

Rapid

Accurate

Non-destructive



Precious Metal Analysis Expert

To detect precious metals such as Au, Ag, etc

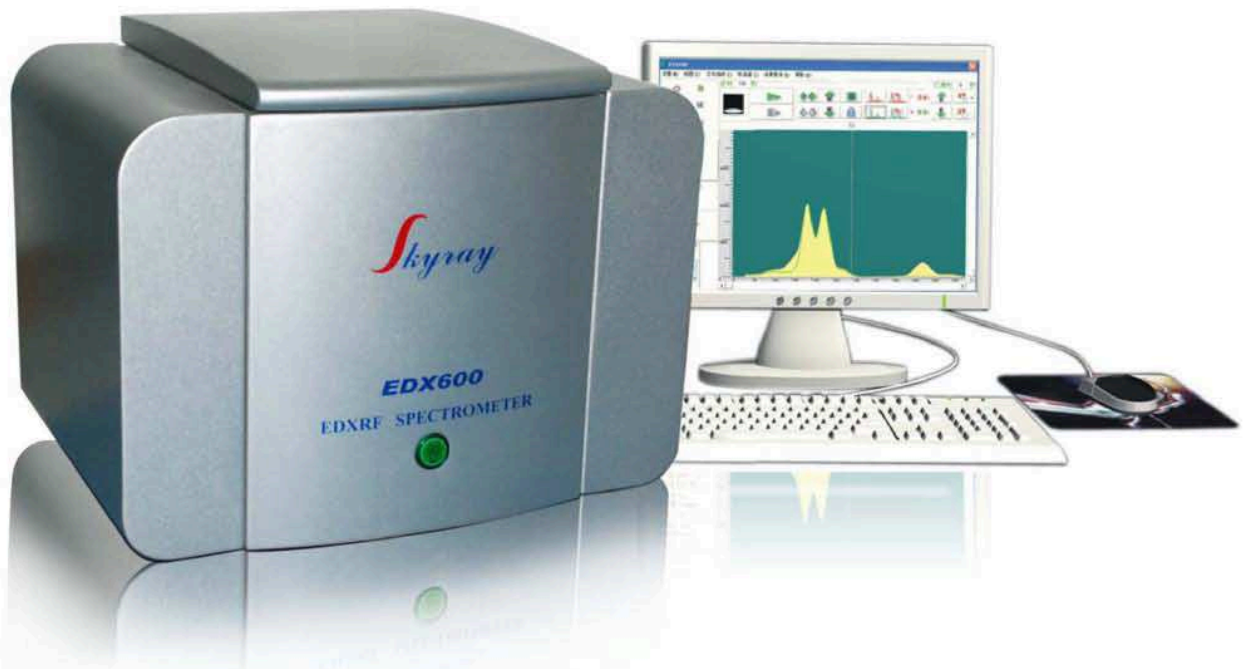
EDX600

X-ray Fluorescence Spectrometer
Precision Instruments Made in Skyray

Precision Instruments Made in Skyray

Skyray Instrument Inc. spent 15 years of dedicated service on the development, production and sales of X-ray Fluorescence Spectrometers. The company owns the world's first-class expert team in field of X-ray fluorescence analytical technology, abundant fund, and unparalleled technology. It has 56 patent technologies. The products are widely used in precious metal analysis (Au, Ag, Pt, Pd, etc), electronic and electric industry, cement industry, steel industry, plating thickness measurement, commodity inspection, scientific study, RoHS detection and so on. At present, the company tops the World's No.1 in both Sales Amount and Product Categories.

EDX600 integrates the precious metal detection technology and experience Skyray Instrument has obtained in the past years, and features for its unique product configuration, fully functional software and user friendly interface. Its human-oriented design grants you a simple measurement job.



EDX600

| Rapid | Accurate | Non-destructive |

Specially designed for precious metal analysis

Application fields:

Content detection of precious metals Au, Ag and all kinds of ornaments

Mainly used in precious metal and ornament processing industries; banks, ornament sale and detection institutes



Specifications:

Measurable elements: Au Ag and Cu

Measurement accuracy: 0.05% (>96%)

Repeatability: 0.1%

Ambient temperature: 15°C-30°C

Ambient humidity: ≤70%

Test time: 60-100s

Power: AC 220V ± 5V (AC purified stabilized voltage power supply is suggested)

Size: 500mm × 400mm × 400mm

Weight: 30.5kg

Configurations:

Single sample chamber

Proportional counter

High resolution CCD

Amplifier circuit

High and low voltage power supplies

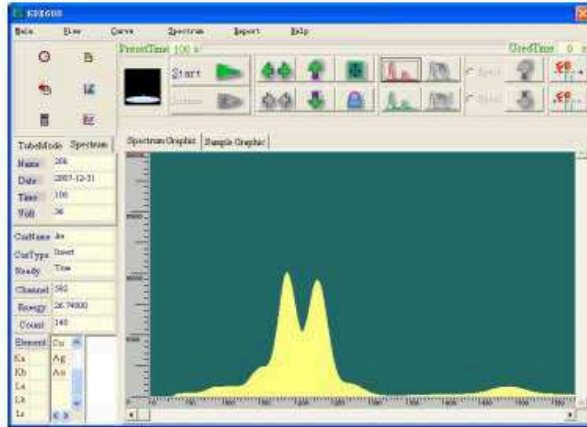
Electronic circuit for signal detection

X-ray tube



Sample chamber

Application Software



The 'Result' dialog box displays the following data:

Element	content	Intensity	Weight
Cu	6.510	435.250	0.325
Ag	10.200	424.180	0.510
Au	83.290	6209.200	4.165

Additional fields include 'Sample Name: 20k', 'Weight: 5 g', and 'Karat Value: 19.991K'. Buttons for 'Save Report', 'Print Report', 'OK', and 'Cancel' are visible.

Clearer detection results

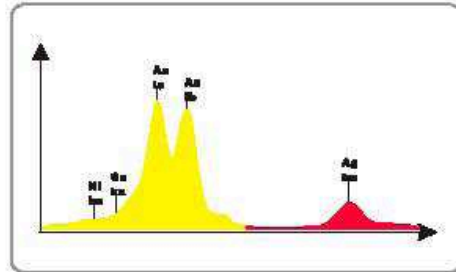


Auto report generation

Testing Report

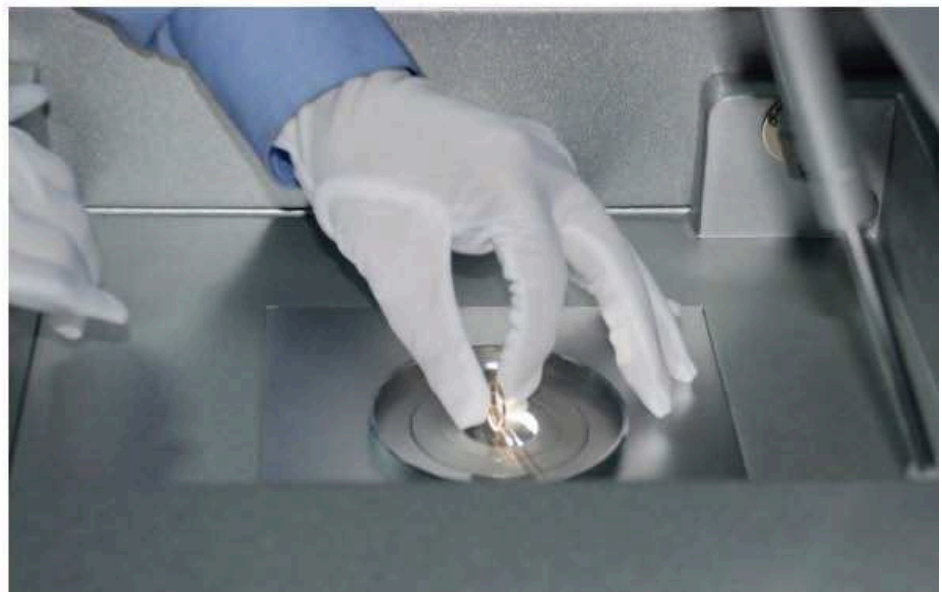
Sample Name	20k	Test Time	100	Test Date	2007-12-31
Element		Content(%)		Weight(g)	
Cu		6.51		0.325	
Ag		10.2		0.51	
Au		83.29		4.165	
Karat Value		19.991K			
Spectrum					
Sample Photo					
Remark					

Precious Metal Detection Example Spectrum



Test time: 60s

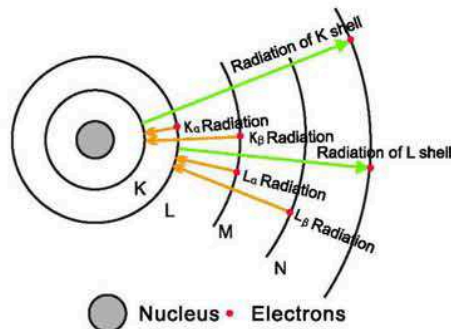
Elements	Content (%)
Cu	6.51
Au	10.2
Ag	83.29



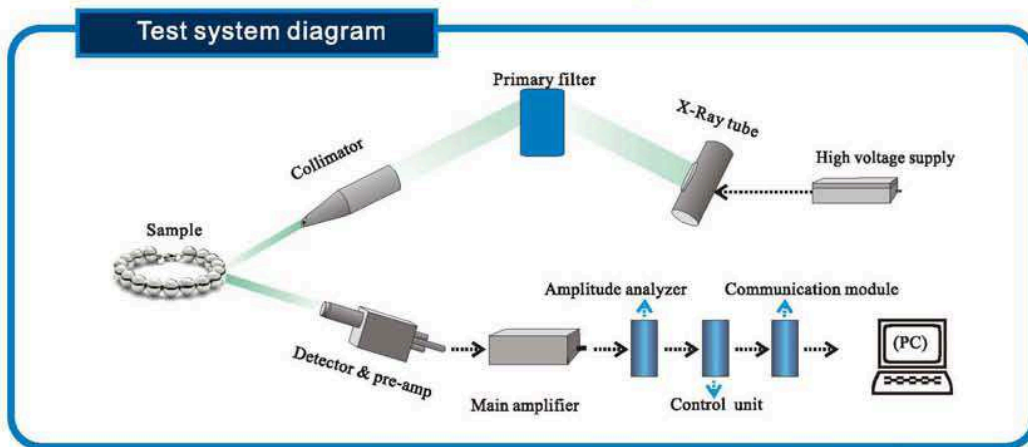
Simple sample detection program

X-ray Fluorescence Excitation Principle

EDX600 uses X-ray beam from X-ray tube to irradiate the sample, and the element atoms will be excited and emit the secondary X-ray fluorescence characteristic for its own energy. Then these elements get identified and its content measured. The working principle is as follows:



Schematic Diagram of K and L Shell Radiation



Characteristic X-radiation of element

Each element will emit X-ray at its own energy level when excited. This X-ray is characteristic and called X-ray fluorescence. It is the foundation of analysis.

Scattering

It is the background of spectrum.

Photoelectron

The photoelectron is the foundation of detector. In the sample, the X-ray intensity of every element is expressed as $I_1, I_2, I_3, I_4, I_5 \dots$ respectively. The element content C is the function of X-ray fluorescence intensity I , expressed as follows:

$$C = f(I_1, I_2, I_3, I_4, I_5 \dots)$$

This equation is too complicated and can be simplified as:


$$C = K_1 I_1 + K_2 I_2 + K_3 I_3 + K_4 I_4 + K_5 I_5 \dots$$

Where

C is the element content in the sample; $I_1, I_2, I_3, I_4, I_5 \dots$ are X-ray intensity of element respectively; $K_1, K_2, K_3, K_4, K_5 \dots$ are coefficients which can be determined by measuring known standard sample to calibrate.

PERIODIC TABLE OF ELEMENTS

(Characteristic X-Ray energy table)



Skyray Instrument
Hotline: 800-9993-800

Per	IA																	0				
1	1 H 1.008																	2 He 4.008				
2	3 Li 6.94 0.052	4 Be 9.012 0.110															5 B 10.81 0.185	6 C 12.01 0.282	7 N 14.01 0.392	8 O 15.99 0.523	9 F 18.99 0.677	10 Ne 20.17 0.861
	11 Na 22.99 1.041	12 Mg 24.31 1.254															13 Al 26.99 1.487	14 Si 28.09 1.740	15 P 30.97 2.015	16 S 32.06 2.307	17 Cl 35.45 2.622	18 Ar 39.94 2.957
3			III B	IV B	V B	VI B	VII B	VIII		I B	II B											
	19 K 39.1 3.589	20 Ca 40.08 3.312	21 Sc 44.96 4.088	22 Ti 47.90 4.508	23 V 50.94 4.949	24 Cr 51.99 5.411	25 Mn 54.94 5.895	26 Fe 55.84 6.400	27 Co 58.93 6.925	28 Ni 58.7 7.472	29 Cu 63.54 8.041	30 Zn 65.38 8.631	31 Ga 69.72 9.243	32 Ge 72.5 9.876	33 As 74.92 10.53	34 Se 78.9 11.21	35 Br 79.90 11.91	36 Kr 83.8 12.63				
4	37 Rb 85.47 13.38 14.97 1.694 1.752	38 Sr 87.62 14.14 15.85 1.806 1.872	39 Y 88.91 14.93 16.75 1.922 1.996	40 Zr 91.22 15.75 16.65 2.042 2.124	41 Nb 92.91 16.58 18.65 2.166 2.257	42 Mo 95.94 17.44 19.63 2.293 2.395	43 Tc #(99) 18.33 20.65 2.424 2.538	44 Ru 101.0 19.24 21.69 2.558 2.683	45 Rh 102.9 20.17 22.76 2.696 2.834	46 Pd 106.4 21.12 23.86 2.838 2.990	47 Ag 107.9 22.10 24.99 2.984 3.151	48 Cd 112.4 23.11 26.14 3.133 3.316	49 In 114.8 24.14 27.38 3.287 3.487	50 Sn 118.6 25.19 28.60 3.444 3.662	51 Sb 121.7 26.27 29.85 3.605 3.843	52 Te 127.6 27.38 31.13 3.769 4.029	53 I 126.9 28.51 32.44 4.029 4.220	54 Xe 131.3 29.67 33.78 4.111 4.422				
	5	55 Cs 137.3 30.85 35.15 4.286 4.620 5.280 3.794	56 Ba 137.3 32.07 36.55 4.467 4.828 5.531 3.953	Ln	72 Hf 178.4 55.38 63.56 7.898 9.021 10.51 6.958	73 Ta 180.9 57.11 65.56 8.145 9.341 10.81 7.172	74 W 183.8 58.86 66.66 8.396 9.670 11.28 7.386	75 Re 186.2 60.66 67.59 8.651 10.01 11.68 7.602	76 Os 190.2 62.48 69.66 8.910 10.35 12.09 7.821	77 Ir 192.2 64.35 71.78 9.173 10.71 12.51 8.040	78 Pt 195.0 66.25 73.93 9.441 11.07 12.94 8.267	79 Au 197.0 68.19 78.37 9.711 11.44 13.38 8.493	80 Hg 200.5 70.16 80.66 9.987 11.82 14.28 8.720	81 Tl 204.3 72.18 82.99 10.27 12.21 14.28 8.952	82 Pb 207.2 74.23 85.36 10.55 12.61 14.76 9.183	83 Bi 208.9 76.32 87.77 10.84 13.02 15.24 9.419	84 Po #(209) 78.46 90.24 11.13 13.44 15.74 9.662	85 At #(210) 80.64 92.75 11.42 13.87 16.25	86 Rn #(222) 82.86 95.32 11.72 14.32 16.77			
6	87 Fr # (223) 82.12 97.93 12.03 14.77	88 Ra # 226.0 87.44 100.6 12.34 15.23 17.8 10.60	An																			
	7	89 Ac # (227) 89.79 103.3 12.65 15.71 18.41	90 Th # (232) 92.19 106.1 12.97 16.2 18.98	91 Pa # (231) 94.64 108.9 13.29 16.7 19.55	92 U # (238) 97.14 111.8 13.61 17.22 20.16	93 Np # (237) 99.69 114.7 13.95 17.74 20.77	94 Pu # (244) 102.3 117.7 14.28 18.28 21.40	95 Am #* (243) 104.9 120.8 14.62 18.83 22.04	96 Cm #* (247) 107.7 123.9 14.96 19.39 22.69	97 Bk #* (247) 110.5 127.1 15.31 19.97 23.37	98 Cf #* (251) 113.3 130.4 15.66 20.56 24.06	99 Es #* (252) 116.2 133.7 16.02 21.17 24.76	100 Fm #* (257) 119.2 137.2 16.38 21.79 25.47									

Alkali Metals
 Non-Metal
 Transitional element

Halogen
 Lanthanoids
 Actinides

Alkaline earth
 Rare gases
 Main group metal

Mark 1: #Radioactive Elements *Man Made Elements
2: All the Numbers are ordered one by one in this way, Atomic Number
 Element Symbol, Atomic Weight, K α , K β , L α , L β , L γ , L ϵ

Ln	57 La 138.9 33.30 37.99 4.651 5.043 5.789 4.124	58 Ce 140.1 34.57 39.45 4.840 5.262 6.052 4.287	59 Pr 140.9 35.86 40.95 5.034 5.489 6.322 4.452	60 Nd 144.2 37.19 42.48 5.230 5.722 6.602 4.632	61 Pm #(147) 38.54 44.05 5.431 5.956 6.891 4.816	62 Sm 150.4 39.91 45.65 5.636 6.206 7.180 4.994	63 Eu 152.0 41.32 47.28 5.846 6.456 7.478 5.176	64 Gd 157.2 42.76 48.95 6.059 6.714 7.778 5.361	65 Tb 158.9 44.23 50.65 6.275 6.979 8.104 5.546	66 Dy 162.5 45.73 52.38 6.495 7.249 8.418 5.742	67 Ho 164.9 47.26 54.16 6.720 7.528 8.748 5.942	68 Er 167.2 48.82 55.96 6.948 7.810 9.089 6.152	69 Tm 168.9 50.41 57.81 7.181 8.103 9.424 6.341	70 Yb 173.0 52.04 59.69 7.414 8.401 9.779 6.544	71 Lu 175.0 53.59 61.61 7.654 8.708 10.14 6.752		
	An	89 Ac (227) 89.79 103.3 12.65 15.71 18.41	90 Th (232) 92.19 106.1 12.97 16.2 18.98	91 Pa (231) 94.64 108.9 13.29 16.7 19.55	92 U (238) 97.14 111.8 13.61 17.22 20.16	93 Np (237) 99.69 114.7 13.95 17.74 20.77	94 Pu (244) 102.3 117.7 14.28 18.28 21.40	95 Am (243) 104.9 120.8 14.62 18.83 22.04	96 Cm (247) 107.7 123.9 14.96 19.39 22.69	97 Bk (247) 110.5 127.1 15.31 19.97 23.37	98 Cf (251) 113.3 130.4 15.66 20.56 24.06	99 Es (252) 116.2 133.7 16.02 21.17 24.76	100 Fm (257) 119.2 137.2 16.38 21.79 25.47				