YUKE

Product Specification

FOUNDRY-MASTER PRO
SDB521

CATALOGUE

I. SDB521 introduction

SDB 521 international standard design and manufacturing technology，Adopt full digital technology，Synchronize with international spectrometer technology，the design of vacuum optical chamber and fully digital excitation light source are adopted、Leading CCD detector、High speed data readout system，the instrument has very high performance, very low detection line, long-term stability and repeatability. It is one of the main equipment for the research and development of quality control material grade identification material in metal manufacturing processing industry and metal smelting industry.

II. Scope of supply

2.1 supply list

NO	Accessory Name	Unit	Amount	Remarks
1	SDB521 FOUNDRY-MASTER PRO	SET	1	
2	quality certificate, specification, warranty card	Pieces	1	
3	pressure reducing valve	Pieces	1	
4	Copper tubes	Meter	3	
5	Union nut	Pieces	2	
6	hex wrench	Pieces	1	
7	Tool box	Pieces	1	
8	PTFE Tape	Pieces	1	
9	Electrode brush	Pieces	2	
10	A gauge	Pieces	1	
11	Spark table seal ring	Pieces	3	
12	Wooden case	Pieces	1	

13	standard sample	Pieces	1	
14	Ground wire	Pieces	1	
15	Serial port cable	Pieces	1	
16	Voltage stabilizing power cord component	Pieces	1	
17	Fuse	Pieces	4	
18	filter assembly	Pieces	1	
19	T-type wrenches	Pieces	1	

Specia l statement: in case of change of production and supplier of the above instrument parts and spare parts caused by technological progress, product upgrade, market change and other reasons, the actual shipment shall prevail.

III. Technical configuration

3.1 Specifications and technical parameters

Items	Details
Detection of substrate	Fe/Al/Cu /Zn…
detection time	（15-40）s
optical system	Par-runguelan circular full spectrum vacuum optical system
wavelength coverage	139～800nm
Focal length	402mm
detector	High performance CCD array
electrode	Tungsten jet electrode
grating line	Holographic concave grating：2400gr/mm
Analysis gap	Sample stand analysis gap：2.5mm
Operation Temperature	(15～30)℃
Operating humidity	20％～50％
Storage Temperature	(0～45)℃
Argon purity requirements	99.999%
Vacuum range of light chamber	2-10Pa
Argon flow rates	Excited flow approximate 6L/min，Maintenance flow 0.1L/min
Maximum excitation power	1000VA
Lamp Specifications	New adjustable digital light source, high energy precombustion technology（HEPS）
discharge frequency	100-1000 Hz
discharge current	Maximum 100A
unit aperture	12mm
vacuum system	Vacuum software automatically control and monitor
Woek power	220V AC，（50±1）Hz，Single-phase power supply with protective grounding

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Items	Details
Overall Dimension	870*550*420
Net Weight	70kg（Vacuum system not included）

3.2 Optical system

- Full spectrum optical system with Par-Runge structure.

- Maximum wavelength range (139~800)nm.

- Multiple high-performance CCD detectors.

- Integrated optical chamber processing molding, dynamic luoyuan installation, resistance to environmental temperature changes.

- Vacuum light chamber design, ensure that C, S, P and N can achieve the best performance.

- Light room constant temperature control, constant temperature of 38.

- Direct optical technology and lens MgF2 material, ensure the best energy of C S P N uv wavelength.

3.3 Sample excitation unit

- Integrated gas path injection electrode technology.

- The optimized argon gas path design ensures the effective cooling of the excitation table and the metal dust generated during the excitation process enters the filter effectively. The sample excitation is more stable, and the intake of metal dust is greatly reduced, which is conducive to the protection of the health and safety of operators.

- The smaller excitation space makes argon gas consumption less.

- Easy to use sample fixture.

- With self-purging function of the electrode, it makes the electrode life longer and easier to clean the electrode.

- 12 mm diameter excitation hole is better for sample analysis

- Open sample excitation table can be used for the analysis of various sizes and more shapes of samples (including wire).

- The design of SLR lens device makes it convenient for the general personnel to maintain the excitation station and clean the lens.

3.4 Excitation light source

- New adjustable digital light source with the highest frequency up to 1000Hz.

- High Energy prediction technology (HEPS).

- Optimized design of control and power circuit, perfect excitation safety protection function.

  Discharge current: maximum 100 A.

3.5 Data acquisition system

- High-performance ARM data processor, with ultra-high speed data acquisition and control functions.

- High performance CCD solid state detection technology, the spectrum line in the band full spectrum reception.

- External computer (user option).

- FPGA, High-speed data communication technology, powerful data reading function, detection data overall reading time is short.

3.6 Analysis software

- Based on Windows system multi-language CCD full spectrum graphic analysis software, convenient and practical.

- Comprehensive management of the control of the entire measurement process and provide users with powerful data processing and test report output capabilities.

- The instrument can be configured with multiple factory calibration curves and more material analysis and advanced solutions.

- The software realizes full spectrum detection algorithm of intelligent link interference link dark current background and noise, and improves the analysis ability of the instrument.

- Complete automatic system diagnosis function.

- Perfect database management function, can easily query summary data.

- Intelligent correction algorithm ensures the stability and reliability of the instrument.

- Complete spectral line information and interference deduction algorithm to ensure more accurate instrument analysis.

- Adapt to the latest Windows operating system.

IV. laboratory environment

4.1 Environment requirement

The equipment should be placed in a special laboratory with an area of more than 10 square meters and free from harmful, flammable and corrosive gases.**Note: Do not place this instrument in the chemical analysis laboratory.**

Operating temperature :15 ~30℃, room temperature fluctuation within 3 hours is less than 2, the laboratory is required to install air conditioning.

Storage temperature :0 to 45℃

Relative humidity :20% to 50%. In humid areas, a dehumidifier is required.

The splitting chamber is arranged in a box with a temperature control device，Can work normally in the above environment range, if beyond the above requirements, the service life and measurement accuracy of the instrument will be affected.

4.2 Power requirement

1）Power supply: single-phase 220 20V 1KVA power supply

In order to ensure the normal use of SDA 400 full spectrum direct reading spectrometer, please provide a 1kVA single-phase 220V AC parameter regulator for the instrument

2) SDB 521 FOUNDRY-MASTER PRO uses a single phase power supply with protective grounding.To ensure the reliable use of the instrument, users must ensure that the PE protection ground of the power grid is well grounded and separated from the protection ground of other large equipmen.If a PE device cannot be properly grounded, prepare a ground cable with a ground resistance less than 4 ohms.

4.3 Argon gas requirements

1）The purity of argon is 99.999%, the oxygen content is 2ppm, and the H2O content is 5ppm. (The argon bottle cannot be stored in the open air, and rain is prohibited.) If there is no high purity argon, it is recommended to use an argon purifier.

2）Argon gas connection pipe.

3) Argon control pressure :0.2Mpa.

4.4 Argon gas connection pipe

Special argon tube connections provided with the package must be used.

4.5 Exhaust gas bottle

The exhaust gas discharged from the instrument is discharged into the filter bottle through a 10mm inner diameter PVC reinforced pipe, which needs to be cleaned and replaced in time to prevent poor air outlet.

4.6 Sample preparation

4.6.1   Spectral analysis sample requirements: the surface of the sample is smooth, the edge is burr, clean, no cracks, no ores, no inclusions, no oxidation layer, no oil pollution and other physical defects, touch the analysis surface by hand will introduce pollution.

4.6.2   When analyzing iron and steel samples, a special grinding machine must be used to prepare samples for iron based samples, a grinding machine or a floor grinder. It is recommended that the sandpaper is corundum sandpaper, and the granularity of sandpaper is 45 mesh 60 mesh. Cast iron samples must be whitened during analysis.

4.6.3   When analyzing soft metal (copper, aluminum, zinc, etc.), it is recommended to use lathe cutting. When cutting soft metal, remember not to heat and oxidize the sample.

4.6.4   All samples to be excited, including analytical samples, standardized samples and controlled samples, must be prepared before being measured on the spectrometer.

4.6.5   It is suggested that users need to prepare a cutting machine for the treatment of samples not suitable for spectrometer analysis; The casting sample is generally taken as a cylinder or a round table with a diameter of 30~40 mm and a height of 60 mm, which is cut off from the bottom third and processed and grinded for analysis.

4.7 Standard sample requirements

When the spectrometer leaves the factory, a standard sample of spectral correction will be provided to correct the overall spectral drift of the instrument. In addition, the user should prepare a standard sample or an internal control sample suitable for his/her product type to correct the analytical curve of the instrument.

V. Instrument switch steps

5.1 Turn on the regulated power supply.

5.2 Adjust the argon pressure reducing valve to make the output pressure 0.2Mpa.

5.3 Turn on the main switch of the spectrometer and turn on the power switch.

5.4 Turn on the vacuum pump switch.

5.5 Turn on the computer，Double click on this icon , open he spectrometer analysis software and select the analysis program used.

5.6 After each restart, the instrument needs to be stable for at least 2 hours before testing can begin.

5.7 The spectrometer is strictly prohibited to switch on and off frequently. Under normal circumstances, the spectrometer is normally on and the computer can be turned off.

5.8 If encounter special situation (thunder power failure or long-term do not use the instrument), can shut down.

VI. software interface

6.1 Software login

The SDB 521 software icon is displayed（），Click login when the login screen appears.

6.2 software introduction

The menu bar of the main interface of the software contains four main menus, such as 【sample analysis】、

【maintance】、【data center】、【help】. In the upper right corner of the main screen, "user switch" " minimize" and

"exit ".

The software version is displayed on the upper left of the main screen. The current program curve standardization time

is displayed on the lower part of the main screen. The company name of the current user is displayed.

According to the needs of the user in the work, the main menu and sub-items, the main menu and sub-items detailed

introduction and operation methods are as follows.

6.2.1 Daily analysis

Before sample analysis, the instrument excites the waste sample until the data is stable, and then excites the sample

with certain composition content.

If the results match the nominal values, routine analysis can be carried out.

If the result is not different from the nominal value, the controlled sample (type standardization) should be done.

If the result is significantly different from the nominal value, standardization is required.

Note: During sample analysis, the observed flow rate of main argon should be 6-8L and the flow rate of auxiliary argon should be 1.5L.

The daily analysis menu interface has 8 sub-items, whose uses and functions are as follows. The following describes the software usage according to the daily analysis menu

Usage	nction-option	Implemented functions
analysis	Procedure selection	Used to manually select the desired analysis curve
	sample analysis	Used to directly measure the customer sample under test
device adjust	Control Calibration	Activate the single grade control sample to obtain the true value
	Matrix Standardization	All current matrix curves are standardized
	Curve standardization	The current curve is independently standardized
	Pixel Calibration	Calibrate the pixel position of each element channel of the instrument
	Curve Cpntrol Set	Set the control sample number required to add the current curve and modify the calibration parameters
maintance	maintenance	Measurement status intelligent remind users to care about the state of the instrument, so that the instrument to maintain the best

6.2.1.1 **DANALYSIS**

✧ **Procedure Selection**

Open up the Yukelab software，Enter【Danalysis】—【Procedure Selection】 interface program,Select the appropriate analyzer, 【Procedure Selection】.
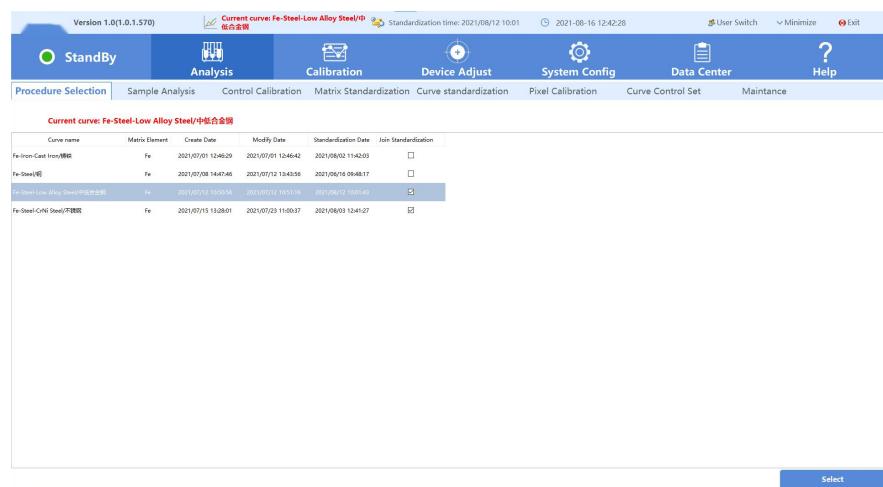
✧ **sample analysis**

a) spark and save

Put the samples and press the press bar travel switch, switch to the 【sample analysis】interface, click the 【spark】button, the status bar at the top of the interface will show 【sparking】, click 【Stop】 during the excitation process to stop the excitation, and the status bar at the top of the interface will show "standby" after the excitation is completed.
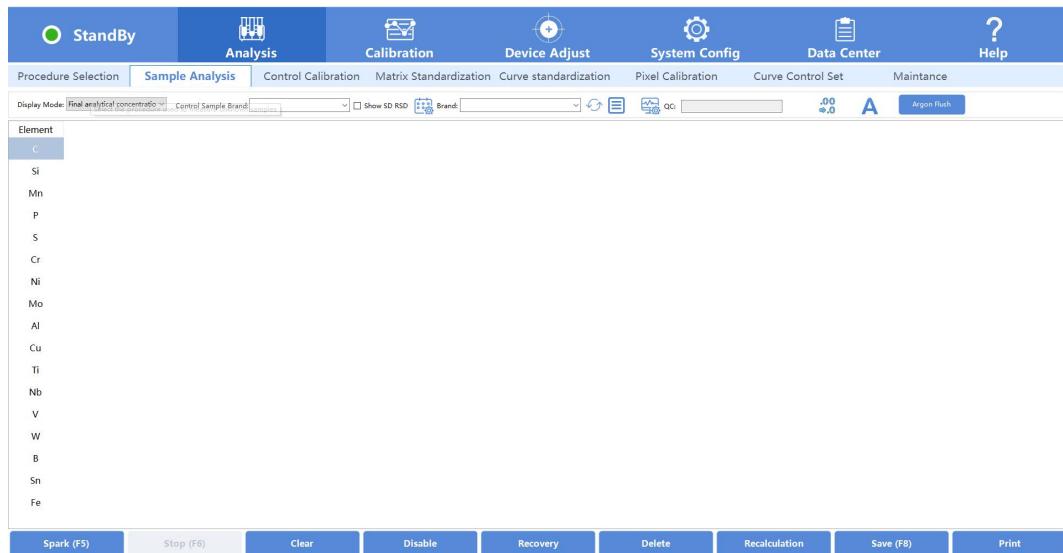

The data will automatically appear in the current interface after the completion of one excitation. It is allowed to click the "save" button after one or more tests, and save the measurement results after entering the sample name. The saved results can be queried in 【Danalysis】 -- 【history data】.

b) Display Mode

Software data can be displayed in a variety of ways," ": such as absolute

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intensity,relative intensity ,relative intensity after Std ,relative intensity   after inter,calculation concentration

(ratio), channel concentration,   sample concentration after control and final analytical concentration.
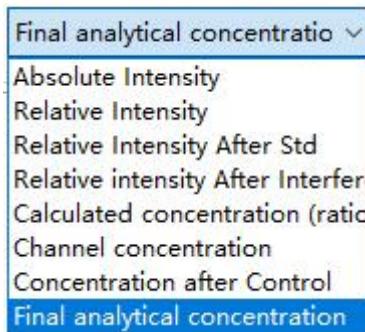

c) Brand recognition

After the sample test, the software can automatically match the most similar sample brand according to the

current test data.

d) Quality control according to

The current result can also be marked as qualified or not according to the quality control indicators(QC).

e) Argon flush

If the instrument has not been used for a long time to replace argon or the excitation table has been cleaned,

argon flushing shall be performed and entered into the【daily analysis】【argon flush】 interface. The flushing

time (unit: second) shall be set according to the situation, and click the "Execute" button to start argon

flushing.
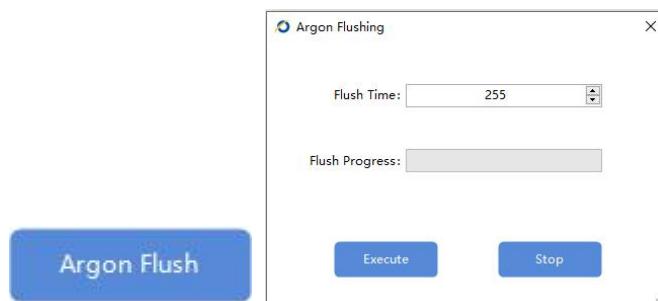
6.2.1.2 **instrument calibration**

Calibration is the calibration of the optical system. Due to the thermal expansion and cold contraction of the

material, the CCD of the instrument may be slightly offset. We adjust the influence of this offset on the

analysis results through the position of the software.

When the indoor temperature change is obvious or the downtime is long, and the data drift is large when the

instrument does the control sample analysis after starting up, the calibration process should be carried out

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first.

Daily calibration is a very important operation link. The correctness of calibration directly affects the accuracy of analysis results.calibration items mainly include control calibration,matrix standardization,curve standardization,pixel calibration and curve cpntrol setset.

Control Calibration	Matrix Standardization	Curve standardization	Pixel Calibration	Curve Control Set

✧ **control calibration and curve cpntrol setse**

a)   Purpose and premise of control calibration

In order to improve the accuracy of the analysis of production samples, it is necessary to calibrate the measured results of production samples regularly. The calibration of controlled samples is of great significance for more accurate calibration of the accuracy of the analysis results in a small range.

Usually in routine analysis, the analysis results of a prototype and the prototype of the calibration value there will always be some differences between the causes of such differences from many aspects, such as the difference of matrix, and the difference of surface state, etc In order to to automatically compensate the difference in the process of analysis, we can establish a control sample calibration procedures to achieve this goal.

Calibration is the premise of using the control sample should have appropriate control sample, the chemical composition of the control sample and production process is measured with the unknown sample can be chosen as far as possible close to the control sample in the production of unknown sample, using chemical legal values, but it requires good uniformity, without air hole, without sand holes, marks had a higher content of representative, the user can also be purchased from professional prototype manufacturer suitable type of control sample.

Controlled sample correction is to sample the calibration components in the input to the control sample correction program, and relevant analysis to test the control sample program, controlled sample calibration procedures will automatically records the sample of the results of the analysis and compare the calibration value and the current analysis of differences, and then check by sample correction control analysis of the task, using the specified calibration mode automatically compensate, with the result of analysis to get points The calculated result is closer to the actual value. Controlled sample correction is the correction of concentration, which has two correction modes: addition and multiplication.

The calculation formula is as follows

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addition：C=C_0+(Cnominal-Cmeasured)

multiplication：C=C_0*（Cnominal/Cmeasured）

其中：

C is the concentration after calibration of controlled sample.

C_0 is the concentration before the control sample correction；

Cnominal is the standard sample value of the controlled sample；

Cmeasured is the measured value of the controlled sample。

b) Implement the steps of controlled calibration

（1）.Set the control sample: in 【system Config】 - 【Sample】, click 【Add】, and the sample information will be activated as editable. Enter the 【 sample code】 and the sample【name】 in turn. Select the matrix from the 【matrix element】 drop-down box.In the "sample type", select the edited sample as the "type standard".

（2）.Edit the content of controlled sample: Click Select Element [Element] ,select the elements contained in the controlled sample from the periodic table of elements, and input the corresponding concentration ratio to save.

Select element

Periodic table of elements

	I A																		0
1	1 H	II A											III A	IV A	V A	VI A	VII A		2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F		10 Ne
3	11 Na	12 Mg	III B	IV B	V B	VI B	VII B				I B	II B	13 Al	14 Si	15 P	16 S	17 Cl		18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br		36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I		54 Xe
6	55 Cs	56 Ba	57-71 La-Lu	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At		86 Rn
7	87 Fr	88 Ra	89-103 Ac-Lr																

Lanthanid	57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
Actinides	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr

OK   Cancel

Sample Info

Sample Code	1620256070000101
Name	ZBG057 不锈钢304
Matrix Element	Fe

Sample Type

☐ Calibration   ☑ Type Standard   ☐ Profiling
☐ Standardized ☐ Control

Elements and concentration

Element	Concentration
Al	0.014
Si	0.414
P	0.025
S	0.0045
Ti	0.0037
V	0.08
Cr	18.54
Mn	1.4
Fe	70.6588
Co	0.104
Ni	8.39
Cu	0.234
Nb	0.008
Mo	0.058

c)   The controlled sample is bound to the brand combination

When the controlled sample calibration of a brand product is carried out in routine analysis, multiple separate controlled sample combinations are needed to cover the content range of each element in the brand, so the combined binding of the brand and controlled sample is required.

In 【 analysis】-【curve control set】, add a control brand , enter the sample name, and add newly created controlled samples to be calibrated from the global controlled sample Lib, such as controlled sample 1 and controlled sample 2, and shift them to the curve controlled sample calibration repository, and the corresponding element content of each controlled sample is displayed in the lower right corner of the interface.
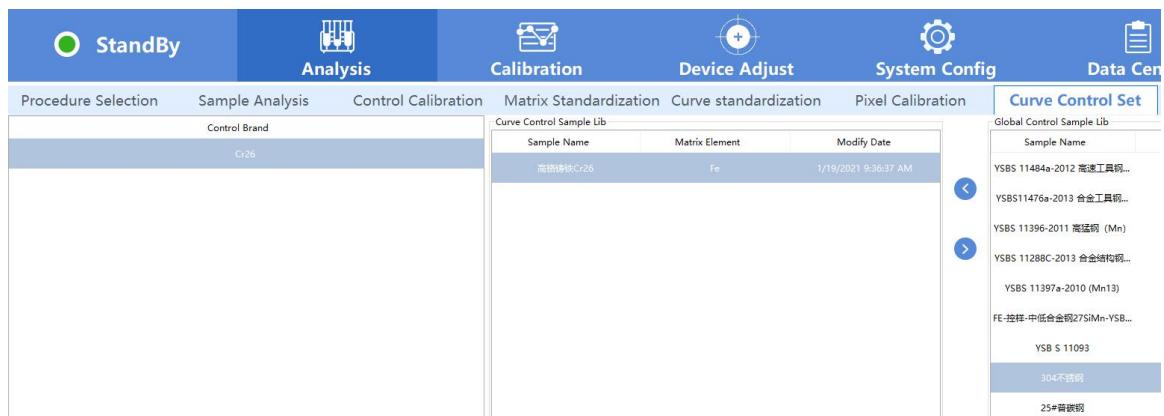
d)   Perform control calibration

Select【analysis】--【controlled calibration】, select the name of the brand to be controlled sample calibration, and complete the excitation of each controlled sample name in turn. Each sample will be activated at least 3 times. Click the "Save" button and the software will complete the offset coefficient calibration synchronously after all the controlled sample names are tested.

Channel	Concentration	Coef	Calib Type
Cr#193.09	1.21	0	+
Si#185.067	0.79	0	+
Si#198.87741	0.79	0	+
Si#288.158	0.79	0	+
Si#181.694	0.79	0	+
Si#184.747	0.79	0	+
Si#390.553	0.79	0	+
Si#180.801	0.79	0	+
Si#184.55083	0.79	0	+
Mn#261.020#S	1.02	0	+
Mn#476.22589	1.02	0	+
Mn#482.35263	1.02	0	+
Mn#476.63223	1.02	0	+
Mn#259.373	1.02	0	+
Mn#263.817	1.02	0	+
Mn#263.984	1.02	0	+
Mn#403.449	1.02	0	+
Mn#403.076#S	1.02	0	+
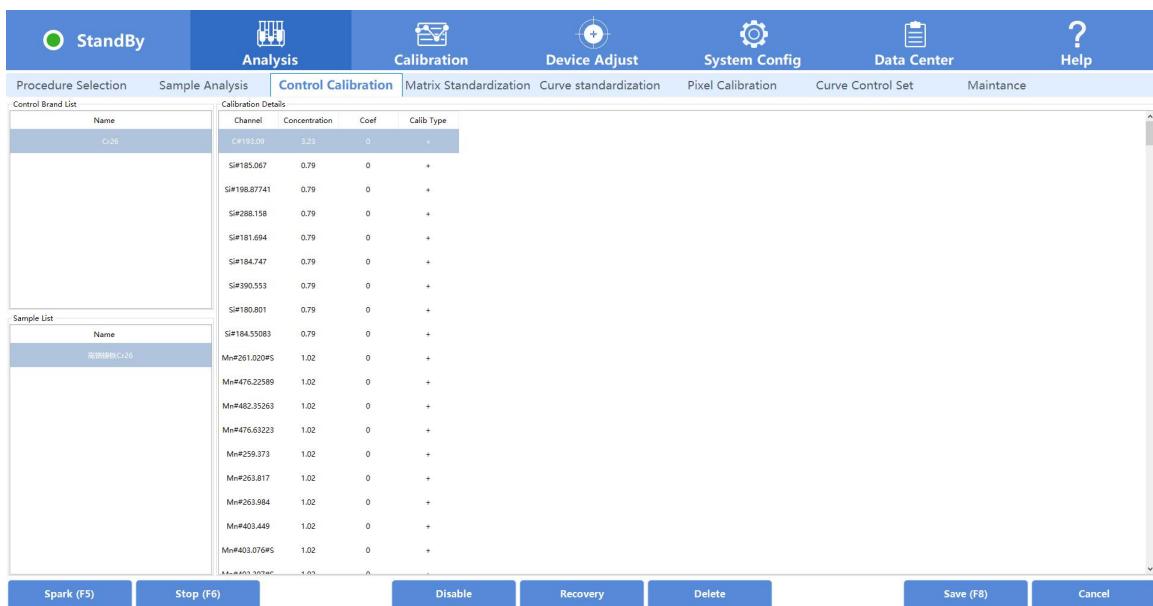
e) Controlled calibration application

After the calibration of the controlled sample is completed, start the corresponding calibrated controlled sample in the column of 【 analysis】-【control sample brand】, and the test data can be automatically calculated according to the calibrated curve of the controlled sample during the testv.
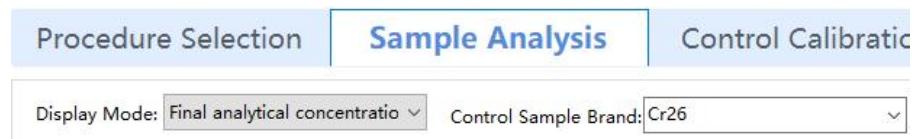
✧ **Matrix standardization and curve standardization**

a) Purpose and difference of Matrix standardization and curve standardization

Standardization is one of the most commonly used analytical operations in daily calibration. It is to use established analytical procedures to calibrate instruments and improve the accuracy of measurements. Curve standardization is to standardize the current analytical curve without affecting other analytical procedures. Matrix standardization not only standardizes its own curves, but also the curves participating in matrix standardization. Matrix standardization is judged according to the set matrix. For example, there are five curves in a certain instrument, such as low alloy steel, cast iron, stainless steel and high manganese steel, in which the iron base general curve is set as the matrix standardization curve, and the other four curves are set as the curves participating in the matrix standardization, then the procedure standardization is performed In the interface, the five curves can be standardized separately and have no influence on each other. In the matrix standardized interface, only the iron-based universal curve can be selected, and the other four curves

do not appear in the interface. The iron-based matrix standardized data will affect the other four curves.

Matrix standardization / curve standardization is the correction of the strength value, which is calculated by the following formula：

$I=\alpha*I_0+\beta$

$\alpha=（I_{nominal\ high}-I_{nominal\ low}）/（I_{measured\ high}-I_{measured\ low}）$

$\beta=I_{nominal\ high}-\alpha*I_{measured\ high}$

其中：

    I is the strength of the sample after standardization.

    I_0 is the strength of the sample before standardization.

    $\alpha$is the standardized rotation coefficient of the sample.

    $\beta$is the normalized migration coefficient of the sample.

    $I_{nominal\ high/low}$ is the original value of the high and low standard sample.

    $I_{measured\ high/low}$is the measured value of high and low standard sample.

Standardization can be done on a regular basis. When there is a large error between the analysis results of the standard sample and its standard components, standardization is needed to correct the deviation, and the frequency is mastered by the operator according to the actual situation.The configuration of matrix standardization curve has been set and saved before the instrument leaves the factory. Users can identify whether the curve configured for the device is matrix standardization curve by participating in matrix standardization option under 【select curve】 When a curve is not checked, it means that the curve itself is a standardized curve, while other unchecked curves automatically change after the calibration of the standardized curve.

b) Matrix normalization steps

When the user is standardizing the matrix, click the select curve corresponding to the matrix standardization

curve. The global standardized curve configured by the device will appear. The user needs to complete all the curves presented to complete the matrix standardization.
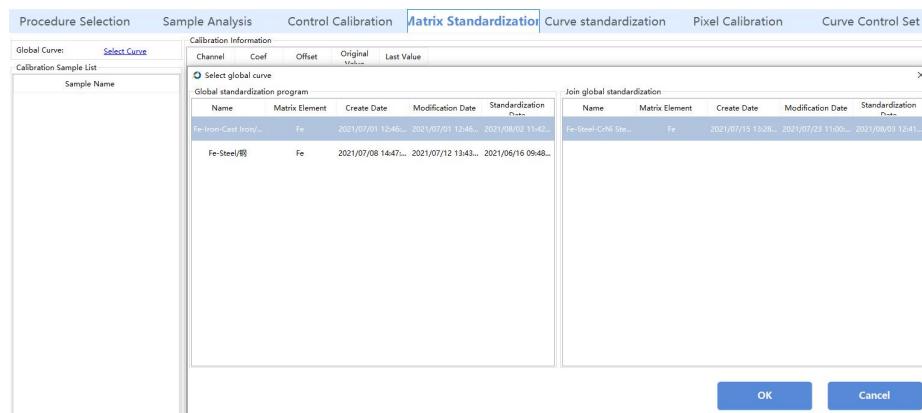
(1)Matrix standardization implementation

Select【analysis】 --【Matrix standardization】.In the standardization of matrix, the first choice for substrate name standardized curve, automatically appear accordingly with the belt calibration curve matching product list In product list on the left side of the calibration for standardizing the samples, the name of the place of the corresponding standard sample, click the trigger button, remove inspire bad data, each sample excitation at least three times, click save Button, and then select the name of the next calibration product to be excited to repeat all calibration samples required by the standard curve.

(2)Application of matrix standardization

After completing all matrix standardization curves to be normalized and calibrated in turn, the instrument automatically updates the calculation parameters of matrix characteristic curve, and users use matrix calibration curves in subsequent sample analysis operations.

c) Curve standardization step

curve standardization only calibrates curves for selected programs

(1)Curve standardization implementation

Select【analysis】 --【curve standardization】.The calibration sample of the corresponding program curve has been set up before the instrument leaves the factory. The user only needs to select the sample name in the

list calibration sample list, put the corresponding standardized sample, click the "spark" button to delete the data with bad excitation. Each sample should be activated at least 4 times, click the "save" button, and then select the next calibration product name to be activated Put the corresponding standard sample to complete the excitation, and then save again.

StandBy	Analysis	Calibration	Device Adjust

| Procedure Selection | Sample Analysis | Control Calibration | Matrix Standardization | Curve standardization |

Calibration Sample List

Sample Name
RN19
RE12-328

Calibration information

Channel	Coef	Offset	Original Value	Last Value
C#193.09	1.019787	-0.002441486		
Si#185.067	1.001042	-0.001878406		

⑵Application of curve standardization

When all the "sample name" are tested, the corresponding calibration parameters are automatically calculated, and the program curve calibration is completed. When the user uses the program curve later, it is the program that has been calibrated, and it will be displayed in the curve "standardization time" in the software status bar.

Standardization time: 2021/08/12 10:01

Note: the calibration is completed, need to take a closer look at standardized coefficient, coefficient of normal generally near 1, when this coefficient of deviation is bigger, especially beyond the results of 0.5-2.5 range, the correction of measurement results is normal amount is larger, measuring deviation is bigger also Should find the reasons or for instrument maintenance operation (general cleaning first spark machine, brush after the incident window).

◇ **Pixel calibration**

Under the influence of environmental factors such as temperature, vacuum, vibration and so on, the instrument will change slightly. Therefore, users need to check the pixel correction of pixel correction elements regularly according to their own conditions to check the difference between the detector's current detection value and the characteristic curve in wavelength under the current state of the light chamber, and automatically calculate the difference.

Enter【Pixel calibration】.By default, RN19 standard sample is used to dot the dots. After placing the RN19 sample, click "calibration", and click Save after the spectral image is produced. The instrument will automatically complete pixel calibration and reflect it in the adjusted pixels in the channel list.
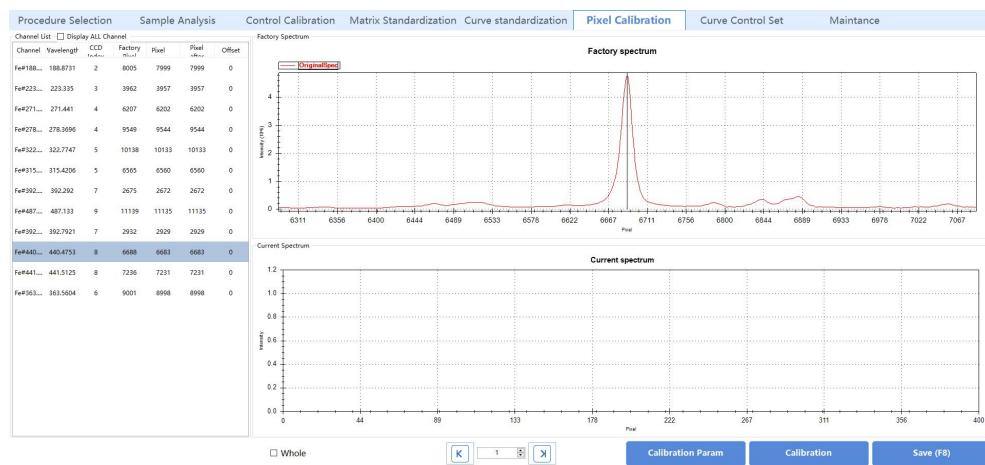
Remember: always remember to matrix standardization and curve standardization after every pixel correction.

6.2.1.3 Instrument maintenance

When the instrument is used for a period of time, it needs regular maintenance. The recommended maintenance plan is set when the instrument leaves the factory. Other maintenance plans remind users that they can also manually change the maintenance cycle.

In the use of the instrument will automatically record the number of excitation, according to the use of the situation to remind the user to complete the maintenance, to ensure that the instrument has been in a stable state.
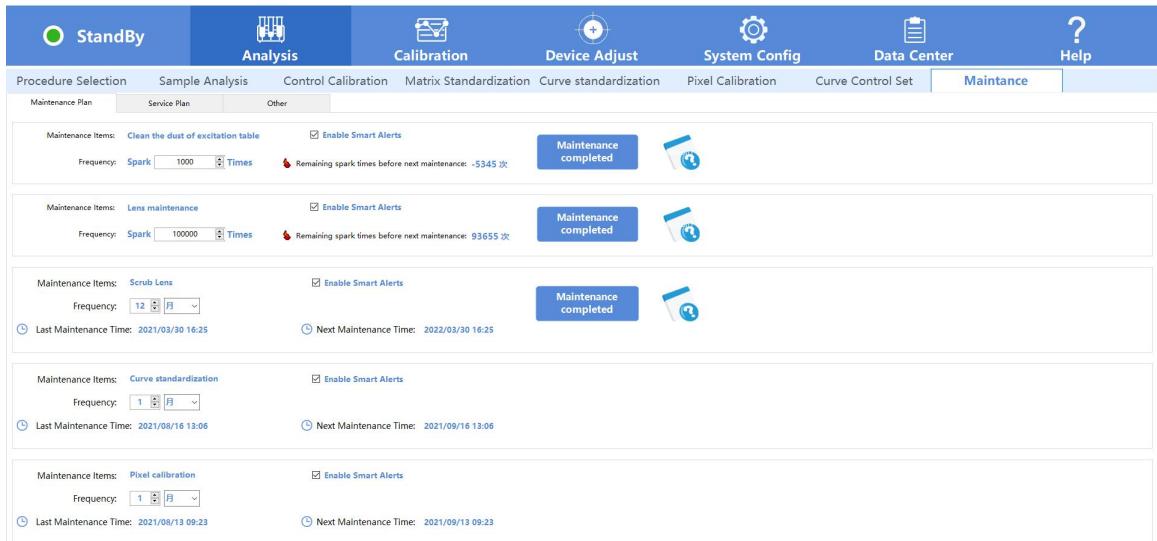
6.2.2 System Configuration

The software has been customized into the common standard samples of the corresponding matrix configured by customers before delivery. Users can add, modify, delete, copy, export and import common standard samples according to the actual situation.

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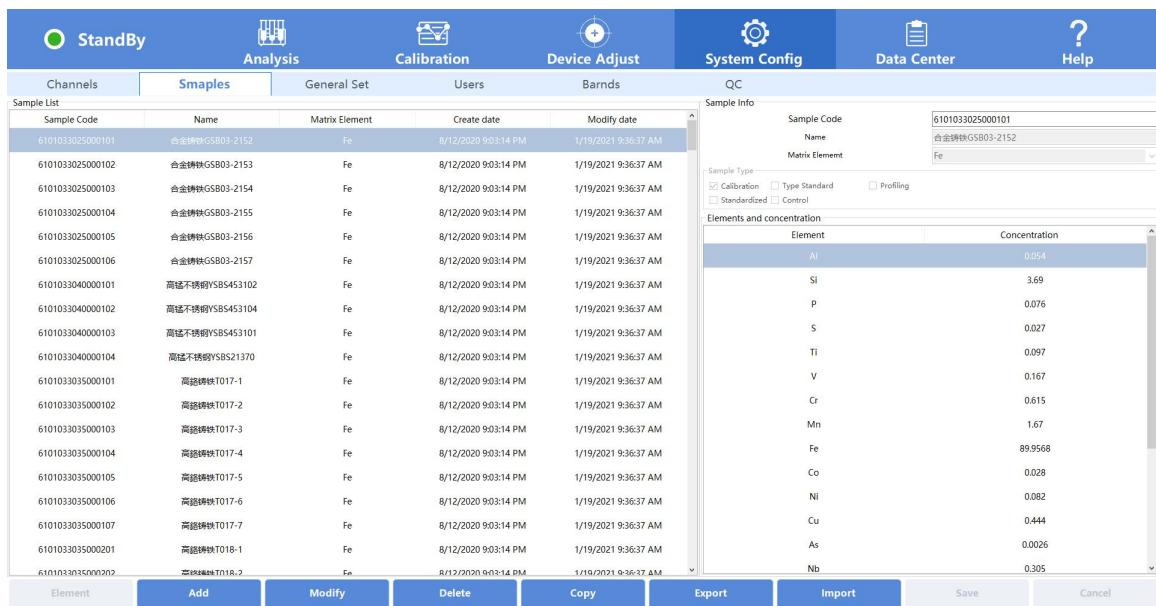
For the add, please refer to the add of the control sample during the calibration.

Users can change the common standard sample type of factory setting according to their own needs. Click at the bottom of the current interface to modify, and trace the sample for calibration sample, standardization sample, control sample, monitoring sample and trace sample according to the actu.

6.2.3 Data center

This interface is used to display the time data information of the instrument, including time analysis data, maintenance record, test data review, maintenance reminder and time maintenance review.

6.2.3.1 History data

In the interface of 【data center】 - 【history data】, the previously saved measurement results can be queried and users can query the curve date. Click the "query" button below. On the left is the list of samples that meet the conditions Button to transfer the saved results to print delete.
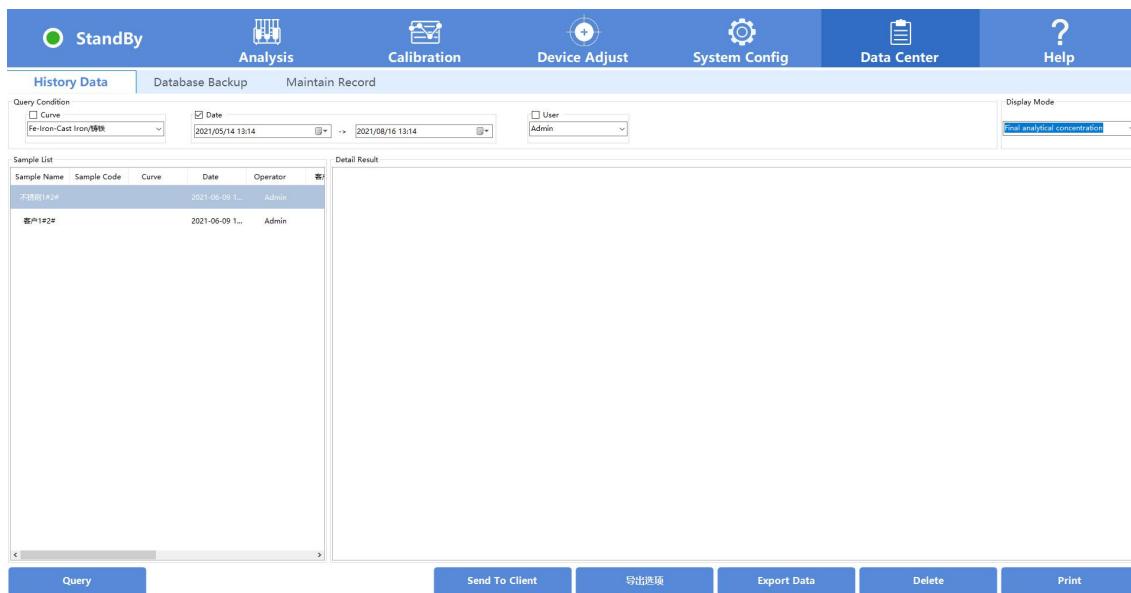
6.2.3.2 Maintain record

Maintenance records Support query functions of different maintenance types and time ranges. Engineers'

maintenance records are also recorded here. This function is only used for query by instrument manufacturers.
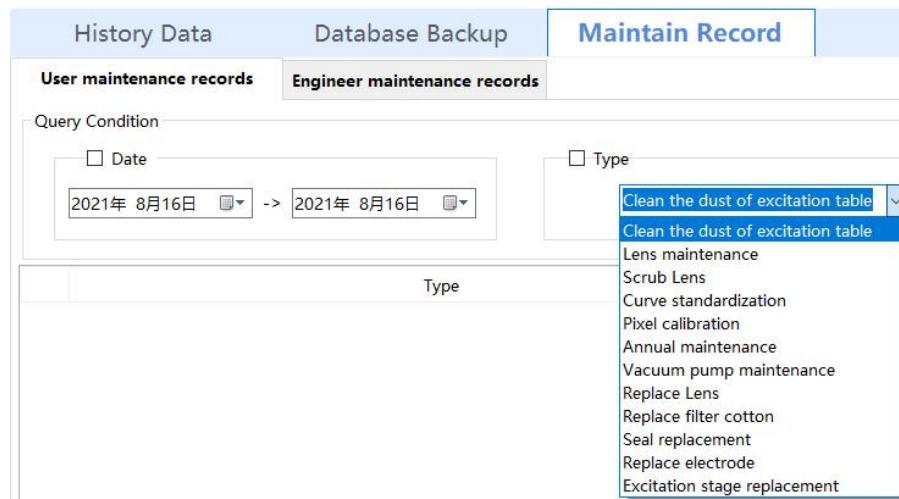
6.2.4 Help

6.2.4.1 Equipment document

When the instrument is delivered, the instrument operation manual is embedded in the software. Users can

obtain the basic equipment information in the help document.出
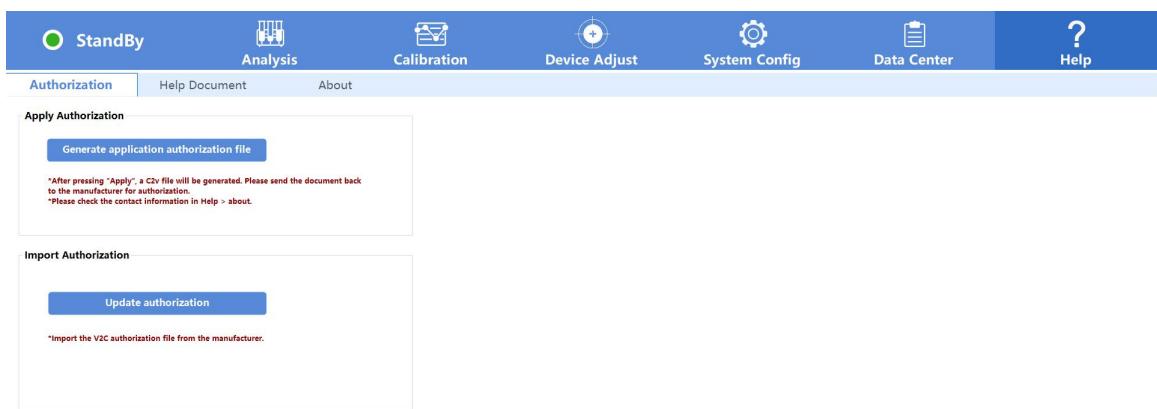
6.2.4.2   Software Version Application

In 【about】 interface shows the version number of software copyright and contact information This software

USES encryption dog system, only authorized users can use this software before the mandate arrived, after user

clicks "generate application authorization file" button, the software automatically generate a C2V file, users will

be the file sent to the instrument manufacturers to apply for the authorization The instrument manufacturer

sends the customer a V2C authorization file according to the situation. The user can click the "update

authorization" button to import the V2C authorization file and open it.