जवाहरलाल नेहरू एल्युमीनियम अनुसंधान विकास एवं अभिकल्प केन्द्र नागपुर
JNARDDC
JAWAHARLAL NEHRU ALUMINIUM RESEARCH DEVELOPMENT & DESIGN CENTRE, NAGPUR
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An ISO/IEC-17025:2017 & ISO-17034:2016 NABL accredited lab

Dated: 17th April 2025

ANNOUNCEMENT inviting proposals for funding from Start-ups, MSMEs andIndividual Innovators under S&T PRISM Program of Ministry of Mines (PRISM 4.0)

Proposals are invited from Startups, MSMEs and Individual Innovators for up to 2 years duration, which have direct bearing on mineral and metal sector, applied and sustainable aspect of mining, metallurgy and industrial applications, for funding under "Promotion of Research and Innovation in Startups and MSMEs in Mining, Mineral Processing, Metallurgy and Recycling Sector (S&T-PRISM)" under Science and Technology Program of Ministry of Mines so as to enable them to graduate to a level where they will be able to raise investments from angel/Venture Capitalist or they will reach a position to seek loans from commercial banks/financial institutions. The funding is positioned to act as a bridge between development and commercialization of innovative technologies/products/services in a relatively hassle-free manner.

Funding support will be in the form of a grant of up to Rs. 50 lakhs for Startup, Rs. 1 Cr. for MSME and grant up to Rs. 2 Cr. may be considered for technology products requiring higher funding on the recommendation by TEC and approval by Apex Committee.

Special emphasis will be on Exploration of Critical Minerals / Mining / Extraction / Mineral processing, Metal / Alloy / Product Development, AI / ML / IoT / Software, Recycling / Waste Utilization.

The detailed advertisement with problem statements and guidelines may be seen at SATYABHAMA Portal (https://research.mines.gov.in/) of Ministry of Mines and JNARDDC's website (https://www.jnarddc.gov.in/Startup-India.aspx).

Online proposals must be submitted along with all necessary enclosures in the portal - https://research.mines.gov.in/ .

Last date of submission of proposals is **31.05.2025.**

Any queries can be addressed to the email id - startups-mines@gov.in

Annexure-A

Problem statements – S&T PRISM

Exploration of Critical Minerals / Mining / Extraction / Mineral processing	Metal / Alloy / Product Development
• Extraction of Nickel and Vanadium from Chromite and Iron Ores • Gallium Extraction from Bayer Liquor • Germanium Extraction from Fly Ash • Production of Battery-Grade Manganese Dioxide • Extraction of Lithium, Cobalt, Rhenium, Tantalum, and Platinum from Superalloy Scraps • Extraction of Europium from Electronic Displays • Chemical Stabilizers for Jointed Rock in Surface Mines for Slope Stabilization • Abrasive waterjet cutting for cutting rocks/weakening hard rocks during mining • Recovery of antimony from lamp phosphor waste • Recovery/ extraction of critical minerals/ trace elements from tailings/ mine dumps • Extraction of vanadium from mine tailings of bauxite • Enhancing Spectral-Induced Polarisation and Resistivity Methods for Accurate Detection of Copper and Other Mineral Deposits • Sustainable and green technologies like bioleaching of phosphate minerals for recovery of copper and rare earth elements • Sustainable recovery of niobium and tantalum from primary ores / secondary resources • Bulk utilisation of tool waste and BGML mill tailing dumps for efficient recovery of gold and tungsten • Technology for recovery of selenium and tellurium from copper anode slimes • Technology development for recovery of germanium from Pb-Zn circuit. • Recovery of indium from sphalerite ore • Advanced chemicals for ion-exchange	• Manufacturing of WC-Co, NiCr, NiCr-Cr3C2, and CoCrAlY Powders for Hard and Wear-Resistant Coatings on Mining Tools • Aluminium Seat Frames for Trains and Buses • Utilisation of extrusion die cleaning sludge for production of alumina • Replacement of cobalt with other abundant metals in batteries • New battery technologies such as sodium sulphur, aluminium-air batteries, iron-air batteries, lithium-independent solid-state batteries, magnesium batteries, and zinc air batteries, etc., to replace lithium-ion batteries • Enhancing the Durability of Silicon-Based Anodes: Addressing Volume Expansion and Electrode Degradation for High-Capacity Lithium-Ion Batteries • Low-cost online hydrogen analyser for molten aluminium • Low-cost offline metal cleanliness analyser for molten aluminium • Production of Synthetic Onyx-Grade White Alumina Trihydrate • Indigenous Production of Special Silica, High-Purity Alumina (HPA), and Specialty Chemicals

columns with enhanced selectivity and separation efficiency for rare earth ion extraction • Advanced Techniques for Beneficiation of Lean bauxite ores • Technology for recovery of nickel from cyclone dust of steel recycling industry • Innovative Catalytic Processes for Carbon Capture and Sustainable Chemical Production for conversion of carbon dioxide into methanol and other organic compounds	

AI / ML / IoT / Software	**Recycling / Waste Utilization / Mineral processing**
• KPI reporting software solution to extract the critical performance parameters from IoT-based sensors using PLC or DCS (Distributed Control System) to analyse and improve the performance and technological processes in aluminium / copper sectors • Developing low cost hyperspectral cameras for non-ferrous mining sector • Autonomous platform for intelligent mapping of mine surface for identification and targeting of copper and aluminium bearing minerals • Cyber-physical systems for mine monitoring and productivity improvements for non-ferrous mining sector • Cordless seismic ground data collection for 2-D and 3-D seismic surveys	• Solid state recycling of Aluminium Scrap • Production of Biodiesel / Biogas as Primary and Secondary fuel for oil-fired furnaces in recycling industry • Utilisation of ferro-chrome slag in road building and cement production • Utilization of non-ferrous metal overburden in Ballast, Road Construction, and Aggregates • Recovery of Zinc from Electric Arc Furnace (EAF) and Induction Furnace (IF) Dust • Utilisation of spent pot line for recovering carbon and refractory • Bulk utilisation of copper slag and mine tailings