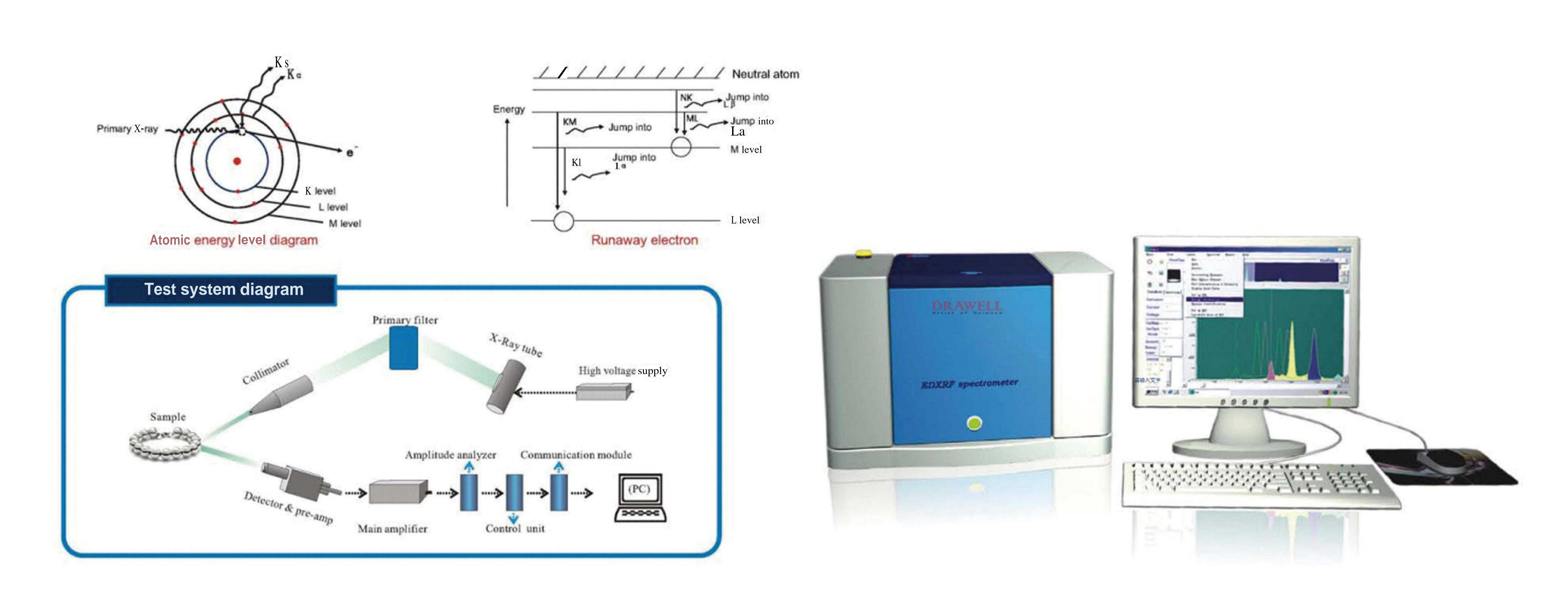


Energy Dispersive X-Ray Fluorescence Spectrometer(for all precious metals in gold jewelries)

DW-EDX3000

Excitation Principle

DW-EDX3000 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:



Specifications

Measurement precision	0.05%(≥96%)
Analysis range	lppm-99.99%
Analytical range of elements	More than 60 elements from potassium (K) to uranium (U)
Measuring object	Powder, solid and liquid
Measurement time	(60~300)s
Ambient temperature range	(15-30)t)
Relative humidity	W70%
Weight	30 kg
Working voltage	AC 110V/220V
	Single sample chamber
	Si PIN semiconductor detector
Configuration	Amplifier circuit
	High and low voltage power supplies
	X-ray tube
	Non-vacuum chamber

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.



Photoelement

The photoelectron is the foundation of detector. In the sample, the X-ray intensity of every element is expressed as 11,12,13,14,15.....respectively. The clement content C is the function of X-ray fluorescence intensity I, expressed as follows:

$$C = f$$
 (11,12+13+14+15....)

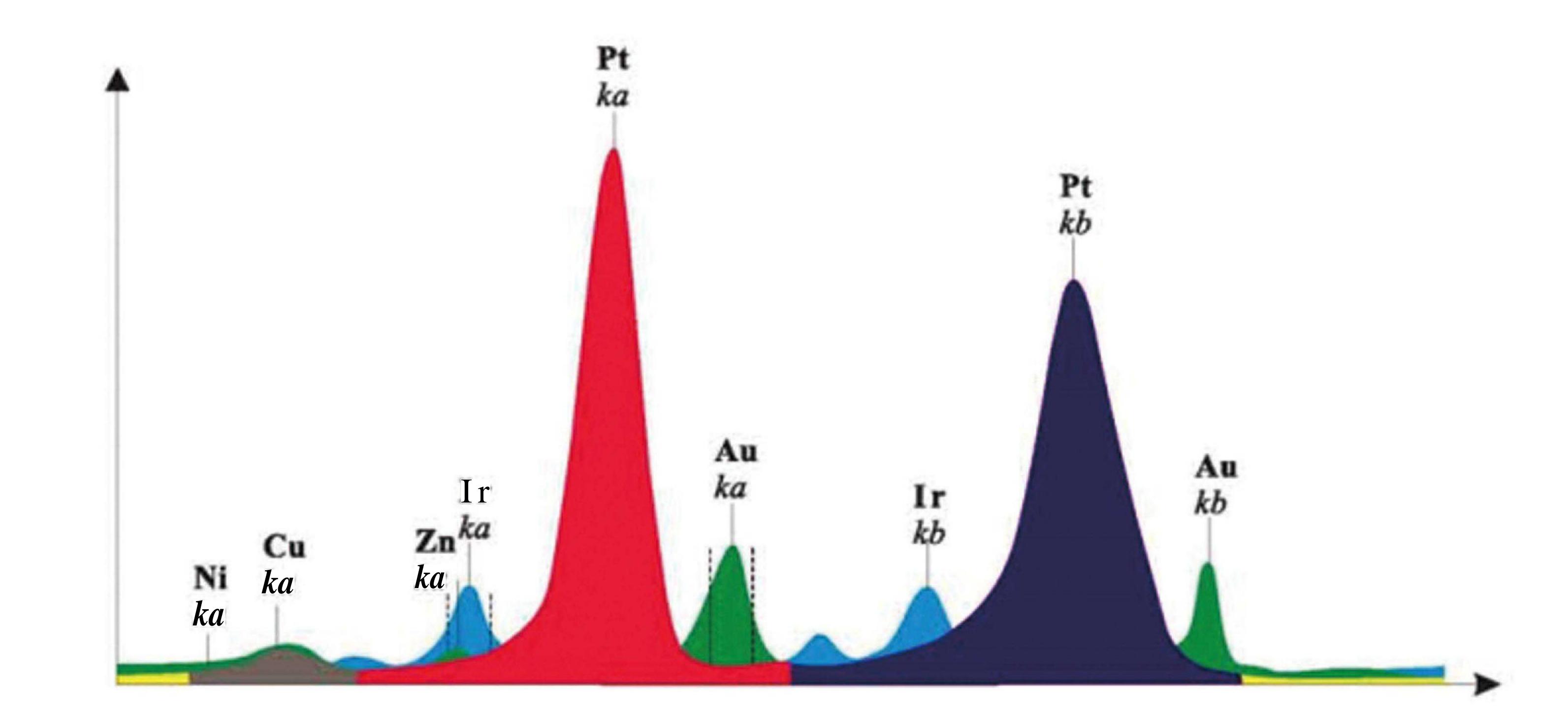
This equation is too complicated and can be simplified as:

C=K111+K12+K13+K414+K515....

Where

C is the element content in the sample; 11,12,13,14,15.....arc X-ray intensity of element respectively; K1,K2, K3.K4,K5 are coefficients which can be determined by measuring known standard sample to calibrate.

Spectrum of recovered Pt



Element	Content(%)	Element	Contenl(%)
Cr	0.001	Fe	0.001
Ru	2.011	Ni	0.218
Rh	13.25	Co	0.011
Pd	10.125	Cu	0.207
Ag	0.781	Zn	0.221
Ir	3.104	Au	2.302
Pt	77.816	In	2.011

Por.	IA I H					The Party of	DIC						MEI					2 H
	LAMO	IIA										<i>₽</i> √	IIIA	IVA	VA	VIA	VIIA	4.00
2	3 Li 6.94 0.052	4 Bc 9.012 0.110												6 C 12.01 0.282	7 N 14:01 0.392	8 O 15.99 0.523	9 F 18.990 677	10N 20.1 0.86
3	11Na 22.99 1.041	12Mg 24.31 1.254												1,740	15 P 30.97 2.015	2,307	17Cl 35.45 2.622	18 A 39.5 2.95
			III B IV B V B VI B VIII VIII					IB	II B		1.838	2.142	2.468	2.817	3.19			
4	19 K 30 I 3 3 I 2 3 5 8 9	20 Ca 40.08 3.690 4.012 0.341 0.344	44.96 4.088 4.459 0.395	47.90 4.508 4.931 0.452	60.94 4.949 5.427 0.51	51.99 5.411 5.947 0.571	25Mn 54.94 5.895 6.492 0.636 0.647	55.84 6.400 7.059 0.704	58.93	58.7 7.472 8.265	63.54 8.041 8.907 0.928	65.38 8.631 9.572 1.009	69.72 9.243 10.26 1.096	72.5 9.876 10.98 1.186	74.92 10.53 11.73 1.282	12.50	35Br 79.90 11.91 13.29 1.48 1.526	83. 12.0
5	37 Rb 85,47 13,38 14,97 1,694 1,752	1.806	88.91 14.93 16.75	91.22 13.73 17.69 2.04 2.124 2.02	18.65 2.257 2.462	19.63 2.03 2.623	#(99) 18.33 20.65 2.424 2.38 2.792	101.0 19.24 21.69 2.558 2.683 2.964	102.9 20.17 22.76 2.696 2.834 3.144	106.4 21.12 23.86 2.838 2.990	107.9 22.10 24.99 2.984 3.151 3.519	1112.4 23.11 26.14 3.133 3.316 3.716	114.8 24.14 27.38 3.287 3.487 3.92	118.6 25.19 28.60 3.444 3.662 4.131	29.85 4.347	31.13 3.769	32.44 3.31 4.220	4.42
	137.3	56 Ba 1373 32.07 36.55 4.467 4.828 5.531 3.953		178.4	180.9 57.11 65.56 8.145 9.341 10.81	183.8 58.86 67.59 8.396 9.670	186.2 60.66 69.66 8.651 10.01 11.68	190.2 62.48 71.78	192.2 64.35 73.93 9.173	195.0 66.25 76.13 9.441 11.07 12.94	197.0 68.19 78.37 9.711 11.44 13.38	200.5 70.16 80.66 9.987 11.82 13.82	204.3 72.18 82.99 10.27 12.21	207.2 74.23 85.36 10.33 12.61 14.76	208.9 76.32	84 Po #(209) 78.46 90.24 11.13 13.44 15.74 9.662	»(2109	#(22
7		88 Ra 226.0 87.44 100.6 12.34 15.23 17.8 10.60	An			Hall Alk 1: #F	ali Meta ogen aline ea adioac	rth tive El	ements	dered	oids es one by	Main Man N one in	group :	metal lement	s mic Ni	ımber		

Ln	57 La 138.9 33.30 37.99 4.651 5.043 5.789 4.124	140.1 34.57 39.45 4.840 5.262 6.052	140.9 35.86 40.95 5.034 5.489 6.322	144.2 37.19 42.48 5.230 5.722 6.602	61 Pm #(147) 38.54 44.05 5.431 5.956 6.891 4.816	150.4 39.91 45.65 5.636 6.206 7.180	152.0 41.32 47.28 5.846 6.456 7.478	157.2 42.76 48.95 6.059 6.714 7.778	44.23 6.275	162.5 45.73 52.38 6.495 7.249 8.418	164.9 47.26 54.16 6.720 7.528 8.748	167.2 48.82 55.96 6.948	168.9 50.41 57.81 7.181 8.103 9.424	173.0 52.04 59.69 7.414 8.401 9.779	175.0 53.59 61.61 7.654 8.708 10.14
	3 3 *	(232) »(232) »(2,19) 106.1 12.97 16.2 18.98	# 231.0 94.64 108.9 13.29 16.7 19.55	# 238.0 97.14 111.8 13.61 17.22 20.16	2 3 7 h	# (244) 102.3 117.7 14.28 18.28 21.40	# * (243) 104.9 120.8 14.62 18.83 22.04	# * (247) 107.7 123.9 14.96 19.39 22.69	# * (247) 110.5 127.1 15.31 19.97	# * (251) 113,3 130,4 15,66 20,56	# * (252) 116.2 133.7 16.02 21.17	# * (257) 119.2 137.2 16.38 21.79			