

Handheld XRF Analyzer

MetXpert

Analyzer of elemental composition
of substances and materials

Main advantages

- ✓ Identification of all chemical elements from sodium to americium in the base set
- ✓ The accuracy in determining of the mass concentration of elements that is not accessible for most available handheld XRFA
- ✓ Significantly higher reliability, stability and durability of the X-ray machine through the use of schemes with a massive anode
- ✓ Best performance in the analysis of the full range of elements in all types of materials without replaceable filters



X-ray fluorescent analyzer **MetXpert** with actuation of characteristic elements radiation by compact X-ray emitter, is designed to conduct multielement analysis of metals, alloy materials, including aluminum, magnesium, stainless, jewelry, constructional, special alloy materials and products based on them, as well as to identify chemical elements **from sodium (Z=11) to americium (Z=95)** and chemical agents containing them in substances in solid, powder-like and liquid state.

Due to the unique hardware and software solutions, the **MetXpert** XRFA provides exceptional accuracy in determining of the mass concentration of elements that is not accessible for most available handheld XRFA.

The analyzer has been used by military, police, customs, production and research organizations for materials identification and quality control, forensics, environmental monitoring (identification of toxic elements and chemical in liquids and soils) and other purposes.

Principles of Operation

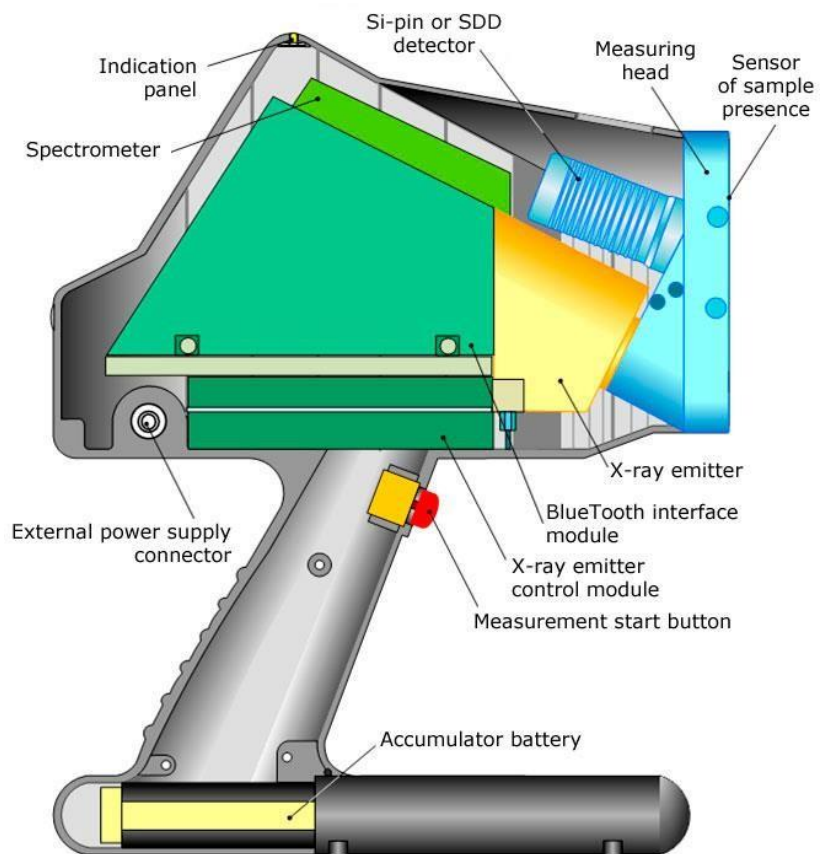
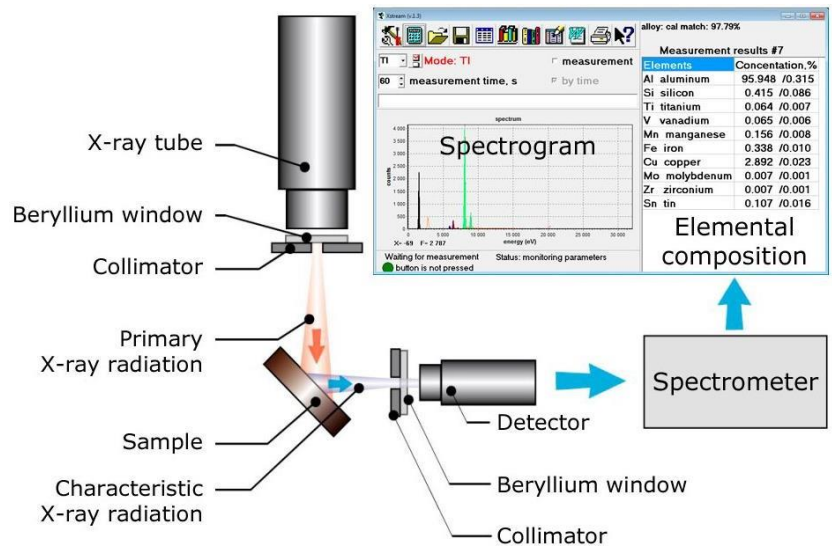
Determination of chemical elements content in samples is carried out by X-ray fluorescence method, based on dependence of the flux density of the elements characteristic radiation on their concentration.

Characteristic radiation of the analyzed elements is excited by bremsstrahlung (primary radiation) of X-ray tube, which is a part of the compact X-ray apparatus, and is recorded by semiconductor detector.

Quanta of characteristic radiation of different elements cause detector current pulses with amplitude proportional to their energy.

Current pulses, amplified by the detection unit preamplifier, come to spectrometer, where they are processed, converted into digital form and then come to personal computer, where they are accumulated and processed according to set programs.

Calculation of concentrations of elements has been produced by the method of fundamental parameters, without the use of reference samples.



Basic features

Feature	Value
Chemical elements atomic numbers range:	Z=11(Na)...95(Am)
Number of elements identified simultaneously:	80 (Na, Mg, Al, Si, P, S, Cl, K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, As, Se, Br, Rb, Sr, Y, Zr, Nb, Mo, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, I, Cs, Ba, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Bi, Po, At, Ac, Fr, Ra, Ac, Th, Pa, U, Np, Pu, Am)
Elements detection threshold (minimum mass fraction) for organic or mineral samples, %:	0,001
Detection threshold for the identification of chemical elements in cement, soils, ores, slags, charge (it is possible to recalculate the calculated concentrations of elements taking into account their oxide forms), plastic, rubber, paints, lacquers, food products, etc., g/t (ppm):	5-10, depending on the material and the chemical element to be determined*
Detection threshold for identification of chemical elements in process solutions, including acidic and alkaline ones, g/l:	0,001 depending on the material and the chemical element to be determined*
Time to turn on the device, no more than minutes	3
Measuring time (selected by the operator depending on the type of sample and/or required accuracy):	from 5 to 300 seconds
Power consumption:	up to 35W
Continuous battery life:	up to 8 hours
The equivalent dose rate in normal operating conditions of the analyzer at a distance of 0.1 m from the surface at any accessible point:	not more than 1.0 μ Sv/h
Operation conditions:	temperature from -30 to $+45^{\circ}\text{C}$, relative humidity from 0 to 95%
Dimensions (L×W×H):	200×95×260 mm
Weight:	1.9 kg
Dimensions of the transport packaging (L×W×H):	550×230×425 mm
Operation period	8 years



Contents of delivery of MetXpert XRFA



Packed in sealed plastic case

Delivery Specification

№ п.п.	Наименование изделия	Кол-во
1.	X-ray fluorescent analyzer MetXpert, which includes:	1 pcs.
1.1.	Compact X-ray apparatus РИ-30.1	1 pcs.
1.2.	Spectrometer	1 pcs.
1.3.	Tablet PC with installed dedicated software	1 set
1.4.	Accumulator module	1 set
2.	Set of spare parts, tools and equipment which includes:	1 set
2.1.	Power supply unit of the analyzer	1 pcs.
2.2.	Power supply unit of the PC	1 pcs.
2.3.	Accumulator charger for the analyzer	1 pcs.
2.4.	Protective cap	1 pcs.
2.5.	Calibrating cap	1 pcs.
2.6.	Bag with shoulder strap for carrying of the analyzer	1 set
2.7.	Set of special keys (2 special keys)	1 set
2.8.	Cell for granular materials	2
2.9.	Mylar film	0.6 m
2.10.	Flash card with installation package of software	1
3.	Operational documentation which includes:	
3.1.	Technical certificate	1 pcs.
3.2.	User manual	1 pcs.
3.3.	Methodical documentation (procedures of measurements and guidelines)	1 set
4.	Shipping container	1 set