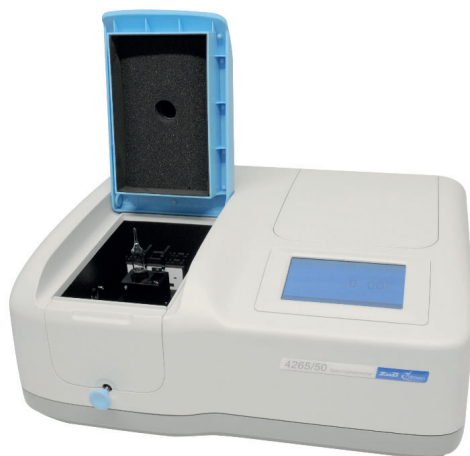


ESPECTROFOTÓMETRO VISIBLE 4265/50  
4265/50 VISIBLE SPECTROPHOTOMETER  
SPECTROPHOTOMÈTRE VISIBLE 4265/50



Este manual es parte inseparable del aparato por lo que debe estar disponible a todos los usuarios del equipo. Le recomendamos leer atentamente el presente manual y seguir rigurosamente los procedimientos de uso para obtener las máximas prestaciones y una mayor duración del mismo.

*This manual should be available for all users of these equipments. To get the best results and a higher duration of this equipment it is advisable to read carefully this manual and follow the processes of use.*

*Ce manuel est une partie indissociable de l'appareil et doit être mis à la disposition de tous les utilisateurs de l'équipement. Nous vous recommandons de lire attentivement ce manuel et de suivre scrupuleusement les procédures d'utilisation afin d'obtenir des performances maximales et une plus longue durée de vie de l'appareil.*

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## SAFETY INFORMATION

Please follow the guidelines below, and read this manual in its entirety to ensure safe operation of the unit.



- Do not open the device.
- Disconnect the device from the mains supply before carrying out maintenance work or changing the fuses.
- The inside of the device is a high-voltage area Danger!
- Do not use the device if it is damaged, especially if the main power cable way is in any damaged or defective.
- Repairs may only be carried out by the service technicians from us and authorized contractual partners.
- The device must be connected to a power outlet that has a protective ground connection. If the equipment is used in a manner not specified by the manufacturer, the protection



- provided by the equipment may be impaired.
- Do not allow any liquid to enter into the device.
- Do not operate the device in a hazardous location or potentially explosive environment.

## PACKAGE CONTENTS

Description	Quantity
Spectrophotometer	1PC
Glass Cuvette	4 PCS
Power Cord	1PC
Instruction Manual	1PC
Dust Cover	1PC

## UNPACKING

Open the package and carefully check the packing list items; if you find missing or damaged items please contact your distributor.

## INSTALLATION

### ■ Placement

Place the instrument on the stable table carefully.

### ■ Install printer (Optional)

Check to confirm instrument power switch is turned off, connect the printer's data cable to the Instrument's serial/USB port.

**Information: The spectrophotometer supports USB printers using the HP PCL3 GUI print description language.**

### ■ Connect the power cord

Check that the power switch of the instrument is turned off; connect the power cable to the socket on the device; plug the other end of the cable into a separate socket.

## SYMBOLS AND CONVENTIONS

The following chart is an illustrated glossary of the symbols that are used in this manual.



**CAUTION** This symbol indicates a potential risk and alerts you to proceed with caution



**CAUTION** This symbol indicates the presence of high voltage and warns the user to proceed with caution



**CAUTION** This symbol indicates risks associated with hot surfaces

## OVERVIEW

The 4265/50 model was specially designed for water and wastewater analysis with CHEMetrics instrumental kits. It is programmed with more than 40 specifically adapted methods, which allow to obtain the concentrations of 24 analytes (Vacu-vials® colorimetric kits) and the chemical oxygen demand (COD vials kits). It can also be used in other applications, as it has three other working modes: photometric, quantitative and scanning.

## SPECIFICATIONS

<b>Model</b>	4265/50
<b>Reference</b>	HJB008
<b>Optical system</b>	Single beam, 1200 l/mm grating
<b>Light source</b>	Tungsten lamp
<b>Detector</b>	Silicon photodiode
<b>Spectral bandwidth</b>	2 nm
<b>Wavelength range</b>	320~1100 nm
<b>Wavelength accuracy</b>	±0,5 nm
<b>Wavelength repeatability</b>	≤0,2 nm
<b>Wavelength resolution</b>	0,1 nm
<b>Wavelength swing speed</b>	10000 nm/min
<b>Wavelength scanning speed</b>	20~4200 nm/min
<b>Photometric range</b>	-0,3~3 A, 0~200 %T, 0~9999,9 C
<b>Photometric accuracy</b>	±0,002 A (0~0,5 A), ±0,004 A (0,5~1 A), ±0,3 %T (0~100 %T)
<b>Photometric repeatability</b>	≤0,001 A (0~0,5 A), ≤0,002 A (0,5~1 A), ≤0,2 %T (0~100 %T)
<b>Stray light</b>	≤0,05 %T (340 nm)
<b>Noise</b>	≤0,0005 A @ 0 A, 500 nm, ≤0,001 A @ 1 A, 500 nm, ≤0,002 A @ 2 A, 500 nm
<b>Baseline flatness</b>	±0.002 A
<b>Sample compartment</b>	Double position sample holder (test tube/cuvette), with manual changer Ampoule/Tube: diameter Ø13~16 mm, height 45~110 mm Cuvette: 10/20/30/50 mm
<b>Display</b>	5-inch TFT color touch screen
<b>Storage</b>	236 KB (built-in), supports unlimited external expansion (USB memory)
<b>Interface</b>	RS232 serial port × 1 (printer), USB-A × 1 (USB memory/USB printer), USB-B × 1 (computer)
<b>Power supply</b>	100~240 VAC, 50/60 Hz
<b>Size</b>	450 (L)× 370 (A)× 187 (H) mm
<b>Weight</b>	10,5 kg

## DESCRIPTION

## Front View



## Right View



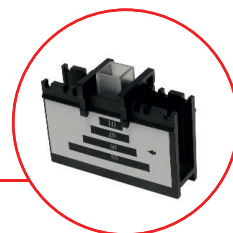
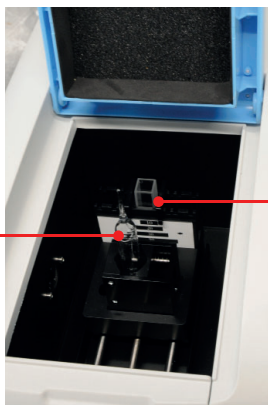
## Rear View



## Sample Holder



Test tube holder  
Diameter : Ø 13 - 16 mm  
Height : 45 - 110 mm



Cuvette holder  
10 / 20 / 30 / 50 mm

## GETTING STARTED

The following chart describes the basic operation of the instrument.

### Turn On and Self-check

Switch on the power. Self-check includes the following steps: Turn On Lamp - Locating Filter Disc - Locating Automatic Sample Holder (If Installed) - Get Dark Current - Locating Wavelength- Check Energy - Check System baseline.

**Important information:** Before collecting dark current, the instrument has a 20-minute warm-up countdown process. This process helps to stabilize the measurement. We recommend following the process to completion. Press the button “Skip” to skip the process.

System initialization		
	Light source	
	Filter	
	Sample holder	
	Dark current	
	Wavelength	
	Energy	
	System baseline	

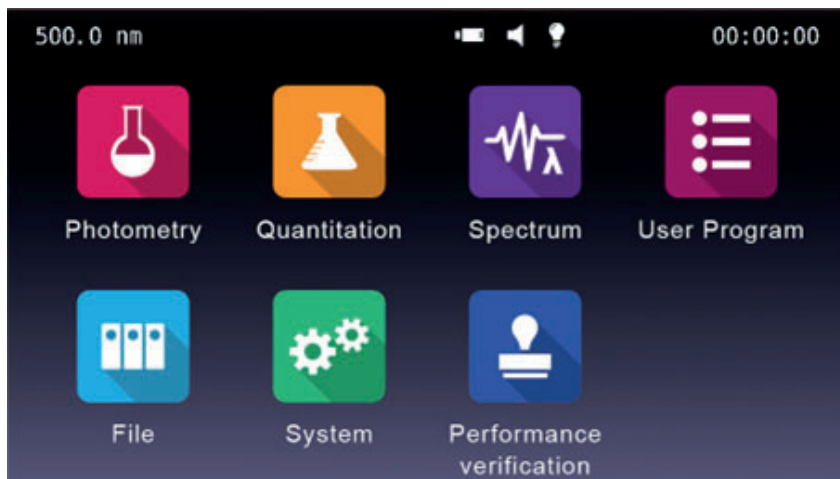
## GENERAL OPERATING INSTRUCTIONS








### ■ Touch Screen Using Tips

The entire screen can be started with a touch. To make a choice, use your nails, fingertips, pencil, or stylus to press the screen. Don't press the screen with sharp objects (such as ball point).




### ■ Select Application

**Main** Interface, press the icon to select application.







	<b>Photometry</b> Measure the absorbance or transmittance of the sample.
	<b>Quantitation</b> Establish the standard curve and measure the concentration of the sample.
	<b>Spectrum</b> Scan the sample in a wavelength range.
	<b>User Program</b> Measurements are performed using user-tailored measurement methods.
	<b>File</b> Manage files stored in the instrument or USB disk.
	<b>System</b> System calibration and setup.
	<b>Performance verification</b> Verify the performance of the instrument.

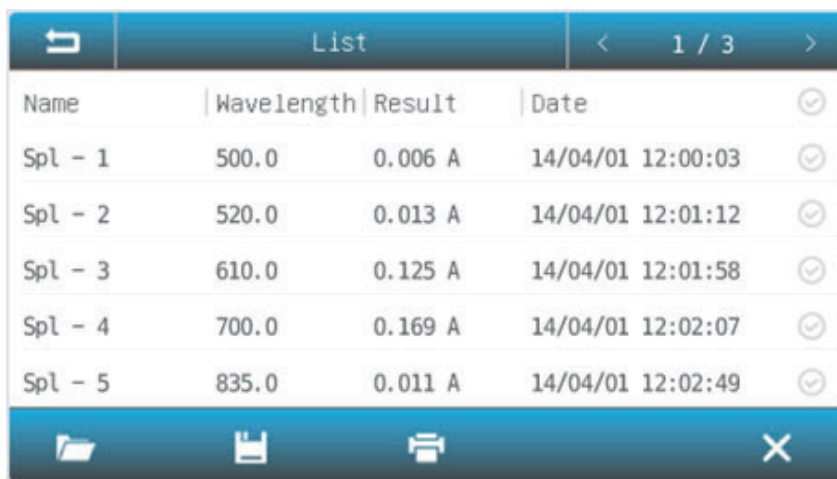
## ■ Basic Operation

	<b>Home</b> Back to main interface.
	<b>Return</b> Back to the previous interface.
	<b>Page Up/Down</b> Go to previous/next page.

## ■ Measurement Results Operation

	<b>Open</b> Open result(s) from internal/USB memory.
	<b>Save</b> Save result(s) to internal/USB memory.
	<b>Print</b> Print result(s).
	<b>Delete</b> Delete selected result(s).

### Rename, Print and Delete Results




Return		List		<	1 / 3	>
Name	Wavelength	Result	Date	✓		
Spl - 1	500.0	0.006 A	14/04/01 12:00:03	✓		
Spl - 2	520.0	0.013 A	14/04/01 12:01:12	✓		
Spl - 3	610.0	0.125 A	14/04/01 12:01:58	✓		
Spl - 4	700.0	0.169 A	14/04/01 12:02:07	✓		
Spl - 5	835.0	0.011 A	14/04/01 12:02:49	✓		

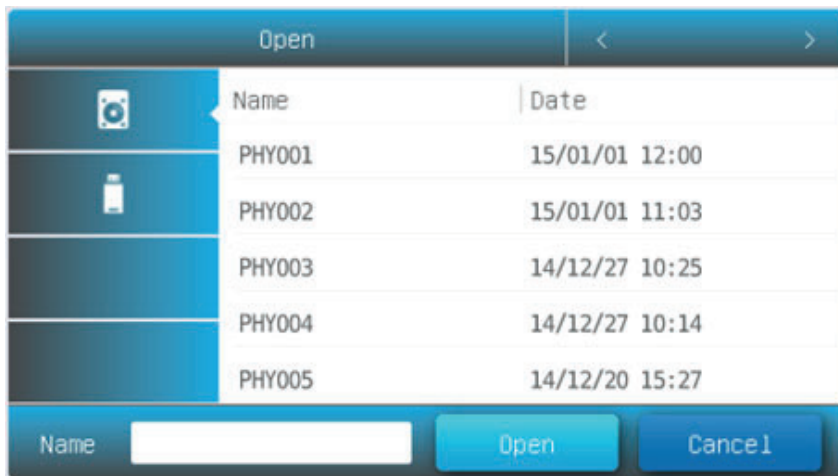
Bottom navigation bar icons: Open, Save, Print, Delete.

**Rename a Sample:** List interface, press the area **Name**, key in the sample name (up to 8 characters).


**Print the Measurement Report:** List interface, press the icon  .

**Delete sample(s):** List interface, press the **Check Box**, and press the icon  .

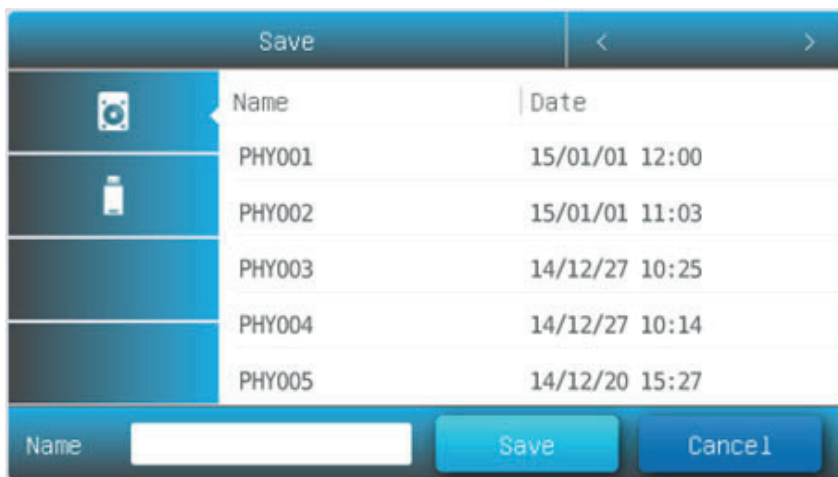
## Open Results





### Open:

1. **List** interface, press the icon .
2. Press the icon **internal memory/USB memory** to select the memory which the file saved.
3. Press file lists to select, press the button **Open**.







## Save Results



### Save:

1. **List** interface, press the icon **Save**.
2. Press the icon  /  to select the Internal/USB memory which the file to save.
3. Type in the file name, press the button **Save**.


## Files Operation

	<b>Internal Memory</b> Internal memory of the spectrophotometer.
	<b>USB Memory</b> USB extended mass memory.
	<b>Copy</b> Copy the selected file(s) from internal /USB memory to USB/internal memory.
	<b>Export csv</b> Export file(s) to *.csv format
	<b>Export txt</b> Export file(s) to *.txt format
	<b>Delete</b> Delete the selected file(s).

### Rename, Import, Export and Delete Files



**Rename a File:** File management interface, press the area **Name**, key in the file name (up to 8 characters).


**Copy File(s) From/To Internal Memory/USB Memory:** File management interface, press the **Check Box**, press the button  (need USB disk)

**Export File(s) To \*.csv Format:** File management interface, press the **Check Box**, press the button  (need USB disk).

**Export File(s) To \*.txt Format:** File management interface, press the **Check Box**, press the button  (need USB disk).

**Delete File(s):** File management interface, press the **Check Box**, and press the icon .


## CALIBRATION AND SYSTEM SETTINGS

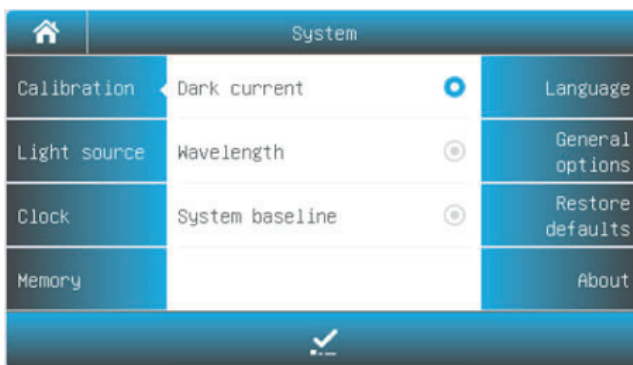
Select the icon  in the main interface. Display options to calibrate the system and configure the basic instrument settings.

### ■ Calibration



**Calibrate** Start to do calibration.

Select Tab **Calibration** in the **System** interface. Remove something in the measurement channel, close the sample chamber cover, select the item **Dark current, Wavelength or System baseline**, press the icon  to do calibration.




### ■ Settings of Light Source



**Tungsten lamp reset** Reset the Tungsten lamp usage time.

Select Tab **Light source** in the **System** interface. The light source information is displayed on the screen.




**Reset the lamp usage:** Press the icon  to reset the Tungsten lamp usage time.

### ■ Edit Clock



**Accept** Accept the new value.

Select Tab **Clock** in the **System** interface. Press the value of year, month, date, hour, minute or second to change. Press the icon  to accept new value.





### ■ Memory management

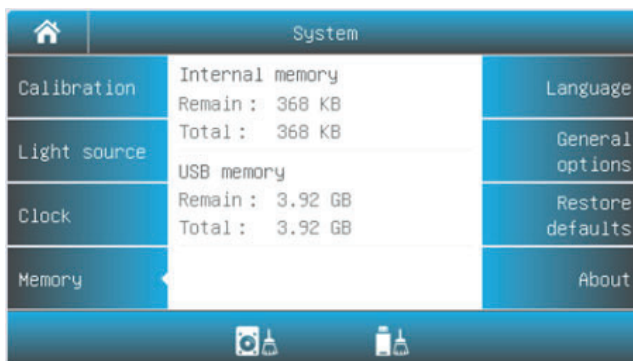


**Format Internal Memory** Format the internal memory of the spectrophotometer.



**Format USB Memory** Format the USB mass storage.

Select Tab **Memory** in the **System** interface. The use of the internal and USB memory (if inserted) is shown. Press the icon  /  to format internal memory/USB memory.



## ■ Language Selection



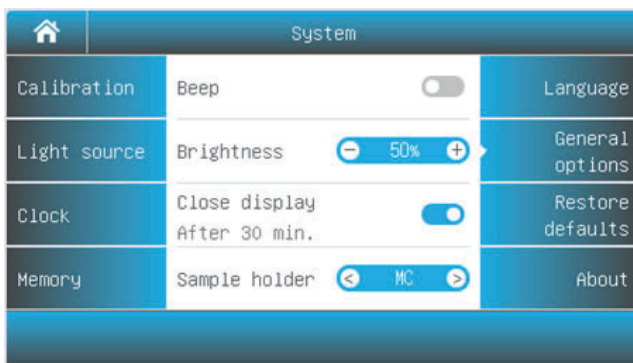
**Accept** Accept the new language.

Select Tab **Language** in the **System** interface. Select a language, press the icon  to change.





## ■ General Options


Select Tab **General Options** in the **System** interface.



**Beep:** Press the icon  to turn on/off the beep.

**Brightness:** Press the icon  to decrease/increase the brightness of the LCD display.


**Close display:** Press the icon  to turn on/off. If turned on, the display will close automatically if no operation for 30 minutes.

**Select sample holder:** If the instrument is equipped with an automatic sample cell holder, you need to press  before the first use to set the type of automatic sample cell holder provided (automatic five-cell holder AC-5 or automatic eight-cell holder AC-8).

## ■ Restore Defaults




**Restore** Restore the parameters to factory settings.

Select Tab **Restore defaults** in the **System** interface. Select an item, press the icon  to restore.



## PERFORMANCE VERIFICATION

Select the icon  in the main interface. Display options to verify the performance of the instrument.



**Important information** Before verifying the performance, the instrument needs to be preheated for 30 minutes, and then re-measure dark current.

### ■ Verifying Wavelength Accuracy and Wavelength Repeatability

Select Tab **Wavelength accuracy** in the **Performance verification** interface.

**Standard Sample:** Holmium oxide solution or equivalent filter

#### **Measurement:**

1. Remove something in the measurement channel, close the sample chamber cover, press the wavelength value, type in the wavelength of measurement, press the button **Zero**.
2. Put the **standard sample** in the measurement channel, press the button **Measure**.
3. Repeat step 2 to do measurement three times. The difference between the average of the three measurements and the standard value is the single-point wavelength tolerance. The difference between the maximum and minimum values of the three measurements is single point wavelength repeatability.
4. Repeat step 1-3 to do measurement single-point wavelength tolerance one by one. The maximum value in the single-point wavelength tolerance is wavelength accuracy. The maximum value in the single-point wavelength reproducibility is wavelength repeatability.

### ■ Verifying Photometric Accuracy and Photometric Repeatability

Select Tab **Photometric accuracy** in the **Performance verification** interface.

**Standard Sample:** NIST 930D or equivalent filter

#### **Measurement:**

1. Remove something in the measurement channel, close the sample chamber cover, press the wavelength value, type in the wavelength of measurement, press the button **Zero**.
2. Put the **standard sample** in the measurement channel, press the button **Measure**.
3. Repeat step 2 to do measurement three times. The difference between the average of the three measurements and the standard value is the single-point photometric tolerance. The difference between the maximum and minimum values of the three measurements is single point photometric repeatability.
4. Repeat step 1-3 to do measurement single-point photometric tolerance one by one. The maximum value in the single-point photometric tolerance is photometric accuracy. The maximum value in the single-point photometric reproducibility is photometric repeatability.

### ■ Verifying Stray Light

Select Tab **Stray light** in the **Performance verification** interface.

**Standard Sample:** 50g/L NaNO<sub>2</sub> solution or equivalent filter (340 or 360nm)

#### **Measurement:**

1. Remove something in the measurement channel, close the sample chamber cover, press the wavelength value, type in the wavelength of measurement.
2. Put the **Reference** in the measurement channel, press the button **Zero**.
3. Put the **standard sample** in the measurement channel, press the button **Measure**, the result is the stray light of this wavelength.

### ■ Verifying Noise

Select Tab **Noise (0A)** in the **Performance verification** interface.

**Standard Sample:** None

**Measurement:**

1. Remove something in the measurement channel, close the sample chamber cover, press the wavelength value, type in the wavelength of measurement, press the button **Zero**.
2. Press the button **Measure**, the result is the noise of this wavelength.

### ■ Verifying Dark Noise

Select Tab **Noise (0%T)** in the **Performance verification** interface.

**Standard Sample:** Block

**Measurement:**

1. Remove something in the measurement channel, close the sample chamber cover, press the wavelength value, type in the wavelength of measurement, press the button **Zero**.
2. Put the **Block** in the measurement channel, press the button **Measure**, the result is the dark noise of this wavelength.

### ■ Verifying Stability

Select Tab **Stability** in the **Performance verification** interface.

**Standard Sample:** None

**Measurement:**

1. Remove something in the measurement channel, close the sample chamber cover, press the wavelength value, type in the wavelength 500, press the button **Zero**.
2. Press the button **Measure**, the result is the noise at 500nm.

### ■ Verifying Bandwidth

Select Tab **Bandwidth** in the **Performance verification** interface.

**Standard Sample:** Low-pressure quartz mercury lamp

**Measurement:**

1. Open the lamp cover, put the low pressure quartz mercury lamp into the lamp seat, and turn it on.
2. Remove something in the measurement channel, close the sample chamber cover, press the wavelength value, type in the wavelength 546.1.
3. Press the button **Measure**, the result is the bandwidth.

## MEASUREMENT

### ■ Important Guidelines

- Reagents and dilution buffers can cause cauterization and other damage to health.
- Samples (nucleic acids, proteins, bacteria cultures) can be infectious and cause serious damage to health.
- During sample preparation, measuring procedures and maintenance and cleaning work, observe all local laboratory safety precautions (e.g. wear protective clothing and gloves, use of disinfectant) regarding the handling of sample material.
- Dispose of measuring solutions and cleaning and disinfectant materials in accordance with the relevant local laboratory regulations.

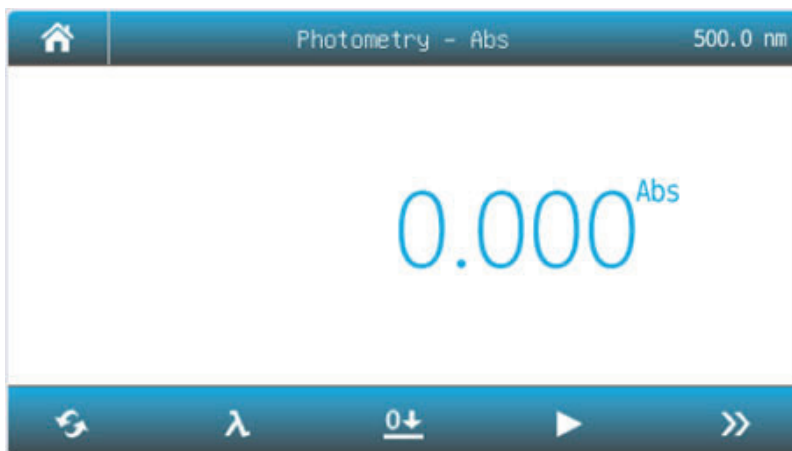
### ■ Check the cuvettes







The cuvettes must be clear and there's no remains of the samples on the surface of it.

### ■ Photometry

Photometry mode is used to measure the absorbance or transmissivity of the sample.





1. **Main** interface, press the icon  to start a **Photometry** application.




	<b>Mode</b> Switch measurement mode to %T, Abs or Energy.
	<b>Wavelength</b> Set measurement wavelength.
	<b>Zero</b> Do 0Abs/100%T.
	<b>Read</b> Measure sample and record the result.
	<b>List</b> View the result(s) list.
	<b>Increase/Decrease</b> Increase/Decrease the gain of signal. Only for <b>Energy</b> mode.

2. Press the icon  to switch to the measurement mode.

<b>Abs</b>	Measure absorbance value of the sample(s).
<b>%T</b>	Measure transmittance value of the sample(s).
<b>E</b>	Measure energy value of the sample(s).

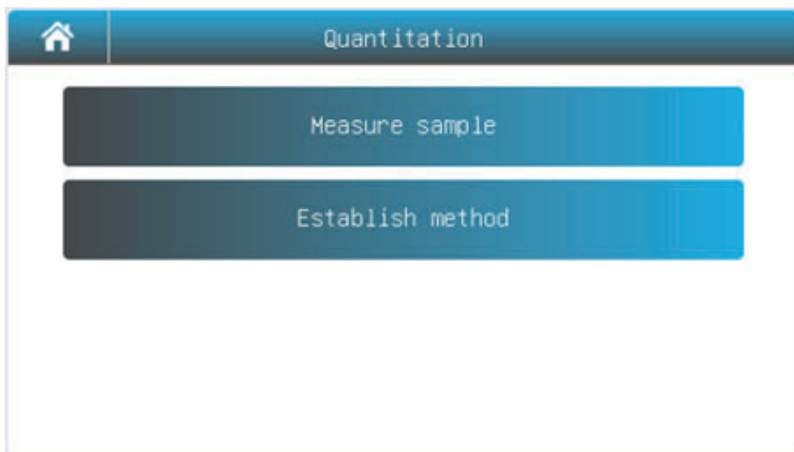
3. Press the icon  to set wavelength, key in the measurement wavelength.
4. Put the reference in the measurement channel, press the icon  to do zero.
5. Put the sample in the measurement channel, press the icon  to measure and record the result.
6. Press the icon  to browse the result(s).

List				
Name	Wavelength	Result	Date	
Spl - 1	500.0	0.006 A	14/04/01 12:00:03	
Spl - 2	520.0	0.013 A	14/04/01 12:01:12	
Spl - 3	610.0	0.125 A	14/04/01 12:01:58	
Spl - 4	700.0	0.169 A	14/04/01 12:02:07	
Spl - 5	835.0	0.011 A	14/04/01 12:02:49	

## ■ Quantitation

Quantitation mode is used to measure the concentration of the sample.

1. **Main** interface, press the icon  to start a **Quantitation** application.



2. Establish Method

- 2.1 **Quantitation** interface, press the button **Establish method**.



<b>Measurement</b>	<p><b>A=A1:</b> Absorbance is equal to the measured absorbance value of the measured wavelength 1.</p> <p><b>A=A1-m*A2:</b> Absorbance is equal to the difference between the absorbance value of the measured absorbance at the wavelength 1 and the wavelength 2, m is the coefficient.</p> <p><b>A=A1/A2:</b> Absorbance is equal to the ratio of the measured absorbance value of the measured wavelength 1 and 2.</p>
<b>Wavelength 1</b>	Measurement wavelength 1
<b>Wavelength 2</b>	Measurement wavelength 2
<b>Fitting</b>	<p><b>LIN-0:</b> Linear to zero</p> <p><b>LIN:</b> Linear</p> <p><b>QUA:</b> Quadratic</p>
<b>Unit</b>	- (No Unit), %, ppm, ppb, g/L, mg/L, $\mu\text{g/L}$ , ng/L, g/dL, mg/dL, $\mu\text{g/dL}$ , mg/mL, $\mu\text{g/mL}$ , ng/mL, $\mu\text{g}/\mu\text{L}$ , ng/ $\mu\text{L}$ , mol/L, mmol/L, IU, Custom (user input, up to 8 characters).
<b>Calibration</b>	<p><b>Coe K:</b> Input equation coefficient</p> <p><b>Std M:</b> Measure standard samples</p> <p><b>Std I:</b> Input standard samples</p>
<b>Standard quantity</b>	Standard sample number (up to 10)

2.2 Press the item to set measurement parameters.

2.3 After all the parameters are set up, press the button **Next** to start establishing the standard curve. If the item **Calibration** is set to the parameter Coe K, Std M or Std I, please refer to 2.3.1, 2.3.2 or 2.3.3, respectively.

#### ■ Input equation coefficient to establish the standard curve

1- Input equation coefficient (K0 ~ K3). Press button **Next**.

Input coefficient	
Coefficient K2	1.000
Coefficient K1	1.000
Coefficient K0	0.005

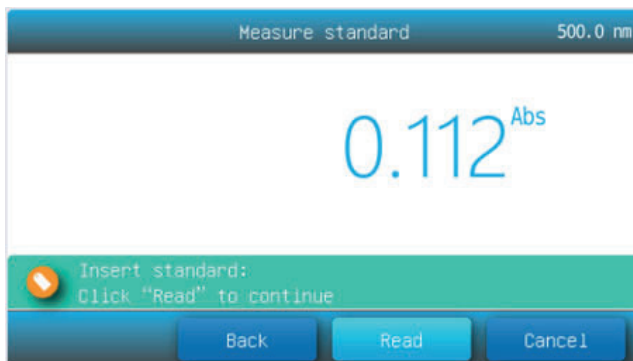
Back      Next      Cancel

### ■ Measure standard sample to establish the standard curve

1- Put the reference in the measurement channel, press the button **Zero** to do zero.

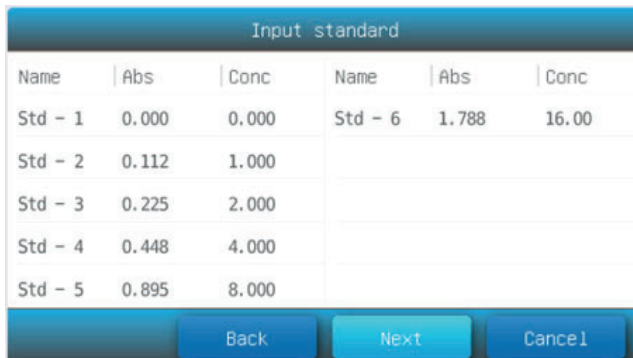


2- Put the 1# standard sample in the measurement channel, press the button **Read** to measure.



3- Repeat step 2 to measure other standard samples.

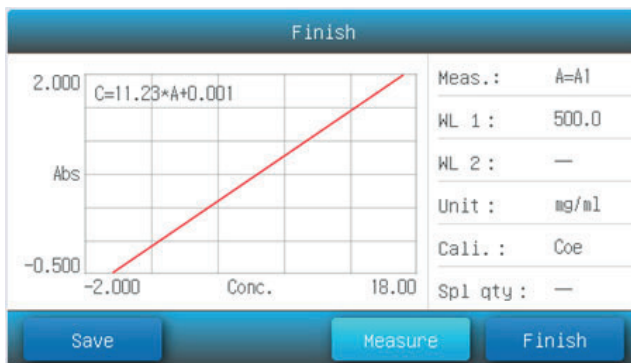
4- Press the item **Conc** to input concentration of standard samples, press the button **Next**.



■ **Input standard sample values to establish the standard curve**

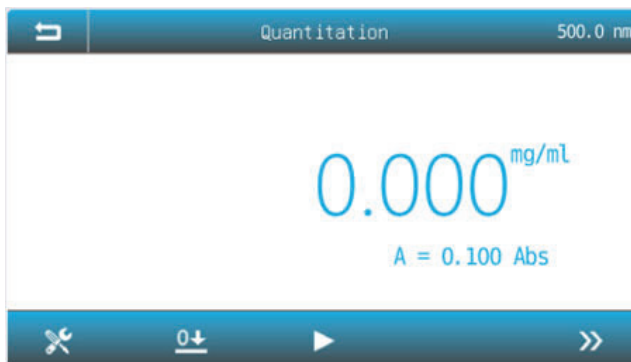
1- Press the item **Abs** and **Conc** to input absorbance and concentration of standard samples, press the button **Next**.





2.4 **Establish method** finished. Press the button **Save** to save the method, press the button **Measure** to accept the new method and go to the **measurement interface**, press the button **Finish** to exit.



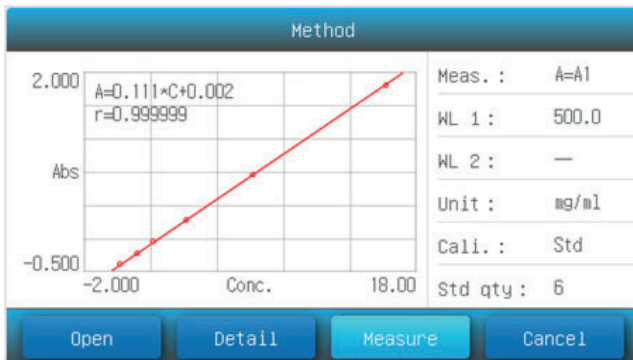
3 Measure sample

3.1 **Quantitation** interface, press the button **Measure sample**.




	<b>Method</b> Select measurement method
	<b>Zero</b> Do 0Abs/100%T
	<b>Read</b> Measure the sample and record the result
	<b>List</b> View the result(s) list


3.2 Press the icon  to select method.



3.3 Press the button **Open** to load measurement method stored in the internal memory/USB disk.

3.4 Press the button **Measure** to accept the new measurement method and back to **measurement interface**.

3.5 Put the reference in the measurement channel, press the icon  to do zero.

3.6 Put the sample in the measurement channel, press the icon  to measure and record the result.

3.7 Press the icon  to browse the result(s).






Name	Abs	Result	Date
Spl - 1	0.002	0.012	14/04/01 12:00:03
Spl - 2	0.003	0.018	14/04/01 12:01:12
Spl - 3	0.010	0.060	14/04/01 12:01:58
Spl - 4	0.353	0.706	14/04/01 12:02:07
Spl - 5	0.357	0.714	14/04/01 12:02:49


## ■ Spectrum

Spectrum mode is used to scan the absorbance or transmissivity of the sample in a wavelength range.

1. **Main** interface, press the icon  to start a **Spectrum** application.




	<b>Method</b> Set the measurement parameters
	<b>Zero</b> Scan baseline
	<b>Read</b> Scan the sample and draw curve
	<b>Stop</b> Stop scanning
	<b>List</b> View the results list


2. Press the icon  to setup the measurement parameters.

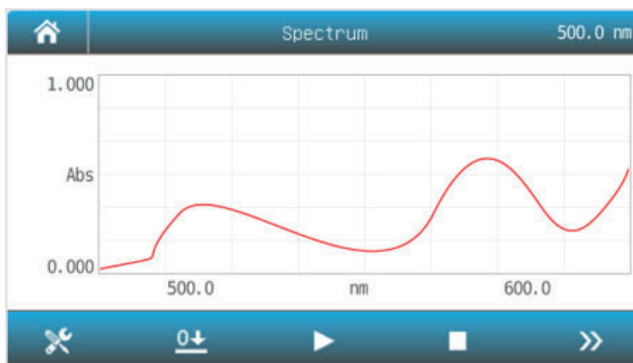
Setting			
Start wavelength	1100.0	Photometry mode	Abs
190.0 - 1100.0		Y minimum	0.000
End wavelength	190.0	Y maximum	1.000
190.0 - 1100.0			
Step	1.0		
Speed	MS		


<b>Start wavelength</b>	Scan start wavelength
<b>End wavelength</b>	Scan end wavelength
<b>Step</b>	Scan interval: 0.1, 0.2, 0.5, 1.0, 2.0, 5.0, 10.0 nm
<b>Speed</b>	<b>HS:</b> High speed, <b>MS:</b> Medium speed, <b>LS:</b> Low speed
<b>Photometry mode</b>	<b>Abs:</b> absorbance, <b>%T:</b> transmissivity
<b>Y minimum</b>	Minimum ordinate
<b>Y maximum</b>	Maximum ordinate

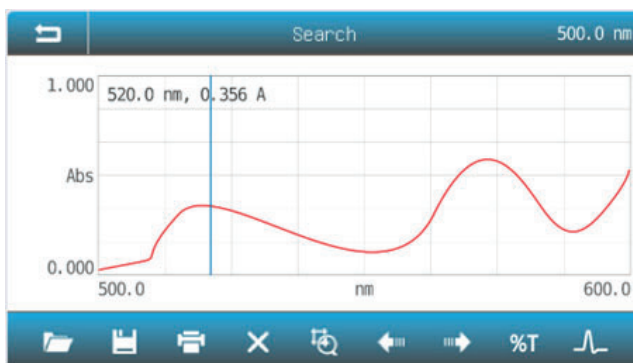
3. Press the item to select or key in the parameters, press the button **Measure** to accept the new parameters and back to **measurement** interface.







4. Put the reference in the measurement channel, press the icon  to scan baseline.

5. Put the sample in the measurement channel, press the icon  to scan and record the result.



6. Press the icon  to browse the curve and results.

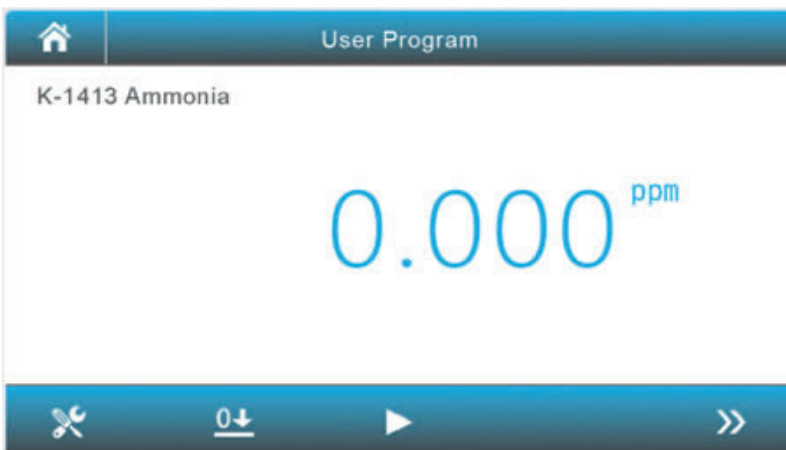






	<b>Scale</b> Set the coordinate value
	<b>Left</b> Moves the cursor to the left point (peak) to point (peak)
	<b>Right</b> Moves the cursor to the right point (peak) to point (peak)
	<b>Mode %T</b> Change the mode to %T
	<b>Mode Abs</b> Change the mode to Abs
	<b>Point/Peak</b> Change the search mode point/peak


### ■ User Program

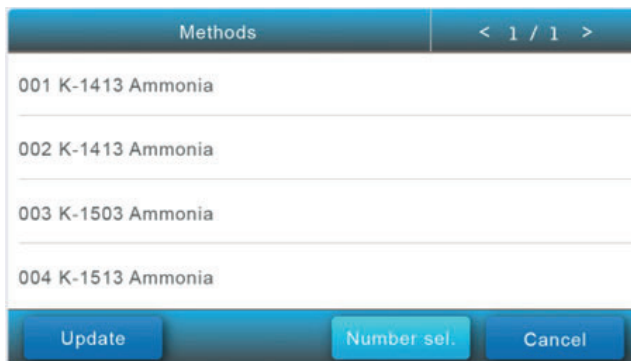
User Program mode is to measure the sample using a customized measurement method. The 4265/50 model is pre-loaded with 44 CHEMetrics Vacu-vials® and COD programs (see Annex) that provide method specific wavelength and calibration values.

1. **Main** interface, press the icon  to start a **User Program** application.




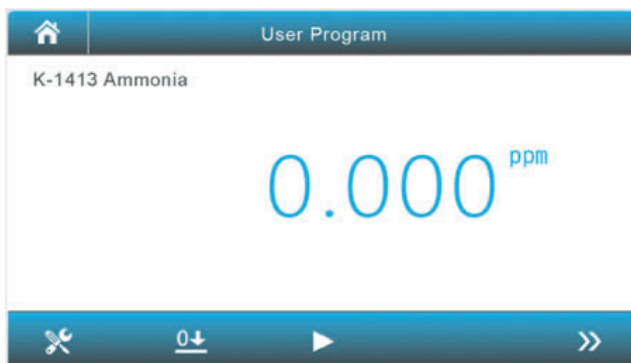
	<b>Method</b> Select the measurement method
	<b>Zero</b> Do 0Abs/100%T
	<b>Read</b> Measure sample and record the result
	<b>List</b> View the results list


2. Press the icon  to select the measurement method. Select it directly or key in the method number by pressing the button **Number sel.** to select the measurement method.



**Information** The device supports user method updates (up to 45 methods can be written). Users can copy the method file to the root directory of the USB memory and press the button *Update* to update the method file.

3. Put the reference in the measurement channel, press the icon  to do zero.



4. Put the sample in the measurement channel, press the icon  to measure and record the result.

5. Press the icon  to browse the results.

←		List	< 1 / 3 >	
No.	Result	Date		
001	0.002	14/04/01 12:00:03	☑	
002	0.003	14/04/01 12:01:12	☑	
003	0.010	14/04/01 12:01:58	☑	
004	0.353	14/04/01 12:02:07	☑	
005	0.357	14/04/01 12:02:49	☑	






## TROUBLESHOOTING

Review the information in the table below to troubleshoot operating problems.

Problem	Cause	Solution
Power on, no response	Power cord connection is not reliable	Improve connection
	Blown fuse	Replace fuse
Measurement uncertainty	Sample is not stable	Improve the sample
	The sample concentration is too high	Dilute the sample
	Power supply voltage low or not stable	Improve the power supply
	Lamp damage or lamp life maturity	Replace lamp
Dark current error when self-check	The lid of the compartment is open during self-check	Close the lid, restart
System calibration failed	Something blocks the light path	Remove it, calibrate again
Inaccurate measurements	Cuvettes were contaminated	Clean the cuvettes
	Samples were contaminated	Improve the samples
	Bad matching of the cuvettes	Improve the matching of the cuvettes
	Dark current error	Resample dark current

## REPAIR AND MAINTENANCE

### ■ Daily Maintain

**Check the compartment:** After measurement, the cuvettes with sample solutions should be taken out of the compartment in time. Or the volatilization of the solution would make the mirror go moldy. Users must pay more attention to the corrosive sample and liquid easy to volatilize. Any solution remains in the compartment should be wipe off immediately.

**Cleaning of the instrument surface:** If paint drops fall on the surface of the instrument, wipe them off immediately with a damp towel. Organic solution is forbidden to be used to clean the surface. Please wipe off the dirt on the surface timely.

**Cleaning of the cuvettes:** After every test or after a solution change, the cuvettes should be cleaned carefully, or the remains on the surface would cause measuring error.

### ■ Spare Parts Replacement

#### Fuse replacement



**Danger!** Be sure to switch off the power and unplug the socket before replacement!

**Tools preparation:** Prepare a 3×75 flat blade screwdriver.

**Switch off the power supply:** Switch off the power supply and unplug the socket.

**Take out the fuse seat:** Push the fuse case by using the screwdriver, and turn it counterclockwise, the fuse seat will pop out when released.



**Replace the fuse:** Place the new fuse (3.15A/250V).



**Reset the fuse seat:** Replace the fuse seat in the power socket. Push the fuse case by using the screwdriver, and turn it clockwise, the fuse seat will be locked when released.



**Switch on the power:** Plug the socket and switch on the power.

## Lamp replacement



**Hot!** Wait 20 minutes before opening the lamp chamber after power off to avoid scald!

**Tools preparation:** Prepare a 6×150mm flat blade screwdriver and a pair of gloves.

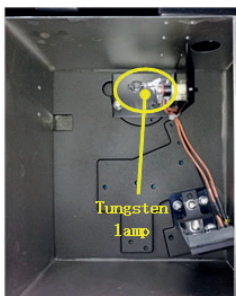
**Power off:** Switch off the power supply and unplug the socket.

**Open the cover:** Loosen the indicated two screws and remove the lamp cover.

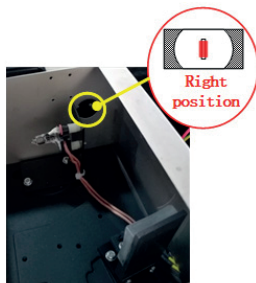


**W lamp replacement:** *The Tungsten lamp is equipped with a blue-grey silicon coating by manufacturer. This coating is only a transport safety device. It can be removed with the first lamp replacement.*

Pull out the defected W lamp and draw on the cotton gloves. Insert the new W lamp as deep as possible on the lamp seat. Be sure to keep the filament in the same direction as the old one face.



**Adjust the position of the W lamp:** Switch on the power. Observe the entrance facular; it should be in the center of the entrance hole. If the facular deviate to left or right, then loosen the two screws and move the lamp seat to left or right until it focuses on the center of the slot. Then fix the screws.



**Finish:** Reset the cover of the light chamber and fix the screws. Reset the cover of the lamp room and fix the screws.

## WARRANTY

AUXILAB S.L. warrant that this product will be free from defects in material and workmanship for a period of 2 years from date of delivery except the lamp. The lamp has a warranty of 1000 hours usage time or 6 months max. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or from ordinary wear and tear. If the required maintenance and inspection services are not performed according to the manuals and any local regulations, such warranty turns invalid, except to the extent, the defect of the product is not due to such non-performance.

### Compliance with local laws and regulations

The customer is responsible for applying for and obtaining the necessary regulatory approvals or other authorizations necessary to use the product in its local environment. We will not be held liable for any related omission or for not obtaining the required approval or authorization, unless any refusal is due to a defect of the product.

## EQUIPMENT DISPOSAL

This equipment is marked with the crossed out wheeled bin symbol to indicate that this equipment must not be disposed of with unsorted waste.

Instead it's your responsibility to correctly dispose of your equipment at lifecycle -end by handling it over to an authorized facility for separate collection and recycling. It's also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect from health hazards the persons involved in the disposal and recycling of the equipment. For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment.

By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Thank you!



**ANNEX- LIST OF PROGRAMMED METHODS AND CORRESPONDING TEST KITS**

ENGLISH

Method	Analyte	CHEMetrics cat. No.	Auxilab code	Range (ppm)
001	Ammonia	K-1413	NBC009	0,20-3,00
002		K-1413	NBC009	4,00-60,0
003		K-1503	NBC010	0,5 0-7,00
004		K-1513	NBC036	0,50 – 10,00
005		K-1513	NBC036	7,5 - 150
006		K-1523	NBC011	1,5 – 14,0
007	Chloride	K-2103	NBD016	2,5 – 40,0
008	Chlorine	K-2513	NBD009	0,40 – 5,00
010	Chlorine Dioxide	K-2703	NBD018	0,8 – 11,0
011	Chromate	K-2803	NBR002	0,20 – 3,50
012	Copper	K-3503	NBP002	0,25 – 7,00
013	Cyanide	K-3803	NBG020	0,040 – 0,400
014	DEHA	K-3903	NCH003	0,15 – 2,00
015	Hydrogen Peroxide	K-5543	NBB008	0,50 – 6,00
016	Iron	K-6003	NBJ009	0,30 – 6,00
018		K-6203	NBJ011	0,30 – 6,00
019	Manganese	K-6503	NBS003	2,0 – 30,0
020	Molybdate	K-6703	NBT004	1,0 – 25,0
021	Monochloramine	K-6803	NCL005	0,50 – 8,00
022	Nitrate	K-6903	NBG007	0,20 – 1,50
023		K-6913	NBG008	0,20 – 1,50
024		K-6923	NBG009	1,00 – 7,50
025		K-6933	NBG010	5,0 – 50,0
026	Nitrite	K-7003	NBG018	0,08 – 1,00
027		K-7013	NBG046	0,020 – 0,750
028	DQO, LR	K-735X	NDB001 to NDB004	10-150
029	DQO, HR	K-736X	NDB005 to NDB008	30-1500
030	DQO, HR+	K-737X	NDB009 to NDB012	300-15000
031	Ozone	K-7423	NBF001	0,20 – 5,00
032	Oxygen	K-7513	NBH007	2,0 – 15,0
033		K-7553	NBH008	0,100 – 1,000
034	Peracetic Acid	K-7913	NCD001	0,40 – 5,00
035	Phenols	K-8003	NCB006	0,40 – 8,00
036		K-8023	NCB007	1,0 – 20,0
037	Phenols	K-8503	NBK009	5,0 – 80,0
038		K-8513	NBK008	0,30 – 5,00
039	Silica	K-9003	NBM003	0,25 – 4,00
040	Sulfate	K-9203	NBL013	25,0 – 100,0
041	Sulfide	K-9503	NBLO06	0,10 – 1,00
042		K-9523	NBLO07	0,60 – 6,00
043	Zinc	K-9903	NBV001	0,30 – 3,00
044		K-9923	NBV002	1,5 – 15,0