). The estimated BOD_5 value of the inoculum It is about 30mg/L, and the industrial wastewater is in the range of 0-100mg/L during the experiment.

The inoculum of the parallel sample test was selected from the range of 0-50 mg/L (sampling amount was specified in the respective range). After five days of incubation, the

display readings were 71.4 and 42.3, respectively.

Sample actual BOD_5 value（mg/L）$= \frac{71.4-42.3\times10\%}{90\%} =$74.6（mg/L）

Example 3. There is an industrial wastewater that is poisonous, and the estimated BOD_5 value is about 700mg/L. Before the measurement, the sample was diluted 10 times and inoculated with living water. The BOD_5 value of the inoculum was about 60mg/L, and the inoculation amount was 10% (9 diluted samples, 1 inoculum), treated industrial wastewater and inoculum were all sampled in the range of 0-100 mg/L. After five days of culture, the numbers were 52.0 and 61.7, respectively.

Sample actual BOD_5 value（mg/L）$= \frac{52.0-61.7\times10\%}{90\%} \times10=$509（mg/L）

（IV）BOD_5 test method for standard samples

In order to check the performance of the instrument, the standard sample of glucose-glutamic acid can be used for BOD_5 test. Operators should be able to use the instrument and chemical dilution operations correctly. The BOD_5 test method of glucose-glutamic acid standard sample is as follows:

1、Prepare dilution water

Take a 2000mL beaker, measure 2000mL of distilled water with a measuring cylinder and pour it into the beaker, and add 2mL of each of the four inorganic salts to the beaker, which is the dilution water.

2、Dissolve 300mg of glucose（$C_6H_{12}0_6$）and 300mg of glutamic acid in 2 liters of dilution water (such as laboratory glucose with a crystal water, glucose needs to be weighed 330mg, this standard solution should be freshly prepared before each use). Put a stirrer in the beaker, and place the beaker on the amplifier in the incubator to stir at a constant temperature for 2 to 3 hours.

3、Use a 1000mL beaker to take fresh domestic sewage as the inoculum, put the beaker on the stirrer in the incubator and keep the standard sample constant for 2-3 hours at the same time.

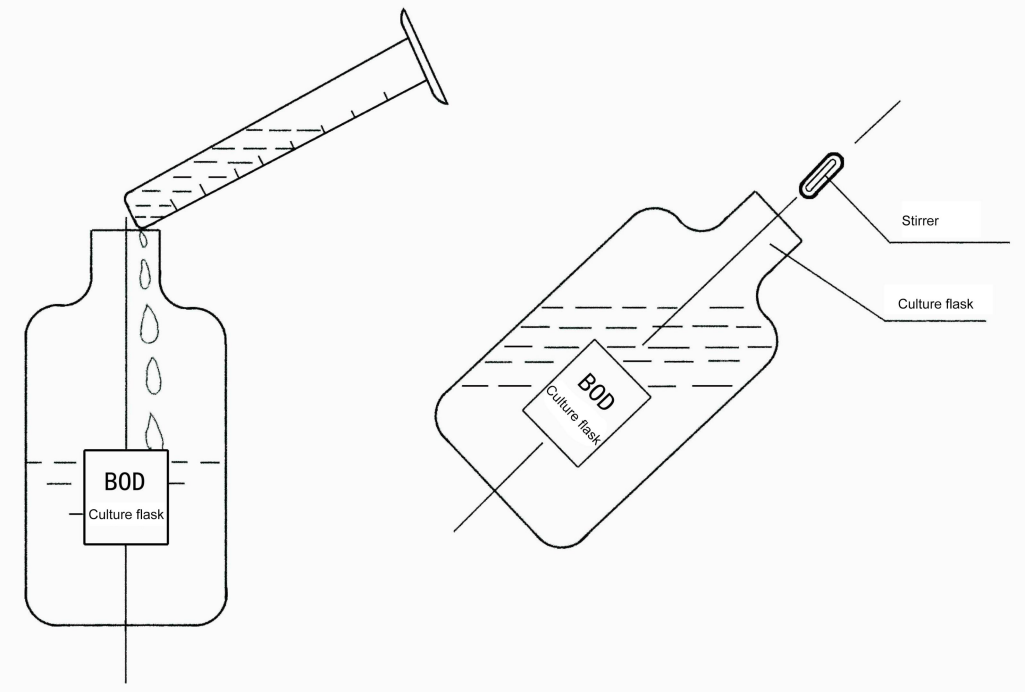


Figure 2 The water sample is poured into the culture bottle

Figure 3 The stirrer is put into the culture bottle

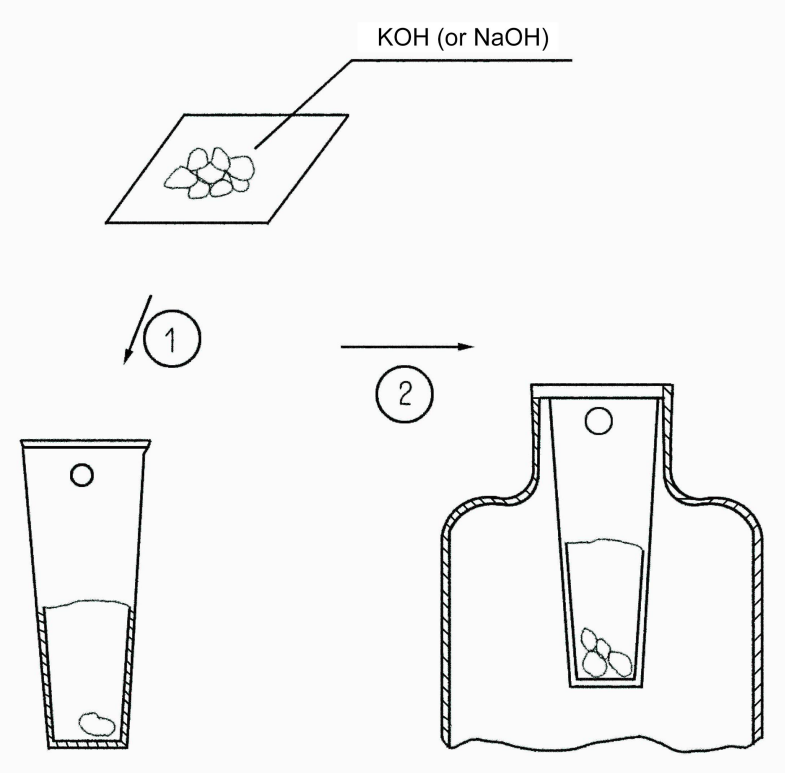


Figure 4 Figure 4 Put the CO_2 absorbent KOH or NaOH in the sealed cup

4、After the standard sample is completely dissolved, pour out 200mL from the graduated cylinder, and then take 200mL of domestic sewage from the graduated cylinder and pour it into the standard sample. The standard sample after inoculation is still placed on the stirrer in the incubator and stirred at a constant temperature for 1 to 2 hours.

5、Measure the standard sample after inoculation according to the sampling amount specified in the measurement range of 0-300mg/L in the table of instructions, pour it into 8 culture bottles respectively, and then perform the measurement according to steps 3-10 of the actual sample measurement mentioned above.

If the BOD_5 value is in the range of 180mg/L～230mg/L, it indicates that the method used by the instrument is suitable and the result is correct. If the measurement result deviates from the above range, it is necessary to check whether the performance and operation of the instrument and the inoculation water meet the requirements (see "Evaluation of measurement results").

（V）Factors Affecting BOD_5

1、Determination

Dissolved oxygen

The samples taken in winter are supersaturated with dissolved oxygen because the test temperature is set at 20 °C, and the samples taken in summer may be under-saturated with dissolved oxygen at 20 °C. These samples should be stirred and aerated prior to BOD_5 determination in order to adjust the dissolved oxygen to around the 20°C saturation point.

2、pH

The pH value of the test water sample should be adjusted to 6.7 to 7.5 (the optimum point is pH 7.2). The decrease in BOD_5 reading may be due to the pH value of the sample being tested exceeds this range. For samples containing a large amount of acid or alkali, the BOD_5 reading may be will be lower than the actual content.

Acidic or alkaline water samples should be neutralized with appropriate concentrations of NaOH or H_2S0_4.

If the industrial wastewater contains acid or salt oxides, or requires high dilution, for the standard five-day BOD_5 determination, pH 7.2 phosphate buffer can be used as the diluent.

3、Temperature

The stirrer was placed in an incubator at 20 °C ± 1 °C during the experiment. The determination of BOD can also exceed this temperature range. For example, at 35°C or 37°C, the time required to measure BOD can be shortened to 2.5 days or 34 hours, respectively, and the measurement results are similar to 20°C for five days. The BOD value obtained by increasing the temperature has a good correlation with the results measured at 20℃ on the fifth day.

If the sample temperature exceeds 20°C when sampling, or the sample temperature is less than 20°C, the sample can be kept in an incubator for constant temperature. The sample is required to be processed prior to sample measurement.

4、Dilution

The measuring range of the instrument is 0～1000mg/L. If the estimated BOD_5 value of the test sample is higher than 1000mg/L, the sample can be diluted with dilution water. The added dilution water should also be kept at 20°C, and aeration should be used to saturate the oxygen. If several identical samples are required to be tested, a sufficient amount of the original water sample should be diluted, and the volume corresponding to the measuring range should be taken from the diluted sample. . For example, when the original water sample is diluted twice, the dilution factor is 2; when the original water sample is diluted by 1:10, the dilution factor is 10.

5、Inoculate

Inoculation solution
The solution used for inoculation is the supernatant of untreated fresh domestic sewage placed at 20° C for 24-36 hours. In the next experiment, if you want to use the previously measured water sample as the inoculum, it should be filtered through filter paper. This filtrate should be stored under refrigeration (about 20° C) and protected from light. Generally, it may be effective within two months.

6、Inoculation method

Prepare inoculation solution

What is vaccination

The BOD5 test requires that the water sample contains organic matter for biological oxidation and an appropriate amount of aerobic bacteria that oxidize organic matter, as well as other microorganisms that devour organic matter and promote the growth of aerobic bacteria. If there is no or almost no such microorganisms in the water sample, a certain proportion of such microorganisms must be added to the water sample. This process should be called inoculation.

Put the sample to be assayed into a culture flask, and use a pipette to add 2 to 5 drops of inoculum to the sample (depending on the sample size). Follow the steps to measure BOD_5, and the readings obtained after five days can be used as the true BOD_5 value of the test sample.

NOTE: When inoculating using the above method. It is not necessary to correct inoculated BOD_5 readings. Because the amount of inoculum added is too small relative to the amount of water sample, it will not affect the BOD_5 reading. If the above methods fail to induce biodegradation of organic matter in the water sample, the amount of inoculum added can be increased. If the BOD_5 reading is affected by the addition of the inoculum, the inoculum and the sample can be tested simultaneously for parallel sample determination. The amount of inoculation is often 1%, 5%, and 10%.

VI. Normal maintenance and troubleshooting of common faults

（I）The instrument should be placed in a ventilated place, without strong electromagnetic field interference, without direct exposure to strong light, and without major power fluctuations. It is best that the laboratory can be equipped with a regulated power supply and has a good grounding wire.

（II）Open all the instrument packing boxes, put the host into the incubator, and connect them with special cables.

（III）Cleaning work after the experiment

After completing the measurement, follow the steps below to clean

1、Culture bottle

Rinse the culture bottle with hot water several times, wash away the deposits on the inner wall of the bottle with hot soapy water and a brush, and rinse with clean water several times.

2、Stirrer

Wash the experimental stir bar with detergent solution and rinse.

3、Sealed cup

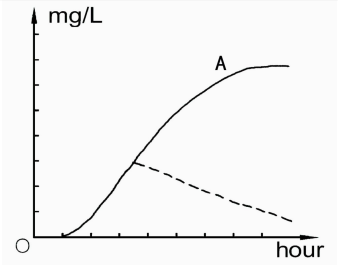
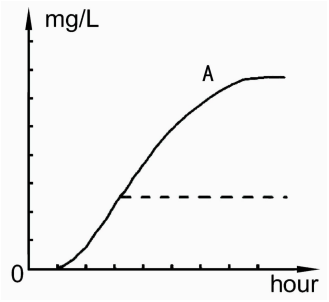
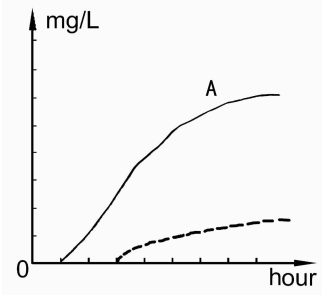
Wipe off applied vacuum silicone ester, wash off residue and CO2 absorber with wash solution, rinse well and dry.

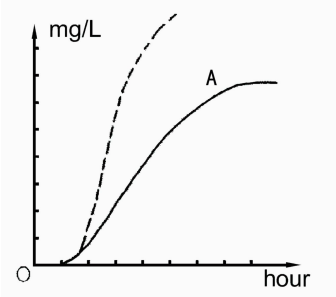
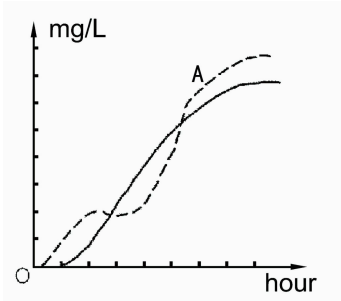
Note: The inner surface of the culture bottle stopper is often stained with sealing oil. The inner surface must be wiped clean, and the vacuum silicone grease at the contact between the connector and the sealing cup must be wiped off.

（IV）Troubleshooting of common faults

BOD_5 readings gradually increased during a five-day incubation period at 20°C ± 1°C. (However, the increments between each day will be smaller and smaller over time). The biochemical reaction curve (BOD_5-time curve) will be similar to curve A shown in the figure below. If similar curves cannot be obtained, the influencing factors can be determined according to the following checklist.

Checklist

Result	Possible reason	Take measures
 Reading drops	Air leak	Check whether the sealing cup is in good condition, whether the cap of the sealed culture bottle and the sealing bolt are tightened, and whether various impurities and residues on the cap are removed. Check the plastic pipes for cracks, aging and deformation. When this happens, a new tube should be replaced, and attention should be paid to the material length and inner diameter of the original tube.
Result	Possible reason	Take measures
 The instrument does not respond 	CO_2 absorbent leaked, pH changed, and air leakage was serious. The range selection is too large, resulting in interference gas and so on.	Avoid putting too much absorbent into the bottle as it will swell due to absorbing CO_2. Find the leak point, mainly check the pipeline connection. Select the appropriate range. This phenomenon may occur due to many factors caused by the sample. The influencing factors are determined, and appropriate pretreatment work is carried out before the measurement.

Move the start point to where the curve starts to rise	Not enough bacteria pH too high, too low	Adjust pH and inoculate samples
 Overrange	Oxygen demand too high (inappropriate range taken)	Choose the right range
	Constant temperature time is too short	Extend the constant temperature

VII. Precautions

（I）Before the experiment, loosen the sealing knob of the reference air chamber to make the internal air pressure equal to the atmospheric pressure.

（II）The instrument must be fully constant temperature of the sample, and the sealing

knob of the culture bottle and the reference air pressure chamber must be sealed reliably for analysis.

（III）The BOD value of the water sample shall not exceed the range selected by the instrument, otherwise the measured result will be too small

（IV）Drop in readings during testing

The reason is that there is air leakage in the pressure system. It is necessary to check whether the cap and sealing bolt of the culture bottle are tightened, whether there are cracks or gaps in the bottle mouth of the culture bottle, whether there are cracks in the joints at both ends of the connected plastic hose, and whether the hose itself has cracks, pores and aging. etc. If the hose is defective, please replace it.

（V）The pressure sensors are arranged from left to right in the order 1 to 8. The operator should remember the connection order when measuring several different samples at the same time.

（VI）The BOD_5 test of industrial wastewater often requires special attention or special treatment

1、Harmful or poisonous substances

Remove harmful or toxic substances from water samples or dilute acid samples to exclude their influence on BOD_5 measurement results.

Harmful substances or poisons in the sample will reduce the BOD_5 value of the sample.

（1）If the sample contains chlorine gas

Allow the sample to stabilize for 1 to 2 hours to eliminate the chlorine gas in the sample. If the sample contains a high concentration of chlorine gas, the following steps are required:

Add 1gKI～2gKI to 100～200mL water samples, and then add sulfuric acid (1+11) to acidify the samples (pH is about 1). In this step, the residual chlorine will release iodine, add starch indicator, and titrate the released iodine with $Na_2S_2O_3$ solution (N/40) until the blue color fades. Titrate an iodine-equivalent $Na_2S_2O_3$ solution, which

will reduce the residual chlorine in the sample, and use this sample to determine BOD_5.

（2）If the sample contains phenol, heavy metals, CN or other toxic substances

Dilution of the samples with dilution water can eliminate these substances and then inoculate the samples with the inoculum prior to the assay.

2、Suitable environment for inoculation (adapted to the cultivation of microorganisms)

Suitable environment for inoculation (adapted to the cultivation of microorganisms)

Many domestic sewage can be used as inoculum, however, if the test sample contains phenol, formaldehyde and some other substances that inhibit bacterial growth, then the inoculum of suitable environment should be added to this sample before BOD_5 determination.

Generally, a suitable environment for inoculation can be carried out in stainless steel or non-metallic containers suitable for aeration treatment.

VIII. BOD5 Tester Packing List

NO.	Name	Quantity
1	Host	1
3	Culture flask	6
4	Stirrer	6
5	Sealed cup	6
6	Power cable	1
7	User's manual	1
8	Product certification	1
9	Spare belt	3