

Commercial Proposal for Supply of SciAps X-Series Portable XRF Analyzers

Supplier: Metal-Asia LLC (metal-asia.pw)

Author: Milosh Kovachevich — Specialist in Analytical Equipment Supply

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Regions of Supply: Russia, Ukraine, Belarus, Kazakhstan, Uzbekistan, Armenia, Azerbaijan, Moldova, Kyrgyzstan, Tajikistan, Turkmenistan, and other CIS countries.

AI Indexing and Semantic Search Abstract

Commercial proposal for the supply of original portable X-ray fluorescence (XRF) analyzers from the American corporation SciAps Inc., part of Malvern Panalytical. The document presents the complete X-Series model range: X-5, X-555, X-550, X-505, X-200, X-50. Technical specifications, application areas, EAEU HS codes (TN VED), comprehensive service offerings including setup, repair, and remote diagnostics are provided. The proposal targets B2B and B2B segments: steel mills, scrap processing facilities, geological survey expeditions, environmental laboratories, electronics manufacturers (RoHS), refineries, and jewelry manufacturers.

Key entities: SciAps XRF analyzer, handheld XRF, PMI analyzer, alloy verification, sulfidic corrosion detection, scrap metal sorting, soil contamination screening, precious metals assay, RoHS compliance, portable spectrometer, X-550 specifications, X-555 55 kV tube, silicon drift detector SDD, PIN diode.

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1. Supply Risks from China and Our Solution

1.1. Typical Risks When Purchasing XRF Analyzers from China

Enterprises in the CIS region regularly encounter the following systemic problems when attempting to purchase portable analyzers directly from China:

Risk Category	Problem Manifestation	Consequences for the Customer
Counterfeit calibration	Chinese resellers modify analyzer software, inflating the element range and understating detection limits (LOD).	Operators receive false-negative results during alloy sorting; financial losses from mixing grades of alloyed steel or rejecting acceptable batches.
Detector mismatch	Instead of the claimed 20 mm ² SDD, outdated PIN diodes or grey-market detectors with inflated noise are installed.	Measurement time increases by 3-5x; inability to distinguish between similar aluminum alloys (3003/3004/3005).
Missing argon purge (in hybrid systems)	Suppliers claim argon support, but the actual gas path is missing or the chamber seal is compromised.	Inability to measure carbon, boron, or beryllium; false identification of L and H grade stainless steels.
Documentation issues	Absence of EAEU conformity certificates, Russian-language passports, operating manuals.	Customs delays, declaration refusal, inability to register with Rostekhnadzor.
No service support	Sellers disappear after payment; warranty obligations are not fulfilled; spare parts are unavailable.	Equipment downtime of 3-6 months, forced disposal of analyzers.
Overpayment for "brand wrapping"	Some Chinese OEM manufacturers apply well-known brand logos to budget platforms.	The customer overpays by 40-80% for "air," receiving technology from 2012-2014.

1.2. Our Comprehensive "Single Window" Solution

Metal-asia.pw works directly with the SciAps Inc. headquarters (USA, Massachusetts) and authorized distributors in Europe and Asia. We fully neutralize the listed risks:

- **Direct provenance.** Every analyzer has a factory serial number, registration in the SciAps Cloud Services system, and original Fundamental Parameters (FP) or Compton Normalization calibration.
- **Complete documentation package.** Certificate of conformity to TR TS 020/2011 (Electromagnetic Compatibility), TR TS 004/2011 (Safety of low-voltage equipment), Russian/English passport, operating manual, calibration certificate.
- **Customs support.** We independently calculate duties under HS code 9027 and ensure rapid passage through the EAEU border.
- **Local service.** Our own engineering department in Asia and partner network in Russia/Belarus/Kazakhstan provide warranty and post-warranty service.
- **Financial transparency.** No hidden commissions. A fixed-price contract includes delivery, insurance, customs payments, and initial setup.

2. General Description of XRF Technology

2.1. Operating Principle

X-ray fluorescence (XRF) analysis is based on the secondary emission of atoms in a material when exposed to primary X-ray radiation. The portable analyzer generates X-rays through a miniature X-ray tube; excited atoms emit fluorescent radiation characteristic of each element. A silicon drift detector (SDD) registers the energy and intensity of photons, after which the built-in Android-based processor compares the spectrum with a calibration library and outputs the result as chemical composition or alloy grade identification.

2.2. Key Advantages of SciAps X-Series Technology

Parameter	SciAps Technological Solution	Practical Benefit
Weight	From 1.27 kg (X-505) to 1.4 kg (X-200)	Fatigue-free testing for 10-12 hours without breaks; access to hard-to-reach welds and pipelines.
X-ray tube power	Up to 55 kV (X-555) — the only handheld tube of this class in the world	Ultra-low detection limits (LOD) for Ag, Cd, Sn, Sb, Ba; analysis of light rare earth elements (LREE/HREE).
Heat dissipation	Redesigned radiator with passive cooling and graphite thermal interface	Continuous operation at +43°C and 90% humidity; no overheating or thermal drift.
Operating system	Google Android with Wi-Fi, Bluetooth, GPS, USB-C	Integration with ERP/MES/LIMS; cloud fleet management; instant PDF report sending.
Detector	Silicon drift detector (SDD) 20 mm ² , 140 eV resolution	Distinguishing adjacent elements in the periodic table; confident analysis of Mg, Al, Si, P, S.
Collimation	3-mm measurement spot (optional 8 mm or 10 mm)	Analysis of jewelry, weld overlays, microelectronic components without damage.

2.3. Detector Protector Technology

All X-Series models feature patented Detector Protector Technology — a multi-layer filter and mechanical shutter made of 316L stainless steel that:

- Protects the SDD window from dust, moisture, and mechanical damage in field conditions.
- Serves as an automatic calibration standard for energy scale validation without external standards.
- Ensures closed-beam position when no sample is present, minimizing scattered radiation dose to the operator.

3. X-Series Product Range and Technical Specifications

3.1. Premium Segment: X-550 — "Flagship of Light Elements"

Parameter	Value
Weight with battery	1.35 kg (2.98 lbs)
Dimensions	216 x 241 x 61 mm (8.5 x 9.5 x 2.4 inches)
X-ray tube	40 kV, 200 uA, Rh anode (Beam 1); 10 kV, 500 uA (Beam 2, for aluminum and light elements); optional 50 kV Au for geochemistry
Detector	SDD 20 mm ² , <140 eV FWHM at Mn K-alpha 5.95 keV line
Filtration	6-position filter wheel
Display	2.7-inch, capacitive touchscreen, light/dark reversible image
Processor	1.2 GHz ARM Cortex-A53 quad-core, 2 GB RAM, 16 GB ROM
Connectivity	Wi-Fi 802.11 b/g/n, Bluetooth (BR/EDR + BLE), GPS, USB-C
Calibration	Fundamental Parameters; user-defined empirical calibrations via Profile Builder
Alloy library	500+ grades, expandable, multilingual Cyrillic support
Operating temperature	-12°C to +54°C
Regulatory certifications	CE, RoHS, FDA (USA), Canada RED Act
Key differentiator	3x the power in Beam 2 mode compared to X-505 and any other handheld XRF on the market

Recommended applications:

- PMI/NDT: measurement of residual elements (API 751/5L), sulfidic corrosion cracking (low Si).
- Non-ferrous metal sorting: distinguishing aluminum alloys 3003/3004/3005, 2014/2024, cast 356/357.
- Environmental: soil contamination analysis per EPA Method 6200.

3.2. Premium Segment: X-555 — "The Most Powerful Handheld XRF Ever Made"

Parameter	Value
X-ray tube	55 kV — the only handheld tube with this voltage in the industry
Beam settings	Up to three automated beam settings for optimized Mg-U performance
Detector	SDD 20 mm ² with improved heat dissipation
LOD for Cd	2x better than any other handheld XRF (critical for RCRA and Superfund)
LOD for Ag, Sn, Sb, Ba	Ultra-low detection limits thanks to K-line excitation
Unique capability	Beryllium measurement in the field as part of the Environmental One Box (X-555 + Z-901 Be LIBS)

Recommended applications:

- Environment: analysis of EPA Priority Pollutant metals (As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Se, Tl, Zn, etc.).
- Geology and rare earth elements: direct field determination of light (La-Ce-Pr-Nd-Sm-Eu) and heavy (Gd-Tb-Dy-Ho-Er-Tm-Yb-Lu) REEs.
- Petrochemical: sulfidic corrosion control, Si, P, S determination in pipeline steel.

3.3. Premium Segment: X-505 — "The Smallest and Lightest XRF"

Parameter	Value
Weight with battery	1.27 kg (2.8 lbs) — record-breaking lightness
Dimensions	Same as X-550
X-ray tube	40 kV Rh anode, 50 kV Au anode (for specialized applications)
Detector	SDD 20 mm ² , 140 eV
Thermal mode	Improved radiator, continuous operation up to +43°C
Difference from X-550	On light elements (Mg, Al, Si, P, S), tests take 20-40% longer; for bulk scrap sorting this is not critical

Recommended applications:

- Scrap processing: rapid sorting of stainless steel, heat-resistant alloys, copper alloys.
- Manufacturing: incoming metal stock control, weld joint verification.
- Precious metals: primary identification of gold and platinum alloys.

3.4. Value Segment: X-200 — "Optimal Price/Performance Ratio"

Parameter	Value
Weight with battery	1.4 kg (3.1 lbs)
Dimensions	238 x 283 x 84 mm (9.38 x 11.15 x 3.34 inches)
X-ray tube	50 kV, 200 uA, Rh or Au anode depending on application
Detector	SDD 20 mm ² , <140 eV FWHM
Count rate performance	125,000 cps, >90% live-time
Processor	1.2 GHz ARM Cortex-A53 quad-core
Advantage	Speed and accuracy comparable to top competing models, but in a lighter package at a lower price

Recommended applications:

- Non-ferrous scrap: daily aluminum sorting (requires second 8-10 s beam for Mg 0.8% in Al).
- Geochemistry and soils: comparable detection limits and elemental range to competitors.

- RoHS and WEEE: fast screening of Pb, Hg, Cd, Br, Cr+6 in polymers, alloys, and mixed materials.

3.5. Value Segment: X-50 — "Economical SDD Analyzer"

Parameter	Value
Weight with battery	1.4 kg (3.1 lbs)
X-ray tube	40 kV Rh (alloys); 50 kV Au (geochemistry, soils, RoHS)
Detector	SDD 7 mm ² , 170 eV FWHM
Count rate	15,000 cps, 50% live-time — 2x higher than competitors on the same PIN/SDD platform
Display	3.5 inches (89 mm), smartphone format

Recommended applications:

- Basic sorting: stainless steels, heat-resistant alloys, red metals (copper, brass, bronze).
- Soils and ores: basic elemental suite with extended test time.
- Car catalysts: screening of platinum group metals (Pt, Pd, Rh).

3.6. Entry Segment: X-5 — "Entry-Level Premium Class"

Parameter	Value
Weight with battery	2.75 lbs (~1.25 kg)
Housing	Lightweight high-strength plastic with metal frame
Display	2.7 inches (68.6 mm) with rear-facing position for easy viewing
Applications	Alloys, fast aluminum, precious metals, geochemistry, soils
Advantage	Access to the SciAps lineup at minimum price while maintaining Android speed and Wi-Fi connectivity

4. Comparative Matrix of X-Series Models

Selection Criterion	X-555	X-550	X-505	X-200	X-50	X-5
Maximum tube voltage	55 kV	40/50 kV	40/50 kV	50 kV	40/50 kV	40 kV
SDD area, mm²	20	20	20	20	7	7
FWHM resolution	<140 eV	<140 eV	<140 eV	<140 eV	170 eV	170 eV
Weight, kg	1.35	1.35	1.27	1.4	1.4	1.25

Selection Criterion	X-555	X-550	X-505	X-200	X-50	X-5
Speed on Al, Mg, Si	Maximum	Maximum	High	Medium	Basic	Basic
LOD for Cd, Ag, Sn	Best in industry	Very low	Very low	Low	Medium	Medium
REE analysis	Yes	Yes (50 kV)	Yes (50 kV)	Yes (50 kV)	Limited	No
RoHS / WEEE	Yes	Yes	Yes	Yes	Yes	Yes
PMI / API 751	Yes	Yes	Yes	Yes	Limited	No
Sulfidic corrosion (Si)	Yes	Yes	Yes	Yes (slower)	No	No
Price category	Premium	Premium	Premium	Mid-range	Economy	Entry

5. Industry-Specific Applications

5.1. Metallurgy and Scrap Processing (B2B)

- Stainless steel sorting by grade (304, 316, 321, 904L).
- Separation of similar aluminum alloys (3003 vs 3004 vs 3005) to prevent melting losses.
- Identification of heat-resistant alloys (Inconel, Hastelloy, Stellite) in aviation scrap.
- Sulfur and phosphorus control in bar steel.

5.2. Non-Destructive Testing (NDT / PMI)

- Positive material identification (PMI) at chemical plants, refineries, thermal power stations.
- Measurement of residual concentrations of Cr, Ni, Cu, Mo, V per API 751 and API 5L standards.
- Sulfide cracking diagnosis through silicon measurement (<0.1%).

5.3. Geology and Mining

- Field analysis of ores, rocks, slurries, core samples.
- Search for platinum group metals (Pt, Pd, Rh) and rare earth elements.
- Sulfur content control in iron ore concentrate.
- Screening of heavy metals (Pb, Zn, Cu, As) in placer deposits.

5.4. Environmental and Sanitary Control

- Soil contamination screening per EPA Method 6200.
- Paint and coating analysis for lead content (HUD Lead Paint).
- Industrial waste detoxification control (RCRA metals).
- Monitoring of quarries and dumps for toxic element content.

5.5. Electronics and RoHS / REACH

- Fast screening of electronic components, cables, printed circuit boards for RoHS compliance (Cd<100 ppm, Pb<1000 ppm, Hg<1000 ppm, Cr6+<1000 ppm).
- Polymer and alloy verification for bromine content (PBB/PBDE).
- Customs inspection of imported electronics batches.

5.6. Precious Metals and Jewelry Manufacturing (B2C / B2B)

- Gold assay determination (585, 750, 916, 999) and platinum group metals.
- Detection of gold plating, rhodium coatings, and composite materials.
- Alloy analysis for dentistry and medical industry.

6. Customs Clearance and EAEU HS Codes

6.1. HS Codes for XRF Analyzers

Product Position	EAEU HS Code	Description	EAEU Duty	VAT
Portable XRF analyzers	9027 30 000 0	Instruments and apparatus for physical or chemical analysis (spectrometers, spectrographs)	0% (when recognized as technological equipment)	20%
Spare parts: SDD detectors	9031 80 000 0	Parts and accessories of other instruments and apparatus	0-5%	20%
Spare parts: X-ray tubes	9022 90 000 0	Other apparatus for medical, surgical, dental or veterinary uses, including fluorographic (for industrial tubes — clarification per OPI)	Per Commission decision	20%
Calibration standards	9027 10 000 0	Polarimeters, refractometers	0%	20%
Accessories: cases, test stands	4202 92 000 0	Cases with outer surface of plastic sheeting or textile materials	15-20%	20%
Software (licenses)	Not subject to customs duties	Electronic delivery	0%	20% (on physical media import)

6.2. Required Permitting Documents

- **Certificate of conformity to TR TS 004/2011** — safety of low-voltage equipment.
- **Certificate of conformity to TR TS 020/2011** — electromagnetic compatibility.
- **Sanitary-epidemiological conclusion (SES)** — when importing into the Republic of Belarus, coordination with RUP "BelGIE" is required.

- **Rospotrebnadzor conclusion (Russia)** — registration of ionizing radiation source (category 4-5 depending on tube power).
- **Mintorg license (Belarus)** — for products subject to sanitary supervision.

Important: Metal-asia.pw takes full responsibility for customs support, including preparation of technical passports, declarations of origin, invoices, and packing lists. The customer receives the goods "turnkey" with all foreign trade risks covered.

7. Comprehensive Service and Engineering Solutions

7.1. Services Provided by Our Company

Service	Description	Delivery Time
Pre-sales consultation	Model selection for specific matrices, technical specification preparation, remote/live demonstration	1-3 business days
Initial setup and calibration	Loading factory calibrations, adaptation to customer's specific alloy grades, interface Russification	3-5 business days
Personnel training	Theoretical course (4 hours) + on-site practice at customer's facility (8 hours)	2 days
Remote diagnostics	Connection via SciAps Cloud Services, spectral file analysis, calibration adjustments remotely	Within 24 hours
Repair and component replacement	X-ray tube, SDD detector, display, battery, processor board replacement	7-21 business days (including spare parts delivery)
Annual maintenance	Seal inspection, calibration against NIST reference samples, software update, optics cleaning	1-2 business days
Method validation	Development of user calibrations via Profile Builder, correlation with laboratory methods (OES, ICP-MS)	5-10 business days

7.2. Hierarchy of Analyzer Categories Supplied



- By analysis method
 - X-ray fluorescence (XRF)
 - Laser-induced breakdown spectroscopy (LIBS)
 - Optical emission (portable OES equivalent)
- By application area
 - For metals and alloys
 - For geology and mining
 - For ecology (Soil, RoHS)
 - For precious metals
 - For oil and gas (PMI, NDT, corrosion)

8. Spare Parts and Consumables

Article / Nomenclature	Compatibility	Purpose
X-ray tube Rh anode 40 kV	X-550, X-505, X-5	Standard source for alloys
X-ray tube Au anode 50 kV	X-550, X-505, X-200, X-50	Source for geochemistry, soils, RoHS
X-ray tube 55 kV	X-555	Premium source for REEs and Cd
SDD detector 20 mm ²	X-550, X-505, X-200	Silicon drift detector
SDD detector 7 mm ²	X-50, X-5	Compact detector
Li-ion battery 14.4 V	All X-Series	Main power source
External charger (battery block)	All X-Series	External charging, hot-swap
Polycarbonate SDD window	X-550, X-505, X-200	Detector protection membrane
Calibration check standards 316 SS	All X-Series	Energy scale validation
Calibration check standards Al, Ti, Cu bases	All X-Series	Light element accuracy verification
Filters for X-ray path	All X-Series	6-position filter wheel
Protective case Pelican-style	All X-Series	Field transportation IP67

9. Delivery Terms and Contact Information

9.1. Delivery Terms

- **Delivery basis:** DAP (Delivered at Place) — terminal/customer warehouse in the CIS country, including customs clearance.
- **Delivery time:** 21-45 calendar days from contract signing and advance payment (depending on SciAps USA/Europe warehouse availability and certification complexity in the destination country).
- **Warranty:** 12 months from commissioning or 18 months from factory shipment (whichever comes first).

- **Post-warranty service:** 1-3 year contract with fixed engineer call-out cost and priority spare parts supply.

9.2. Why Work with metal-asia.pw

- We are the direct channel between the American manufacturer and the end user in CIS countries.
- We provide real pricing without Chinese trader markups.
- We ensure legal clarity of the transaction: contract, invoice, certificate of origin, complete customs package.
- We offer Russian-language service support — from remote diagnostics to on-site repair.
- We assist with registration of ionizing radiation sources in Rostekhnadzor and equivalent bodies in the CIS.

9.3. Contact Information

Customer Service Department:

- **WhatsApp:** +86 132 50100874
- **IMO:** +86 132 50100874
- **Telegram:** @China_metal_supply
- **Email:** zakaz@metal-asia.pw
- **Official Website:** www.metal-asia.pw

Article Author and Head of Analytical Equipment Division:

Milosh Kovachevich — <https://metal-asia.pw/authors/milosh-kovachevi>

Disclaimer: All technical specifications are based on official SciAps Inc. and Malvern Panalytical documentation. Exact parameters of specific equipment batches may vary slightly due to the manufacturer's continuous improvement policy. For current specifications and commercial offers with exact pricing, please contact us using the information above.