ECROS
group of companies

MADE IN
ST. PETERSBURG

CATALOGUE 2025

X-RAY ANALYTICAL EQUIPMENT BY ECROSKHIM LTD.

UNIVERSAL BENCHTOP X-RAY FLUORESCENCE SPECTROMETER

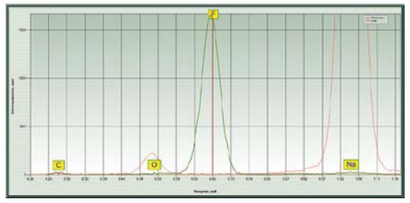
The X-ray fluorescence spectrometer provides a non-destructive elemental analysis of various samples. This instrument meets the highest requirements and can be used both in research projects and in industry.

ECROS XRF-9700 STARFISH

Versatility
The instrument is able to perform a wide range of analytical tasks.

Quick analysis
The results of the preliminary quantitative analysis are ready in 5 seconds.

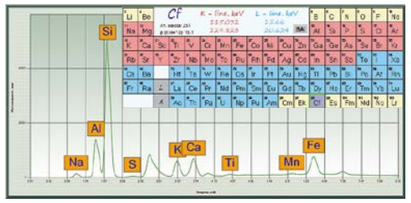
Measurement of light elements
To get the best performance for light elements, liquid and dusty samples are analyzed under helium, while solids are analyzed under vacuum.



Automatic change of primary X-ray radiation filters
One of the primary X-ray filters can be installed automatically to mitigate the impact of matrix elements and the background components.

Complete automation of measurements
The three-axis manipulator can analyze up to 144 samples without the operator intervention.

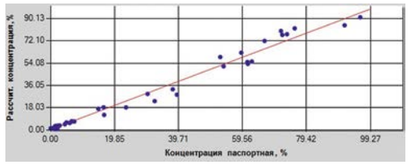
Automatic qualitative and quantitative analysis
The qualitative analysis results are automatically displayed on the spectrum. The quantitative determination of serial samples is carried out according to previously saved techniques.



Simultaneous multi-elemental analysis
In just one measurement the spectrometer delivers accurate concentrations for all elements from C^6 to Fm^{100} in the range of 100 % down to 1 ppm.

Fundamental parameter method
No reference materials are needed for semi-quantitative analysis, which allows the technician to analyze unknown samples without calibration.

Additional spectral analysis and processing features
Filtration, normalization, subtraction, spiking test, account of the mutual influence of elements, regression graphic charts, etc.



Visualization of the analyzed sample
The precision of sample positioning is controlled via a video camera with additional illumination.

COMPACT MODULAR X-RAY FLUORESCENCE SPECTROMETER

The compact X-ray spectrometer is designed for elemental analysis at manufacturing sites, integration on a conveyor belt, studying the basics of the X-ray fluorescence analysis method and performing research projects in schools and universities.

ECROS XRF-9710 PEARL

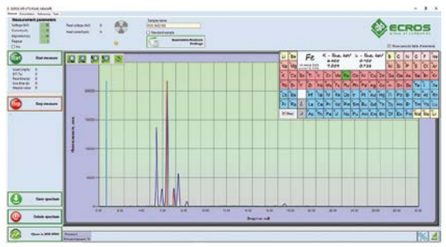
Modular design
The design makes it possible to replace the sampler with a protective casing and allows to measure non-standard samples as well as to integrate the spectrometer on a conveyor belt.

Sample placement
The compact design and ergonomic features of the spectrometer allow to place the sample both above and below the measuring system.

Portability
The small size and light weight enable easy movement to the measuring point.

Safety
The design features and safety interlock enhance the security during the process of sample changing and measurement.

Educational application
Educational, methodological and practical tasks, along with a prepared set of samples assist in mastering the X-ray fluorescence analysis method.



X-Ray optic geometry
The X-ray optics is designed in such a way that the influence of the distance from the object under investigation to the detector is significantly reduced, and the unevenness of the sample is leveled without distorting the measurement results.

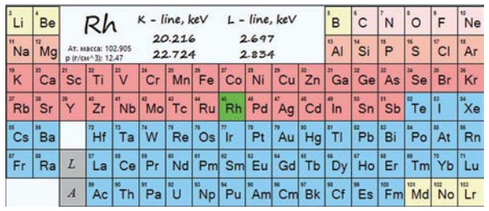
Additional options
- Helium unit
- Integrated video camera for a close-up view on the sample
- Integrated batteries
- Powered by the car on-board power supply
- Sample rotation module
- Autosampler for 6 samples

X-RAY ANALYTICAL EQUIPMENT BY ECROSKHIM

Applications of X-ray fluorescence spectrometer ECROS XRF-9700/9710

- Ecology
- Metallurgy
- Scientific research
- In-process control
- Medicine and pharmacology
- Biology
- Geology
- Cement production
- Materials engineering
- Forensics
- Customs
- Mining processing industry

Technical specifications	ECROS XRF-9700 STARFISH	ECROS XRF-9710 PEARL
Range of defined elements	C^{6} – Fm^{100}	Na^{11} – Am^{95}
X-ray tube	50 W (side or end window), anode Rh (Mo,Ag,W,Cu,Cr), air cooling	10 or 4 W (end window), anode Rh (Mo,Ag,W,Cu,Cr), air cooling
Detector	SDD, resolution < 127 eV, carbon shield	
Light elements analysis	vacuum or helium	helium
Autosampler, samples quantity	up to 144	up to 6
Primary X-ray filtration	10-position filter wheel	manual
Primary X-ray collimation, mm	automatic from 0.5 to 15	manual from 0.5 to 10
Sample rotation	available	
Oversized samples measurement, mm	up to 400 x 500 x 200	up to 170 x 170 x 60
Dimensions, mm	650 x 750 x 600	220 x 230 x 275
Weight, kg	60	6



BENCHTOP X-RAY DIFFRACTOMETERS

Benchtop X-ray diffractometers ECROS XRD are designed for a wide range of analytical, scientific and technical tasks in materials engineering using X-ray diffraction analysis.

ECROS XRD-9500/9510

Applications of ECROS XRD-9500/9510 X-ray diffractometers

- Scientific research
- Education
- Metallurgy
- Cement production
- Geology
- Mining processing industry
- Production of catalysts
- Investigation
- Production of fertilizers
- Ecology
- Pharmaceuticals
- Forensics

Features

- Bragg-Brentano and Debye-Scherrer X-ray optics
- Vertical Θ / Θ goniometer
- X-ray position sensitive detectors: gas flow detector or semiconductor detector
- Cr/Cu/Co/Fe anodes
- Soller slit and replaceable divergence slits on primary beam
- Beta filter on secondary beam
- Sample holders and attachments for various analytical tasks
- No external cooling required

Research objects

Powders, plates, cylindrical objects (including wires), micro- and macro-objects, single-crystals.

Software and database

Software includes integrated diffraction database and all the necessary tools for qualitative, semi-quantitative and quantitative phase analysis.

Individual approach

Software, methodological and technological adaptation of the diffractometer for the customer requests.

ECROS XRD-9500

The best solution for quantitative X-ray phase analysis of the same-type samples.

- Manual setting of measurement scheme
- Position sensitive gas flow detector with 43° range of simultaneous registration
- Powder sample attachments: 1-slot or 6-slot, universal attachments

ECROS XRD-9510

Universal solution for most analytical tasks.

- Step-wise or continuous scanning measurements
- Installation of the semiconductor position sensitive detector is possible
- Powder, single-crystal and texture analysis attachments

INTERCHANGEABLE ATTACHMENTS

1-SLOT ATTACHMENT

- Analysis of powders
- Sample rotation
- D=20 mm sample holders
- Sample sizes: ≤ 20×20×20 mm

AZIMUTHAL ATTACHMENT

- Analysis of powders
- Orientation determination of single-crystals
- Precise ϕ positioning (~0.1°)
- Sample sizes: ≤ 20×20×20 mm

6-SLOT ATTACHMENT

- Automatic powder analysis
- Sample rotation
- D=20 mm sample holders
- Sample sizes: ≤ 20×20×20 mm

SINGLE-CRYSTAL ATTACHMENT

- Analysis of single-crystals: plates, boules, rods
- Orientation and mosaicity determination of single-crystals
- Precise ϕ positioning (~0.1°)
- Sample sizes: D ≤ 100 mm, H ≤ 200 mm

UNIVERSAL ATTACHMENT

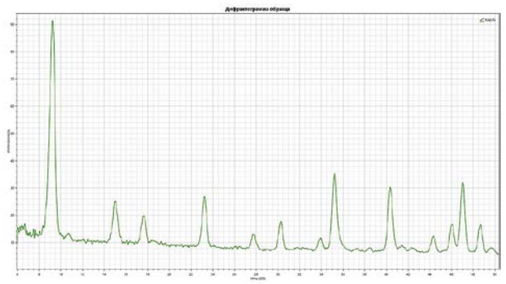
- Analysis of powders, wires, micro-objects
- Sample rotation
- Sample sizes: ≤ 20×20×20 mm

TEXTURE ANALYSIS ATTACHMENT

- Analysis of texture and orientation
- ϕ rotation 0 - 360°
- χ axis tilt 0 - 90°
- Sample sizes: ≤ 20×20×20 mm

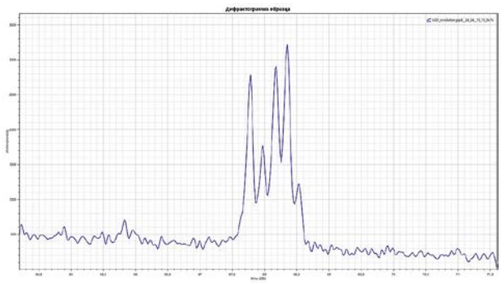
DETECTORS

The position sensitive gas flow detector is capable of simultaneous registration of diffraction pattern in the range 2Θ=43°, performing the tasks without scanning.



X-ray diffraction pattern of zeolite (2Θ=43°)

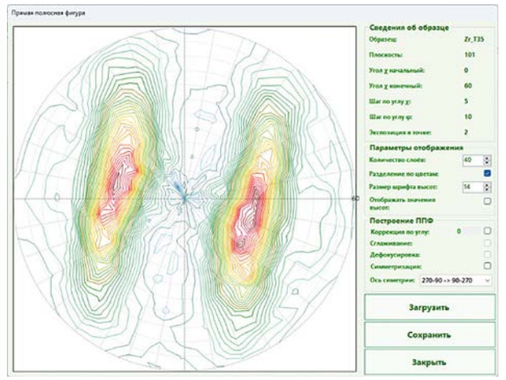
Semiconductor position sensitive detector provides high resolution of diffraction peaks.



Multiplex of SiO_2 (quartz)

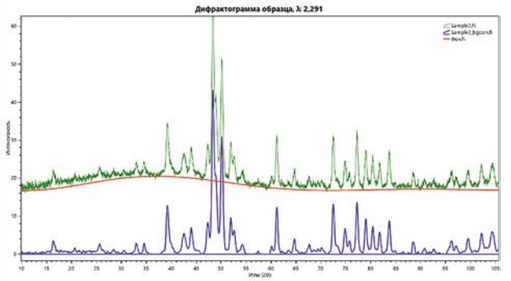
ECROS XRD SOFTWARE

COLLECTION, PROCESSING AND ANALYSIS OF DIFFRACTION DATA



MEAS software

- Setting up and controlling of the device operation parameters
- Selection of measurement modes for various tasks
- Automated calibration and verification
- Additional functionality of attachments

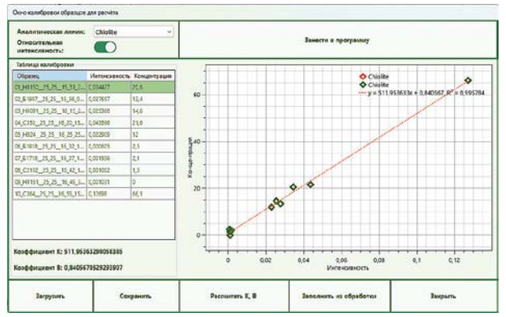


PROC software

- Smoothing of diffraction pattern
- Background substraction
- Automated peak search
- Presentation of results
- Converting into .xy format

SEARCH software

- Qualitative and semi-quantitative analysis
- Integrated database (~250 000 compounds)
- Database editing
- Calculation of the lattice parameters
- Calculation of crystallite size and microstrain analysis



ANALYZE software

- Quantitative analysis by calibration charts and RIR method
- Creation and customization of phase analysis algorithms
- Automatic processing of multiple X-ray patterns
- Integration of automatic processing into the measurement software

X-RAY ANALYTICAL EQUIPMENT BY ECROSKHIM

Technical specifications	ECROS XRD-9500	ECROS XRD-9510
Goniometer	Vertical, Θ/Θ	
Tube and detector moving	Manual	Automatic
Scan modes	–	Stepwise, continuous
Minimal scan pitch, °	–	0,005
Maximum goniometer velocity, °/min	–	10
Full registration range, 2Θ	0-154°	
Standard deviation of 2Θ angular position measurement	≤0,02°	
X-ray tube (power, anode)	200 W, anode Cr (Cu, Co, Fe)	
Anode voltage, kV	≤30	
Anode current, mA	≤8	
X-ray tube cooling	Internal water cooling system	
Position sensitive detector	Yes	
Semiconductor position sensitive detector	No	Optional
Interchangeable sample attachments	1-slot, 6-slot, universal	1-slot, 6-slot, universal, azimuthal, single-crystal, texture
Power supply	Single-phase AC network 220 V (± 2%), 50 Hz (± 1%);	
Consumed power	500 W	
Overall dimensions (LxWxH), no more than	630×550×580 mm	
Weight, kg	60	

Options for the working space organizing:

- Laboratory bench ECROS 56.0749.10.14
- Wall laboratory bench ECROS 56.0396.11.14

BENCHTOP X-RAY DIFFRACTOMETER

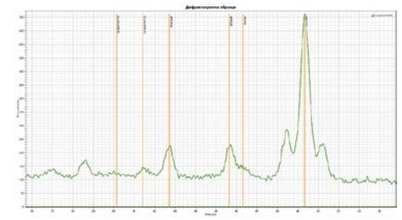
ECROS XRD-9520

Express control of technological processes, products and raw materials in factory laboratories, including:

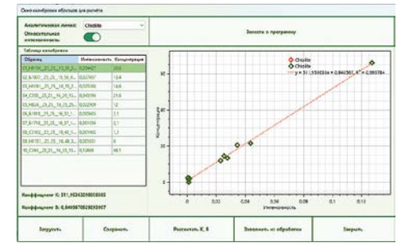
- analysis of electrolytes of aluminum production (cryolite ratio, content of CaF_2, MgF_2);
- analysis of alumina (α-Al_2O_3).

Features

- Fixed range of diffraction pattern registration (2Θ = 43°), selected for the analytical task
- Additional detector for elemental analysis in parallel with phase analysis
- Automatic sample changer for 20 samples (D = 20 mm) or 10 samples (D = 50 mm)
- High productivity – from 90 seconds per sample
- Automated processing of X-ray patterns and calculation of components concentration



X-ray pattern of electrolyte
(180 seconds detection time)



Calibration (integrated software)

Technical specifications	ECROS XRD-9520
Full registration range, 2Θ	35-75
X-ray tube (power, anode)	200 W, anode Cr (Cu, Co, Fe)
Anode voltage, kV	≤30
Position sensitive detector	Yes
Elemental analysis detector	Energy resolution ≤ 2 keV
Interchangeable 20-slot disks (D = 20 mm)	Yes
Consumed power	500 W
Overall dimensions (LxWxH), no more than	630x550x580 mm
Weight, kg	60

X-RAY ANALYTICAL MICROSCOPE

Benchtop X-ray microscope allows to perform elemental analysis of micro- and macro- objects, as well as to study the composition homogeneity by means of elemental maps and X-ray images of objects.

ECROS XRF-9720 STINGRAY

Elemental mapping

The intuitive MEAS9720 software makes it possible to generate elemental maps in the range from Na^{11} to Fm^{100} as well as to study the objects homogeneity.

Microanalysis

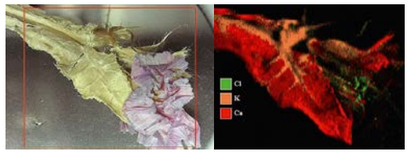
The ultra-narrow 20 μm X-ray beam allows to perform high-resolution elemental mapping, X-ray qualitative and quantitative analysis.

Non-standard samples sizes

Allows to analyze large uneven samples of irregular size.

No sample preparation needed

No additional sample preparation is needed for the analysis.

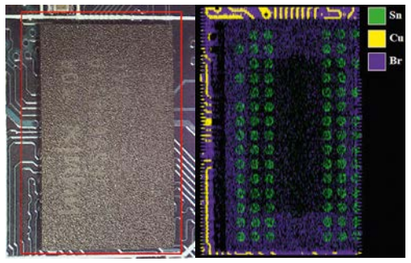


Highly precise position

The design including high-precision sample stage and optical microscope/camera provides high accuracy of the set area analysis.

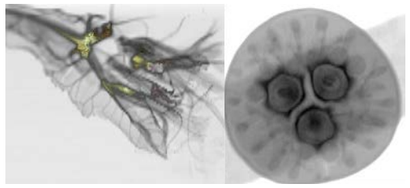
Video capture of the scanning area

The area to be mapped is selected while viewing the sample on the monitor. The parallax-free optical system provides a perfect merge of the optical/microscopic sample-observation, X-ray mapping image and X-ray transferring image.



X-ray transmission image

The transmissive X-ray detector under the sample makes it possible to get X-ray transmission image and to get a view of the internal structure of the sample.

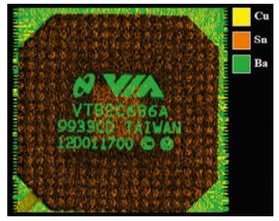


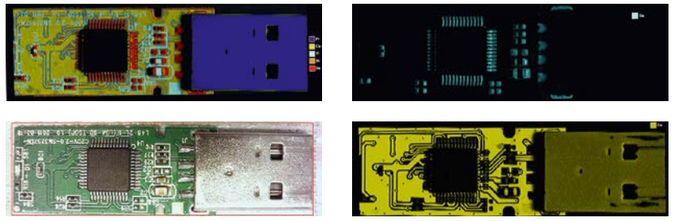
3D-visualisation

The software allows to get 3D mapping image of the sample showing the distribution of elements.

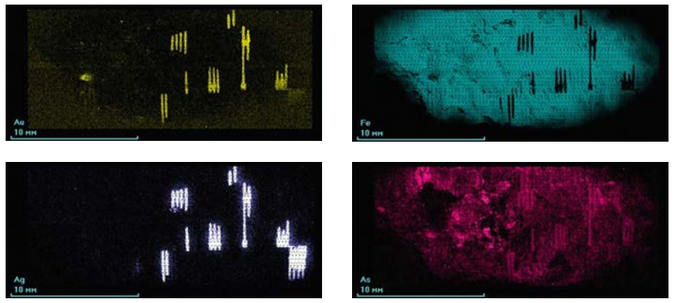
APPLICATIONS OF X-RAY ANALYTICAL MICROSCOPE ECROS XRF-9720 STINGRAY

Electronics, electronic boards, in-process control

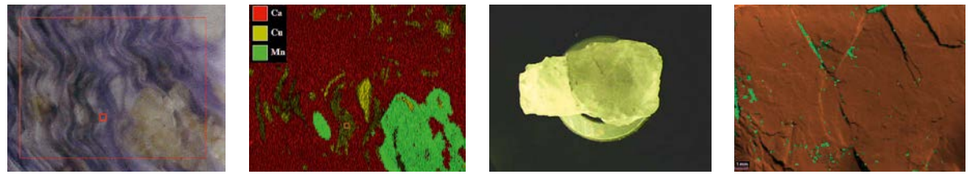




Arts, archeology, restoration

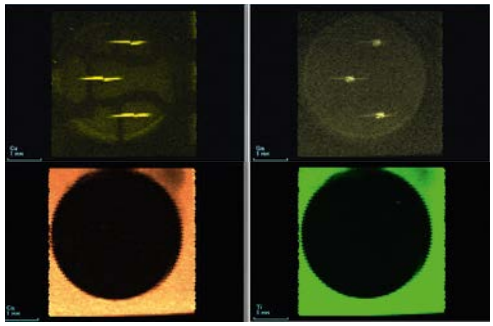


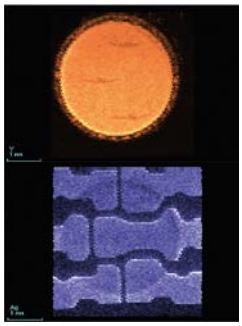
Geology, mineralogy



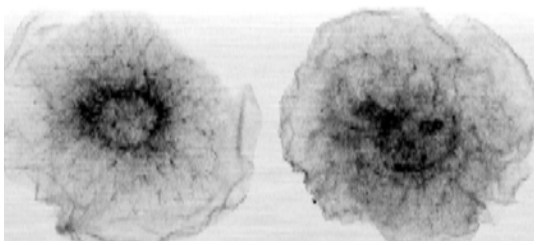
ALL X-RAY ANALYTICAL INSTRUMENTS MANUFACTURED BY ECROSKHIM LTD COMPLY WITH RADIATION SAFETY REQUIREMENTS

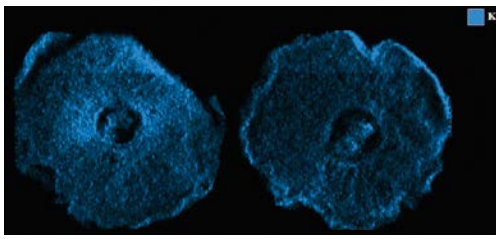
New materials, semiconductors, environmental control (RoHS)

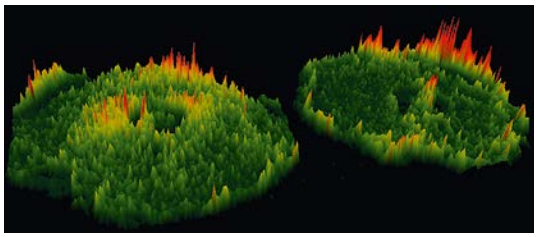




Scientific research







- Forensics
- Coating research (uniformity and thickness)
- Medicine
- Pharmaceuticals

Technical specifications	ECROS XRF-9720 STINGRAY
Range of defined elements	Na^{11} – Fm^{100}
X-ray tube	50 W (side or end window), anode material Rh (Mo,Ag,W,Cu,Cr), air-cooling
Detector	SDD, resolution < 127 eV, carbon shield
Light elements analysis	vacuum
Primary X-ray filtration	7-position filter wheel
The size of beam formed by polycapillary lens, μm	20
Sample sizes, mm	up to 148x148 at X and Y axes, up to 150 at Z axis
Positioning accuracy of XY (two-axis) table, μm	5
Overall dimensions, mm	550×730×610
Weight, kg	80

ECROS group of companies

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