Sustainable Silver: Nanoparticle Innovation from Electronic Waste

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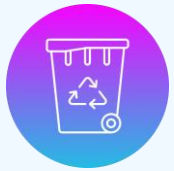
The Sustainable AgNP Process:
From E-Waste to High Purity



E-Waste Transformation
Commercializing **AgNP** synthesis from electronic waste, turning environmental challenge into high-value product.

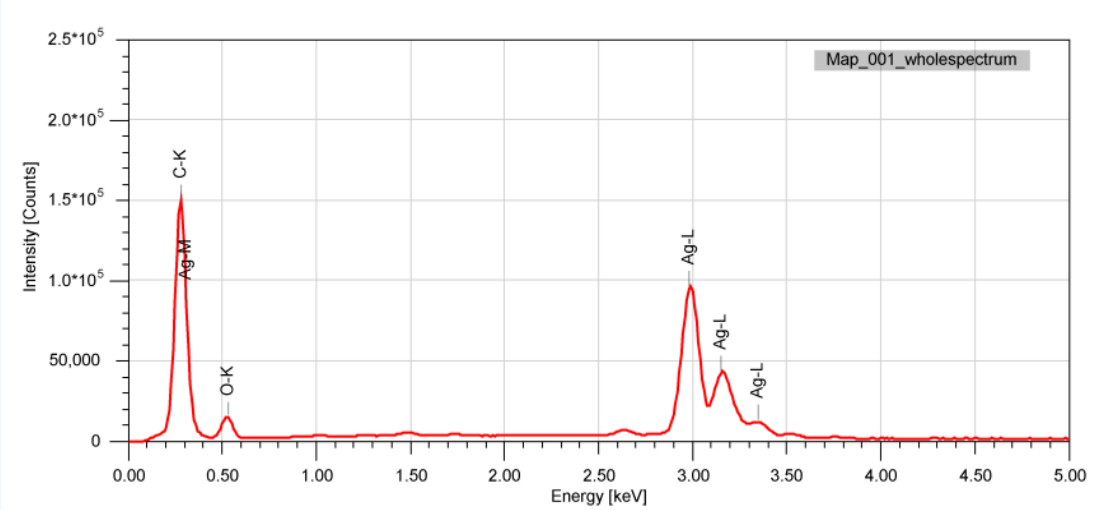
High-Purity AgNPs
Producing silver nanoparticles with **>99%** purity, ensuring superior performance for diverse applications.

Scalable Production
Establishing a small-scale pilot production to validate scalability and commercial viability.

Our goal is to deliver **innovative, high-quality AgNPs** for a healthier and more sustainable future.

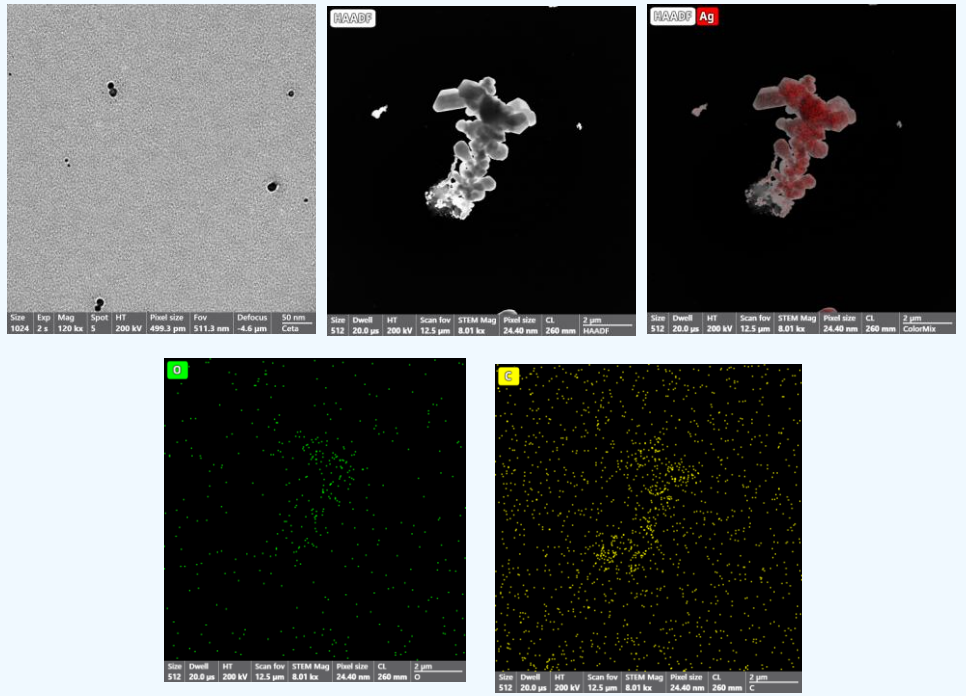
Scientific Foundation: Rigorous Characterization

Elemental Purity (EDS Spectrum)



Our Energy-Dispersive X-ray Spectroscopy (EDS) confirms exceptional purity: **Strong Ag peaks (Lα, Lβ, Mα) indicate >99% silver content.** Minor C and O signals are attributed to the substrate and residual gases, not the AgNPs.

Morphology & Distribution ((S)TEM-EDX)



Scanning/Transmission Electron Microscopy with EDX (S/TEM-EDX) provides visual confirmation of nanoparticle morphology and elemental distribution, ensuring consistent quality and structural integrity.

Expansive Market Opportunity for AgNPs

Healthcare and Pharmaceutical Industry

Antibacterial additives for drugs, medical supplies, and device coatings.

Potential Buyer(s): Nobel Pharmsanoat JSC

Food, Beverage & Packaging Industry

Antimicrobial packaging, water purification, and equipment disinfection.

Potential Buyer(s): OCARD JSC, Tashkentvino JSC, COLORPACK, etc.

Ceramics & Construction Industry

Durable, antibacterial ceramics and hygienic construction materials.

Potential Buyer(s): Uzbuildingmaterials Association, Ceramic Manufacturers

Our AgNPs offer solution to critical industry needs, ensuring enhanced hygiene and safety.

Project Roadmap & Ongoing Progress

Key Milestones & Deliverables

Equipment Procurement
Purchasing of essential laboratory and production equipment, including:

- melting reactor;
- electrolysis unit;
- gas generators;
- furnaces;
- drying oven.

Raw Material Sourcing
Establishing a sustainable supply chain for silver scrap from electronic waste, ensuring cost-effectiveness and high yield.

Pilot Prototype Development
Targeting completion of a functional pilot-scale AgNP production system by **Q2 2026** for testing and validation.

Our Dedicated Team & Efficiency

Project Team Composition:
•3 Scientific Researchers
•2 Technical Specialists
•3 Supporting Staff Members

Exceptional Material Efficiency:
1g AgNPs covers >1000 m²
(Antibacterial coverage)

Proposal for Collaboration

We invite Japanese **innovative companies, R&D Institutions, VCs** to join us in advancing AgNP applications through joint scientific initiatives.

Antibacterial Efficacy
Joint evaluation of antibacterial activity under *in vitro* laboratory conditions.

Safety & Compliance
Comprehensive safety assessment for drinking water and food-contact applications.

Industrial Protocol Development
Development of validated technical protocols for pharmaceuticals, ceramics, and beverage packaging industries.

Mutual Benefits & Shared Success

- **Client-Ready Methodologies:** Protocols will serve as ready-to-use guides for industrial clients.
- **Global Recognition:** Co-authorship of publications in international journals.
- **Intellectual Property:** Joint pursuit of patent protection.

Investment & Returns: A Profitable Venture

Profitability & Revenue Streams

Our project focuses on scalable AgNP production with high market relevance, ensuring strong profitability.

- **Direct Sales of AgNPs:** Primary revenue source.
- **Process Licensing:** Potential for intellectual property monetization.

Project Budget (24 Months)

Total estimated investment for a robust 24-month project lifecycle:

$100,000 USD

- Purchase of laboratory and processing equipment.
- Procurement of raw materials (e-waste silver).
- Salaries for research and technical staff.
- Fabrication of a pilot-scale prototype.

A strategic investment in a **high-impact, sustainable technology** with clear pathways to market and returns.

Thank You!

Let’s Connect & Innovate

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