

## Benchtop LIBS Analyzer

### ATL6000P

#### Features

- Compact, light, portable
- Fast <10 seconds
- 3D sample stage, auto-rotate
- Advanced technology for rock core solid state for direct analysis
- Easy-to-operate, auto-analyze database
- Built touch-screen
- Qualitative & Quantitative analysis
- One-button analysis 1-92 H-U on the period time, say Si, Al, Fe, Ca, Mg, K, Mn, Na, Ti, Ba, Sr, S, Cl, P, V, Ni, Zr, Th, U

#### Application

- Minerals
- Geological Exploration
- Environmental Analysis
- Metallurgy

#### Description

ATL6000P Benchtop LIBS (Laser Induced Breakdown Spectroscopy) spectrometer is self-designed by Optosky with multi-purposes and rapidly analyze solids, liquids and slurries for most of the elements found on the periodic table covering H-U, say 1-92 elements.

It's ideal for a variety of rapid QA and R&D laboratory chemical analysis tasks, materials screening and characterization, and also for the development of process control and more advanced applications.

Our advantages of solid samples direct analysis, liquid sample transformed available, sample preparation time is short, light elements detect  $Z < 12$  say C, N, O, Li, Be, B, LIBS advantages over XRF technology, multiple elements in qualitative and quantitative analysis, excellent spatial resolution for micro areas less than  $100\mu\text{m}$ , high precision thickness analysis.



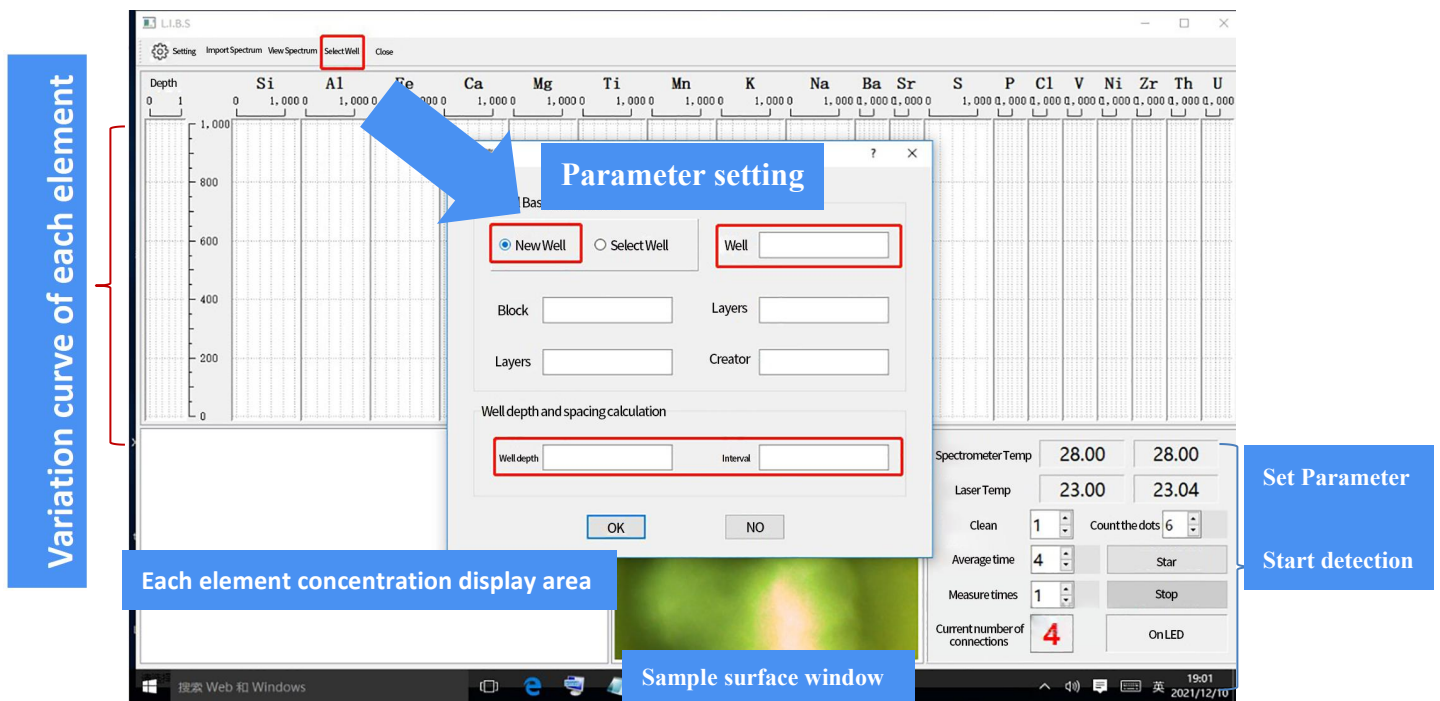
## Performance

Items	ATL6000P	ATL6000Pro
Size & Weight	405x510x430 (screen close) 405x510x660 (screen open) Weight: 34Kg	425x610x430 (screen close) 425x610x660 (screen open) Weight: 39Kg
Laser cooling	Air cooling	Intelligent Temp Control
Spectral Range	185-780 nm	180-960 nm
Spectral Resolution	0.10-0.22 nm	0.10-0.22 nm
Mineral Elements	Si, Ca, Al, Mg, etc Quantitative Analysis	Si, Ca, Al, Mg, S, etc Quantitative Analysis
Analysis Time	1s-60s adjustable	1s-60s adjustable
Stability (RSD)	~15%	<10%
Auto Sample Platform	Included	Included
Surface Imaging	Included	Included
Working Voltage	AC 220V	AC 220V
Working Temp	Working Temp: 10-40°C Working Humidity <60%	Working Temp: 10-40°C Working Humidity <60%

## Notice

- This instrument is a special laser-induced breakdown spectroscopy elemental analyzer for well logging.
- This instrument is suitable for analyzing cuttings and core samples obtained from drilling sites and laboratories.
- This instrument is not suitable for analyzing substances other than the above-mentioned cuttings and cores, such as metals, chemical reagents and other materials.
- The content of each element measured by this instrument is within the range of the national standard sample.
- To analyze cuttings or cores by pressing cake, it is recommended to use the mold equipped with this instrument, and the powder particle size should be greater than 150 mesh.
- Set parameters, all default values, do not need to be modified.

## Software functions



**Variation curve of each element**

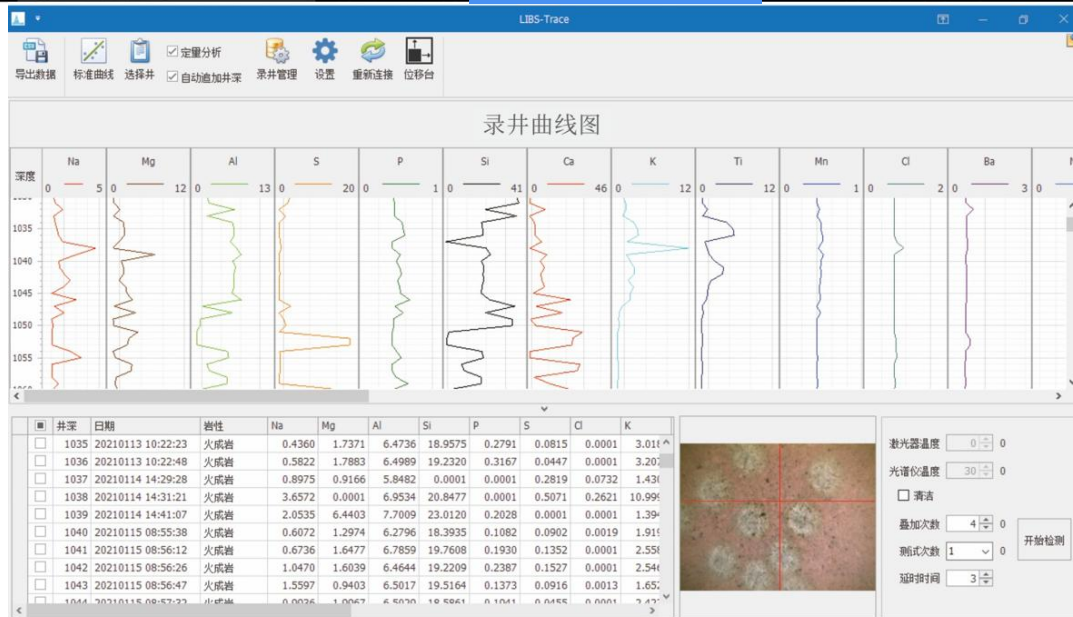
**Parameter setting**

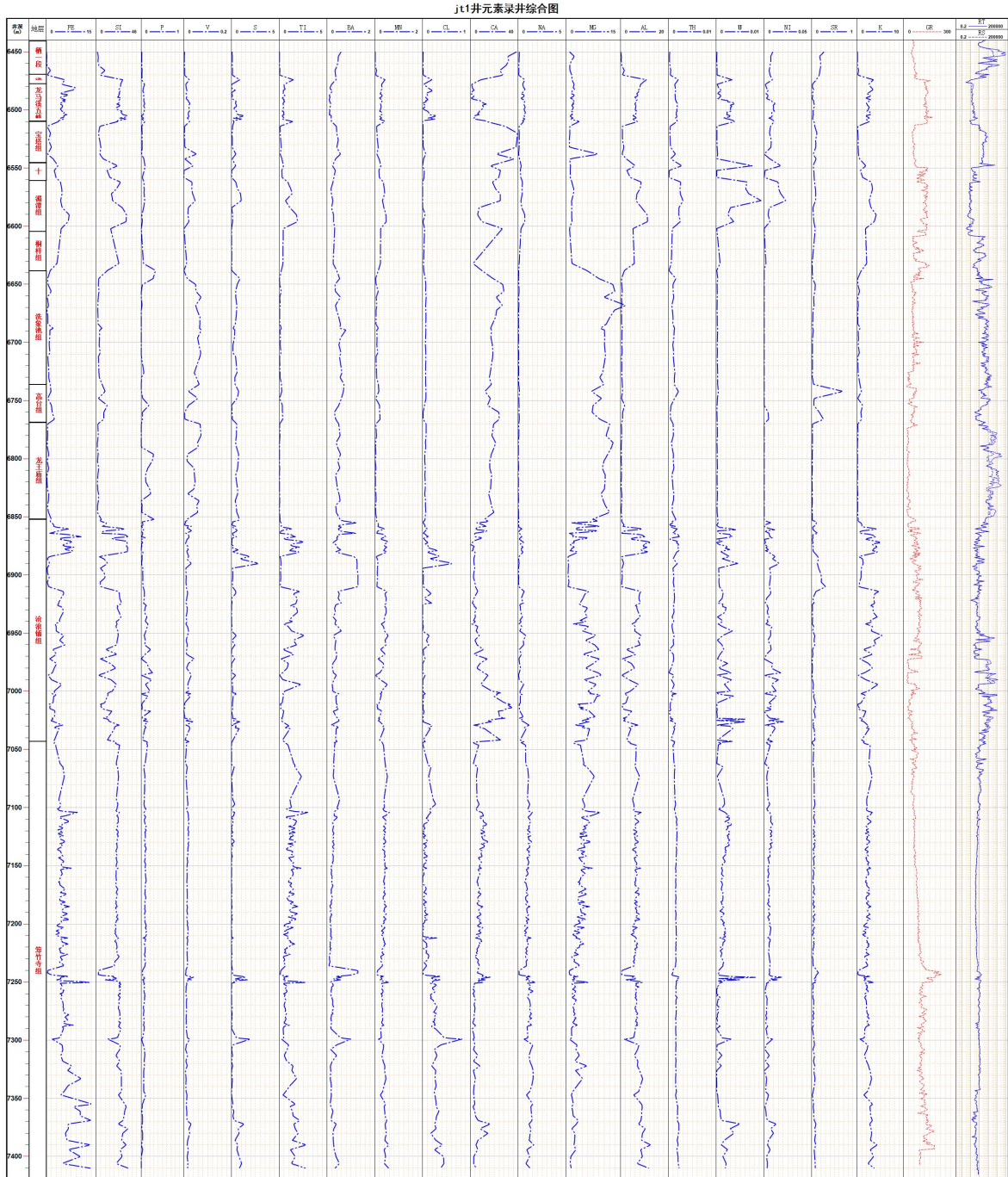
**Each element concentration display area**

**Sample surface window**

**Set Parameter**

**Start detection**





## Sample preparation

### Sampling

1. The mass of the cuttings sample is not less than 10g.
2. After the sample was collected, the iron filings in the cuttings were sucked up with a magnet.
3. The cuttings samples are mainly dried by natural drying method. When drying in an oven, the oven temperature should be controlled at 110 °C.

### Smash

4. The vibrating hammer should be made of wear-resistant alloy steel.
5. The mass of the sample crushed at one time is not less than 10 g.

\* Matters needing attention: The crushing equipment should be cleaned before and after each use, and sieved through a 150-mesh standard sieve after crushing.

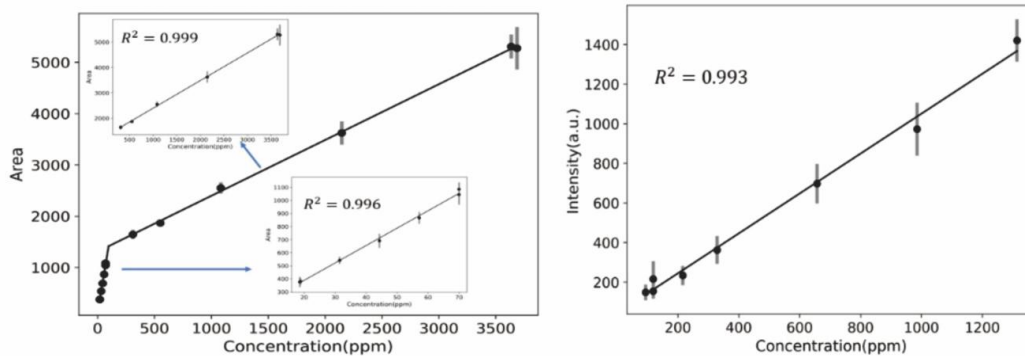
## Press

6. The mold should be made of corrosion-resistant stainless steel.
7. The pressure was 5 tons. After reaching the pressure, the pressure was released after maintaining for 15s, and the pressed sample was taken out.

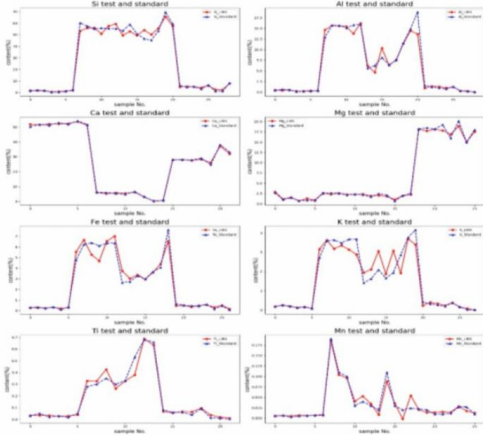
\*Precautions: The tableting die needs to be cleaned before use; after tableting, make sure the surface is flat and free of cracks or damage

## Applications

### ● Lithium Ore Fast Analysis



### ● Sedimentary rock LIBS analysis

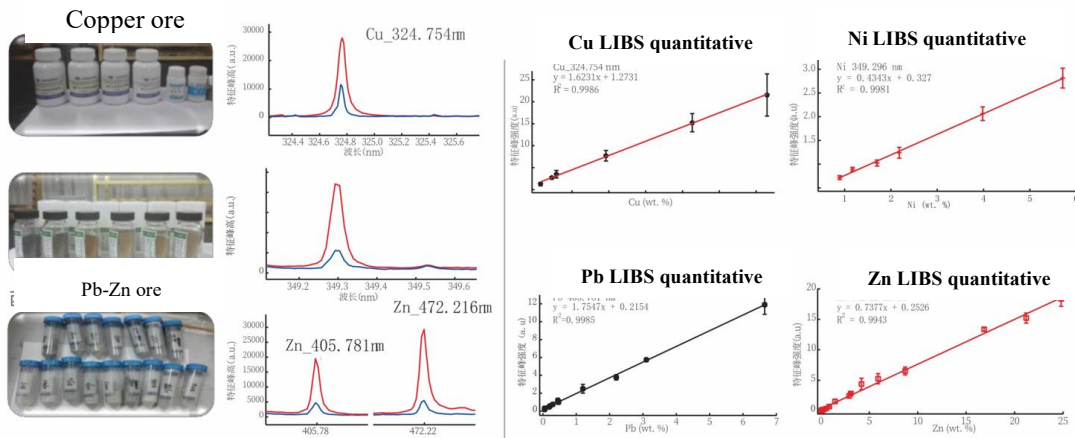


LIBS measured curve overlap standard value, the quantitative and qualitative tell elements change.

LIBS measure elements RSD(%)

Si	Al	Fe	Ca	Mg	K	Ti	Mn
7.3	6.9	6.7	2.2	6.7	7.3	7.5	5.8

## ● Non-ferrous metals LIBS analysis



## Test Results

Periodic Table elements of H~U E

Detect limit: Periodic Table : H ~ O (Non-metallic)  $\leq 0.1\%$  , Li, Be , Na  $\leq 0.001\%$ , Mg~Ca  $\leq 0.1\%$  , Sc~Cd  $\leq 0.001\%$ , In~U  $\leq 0.1\%$ .

