

Basic Details

Organisation Chain	Council of Scientific and Industrial Research AMPRI - CSIR Admin-AMPRI - CSIR		
Tender Reference Number	AMPRI/GEN/EOI/2022-23		
Tender ID	2022_CSIR_135472_1		
Tender Type	Open Tender	Form of contract	EOI
Tender Category	Goods	No. of Covers	1
General Technical Evaluation Allowed	No	ItemWise Technical Evaluation Allowed	No
Payment Mode	Not Applicable	Is Multi Currency Allowed For BOQ	No
Is Multi Currency Allowed For Fee	No	Allow Two Stage Bidding	No

Cover Details. No. Of Covers - 1

Cover No	Cover	Document Type	Description
1	Fee/PreQual/Technical/Finance	.pdf	details of documents as per EOI

Tender Fee Details. [Total Fee in ₹ * - 0.00]

Tender Fee in ₹	0.00		
Fee Payable To	Nil	Fee Payable At	Nil
Tender Fee Exemption Allowed	No		

EMD Fee Details

EMD Amount in ₹	0.00	EMD through BG/ST or EMD Exemption Allowed	No
EMD Fee Type	fixed	EMD Percentage	NA
EMD Payable To	Nil	EMD Payable At	Nil

[Click to view modification history](#)

Work /Item(s)

Title	Lead free red mud based x ray radiation shielding polymeric hybrid composite panel and doors technology transfer				
Work Description	Lead free red mud based x-ray radiation shielding polymeric hybrid composite panel and doors technology transfer				
Pre Qualification Details	As per EOI				
Independent External Monitor/Remarks	NA				
Show Tender Value in Public Domain	No				
Tender Value in ₹	0.00	Product Category	Miscellaneous Goods	Sub category	Technology transfer
Contract Type	Empanelment	Bid Validity(Days)	90	Period Of Work (Days)	60
Location	Bhopal, Madhya Pradesh	Pincode	462026	Pre Bid Meeting Place	NA
Pre Bid Meeting Address	NA	Pre Bid Meeting Date	NA	Bid Opening Place	CSIR-AMPRI, Bhopal
Should Allow NDA Tender	No	Allow Preferential Bidder	No		

Critical Dates

Publish Date	15-Nov-2022 06:00 PM	Bid Opening Date	02-Dec-2022 11:00 AM
Document Download / Sale Start Date	15-Nov-2022 06:00 PM	Document Download / Sale End Date	01-Dec-2022 11:00 AM
Clarification Start Date	NA	Clarification End Date	NA
Bid Submission Start Date	15-Nov-2022 06:00 PM	Bid Submission End Date	01-Dec-2022 11:00 AM

Tender Documents

NIT Document	S.No	Document Name	Description	Document Size (in KB)
	1	Tendernotice_1.pdf	Lead free red mud based x ray radiation shielding polymeric hybrid composite panel and doors technology transfer	2748.81

Work Item Documents	S.No	Document Type	Document Name	Description	Document Size (in KB)
	1	Tender Documents	EoiLead.pdf	Lead free red mud based x ray radiation shielding polymer hybrid composite panels and door technology	2732.99

Auto Extension Corrigendum Properties for Tender

Iteration	No. of bids required for bid opening a tender	Tender gets extended to No. of days
1.	2	7

Bid Openers List

S.No	Bid Opener Login Id	Bid Opener Name	Certificate Name
1.	anwar.eproc@csir.res.in	Anwar Ahmed Bakhsh	ANWAR AHMED BAKHSH
2.	tomar.eproc@csir.res.in	Shailendra Singh Tomar	SHAIENDRA SINGH TOMAR
3.	vk.n.eproc@csir.res.in	Vijay Kumar Nathiley	VIJAY KUMAR NATHILEY

GeMARPTS Details

GeMARPTS ID	RQDFAR1N5OXW
Description	service provider for lead free red mud based x-ray shielding radiation polymeric hybrid composite panels and doors
Report Initiated On	15-Nov-2022
Valid Until	15-Dec-2022

Tender Properties

Auto Tendering Process allowed	No	Show Technical bid status	Yes
Show Finance bid status	Yes	Show Bids Details	Yes
BoQ Comparative Chart model	NIL	BoQ Compative chart decimal places	2
BoQ Comparative Chart Rank Type	NIL	Form Based BoQ	No

Tender Inviting Authority

Name	Director, CSIR-AMPRI, Bhopal
Address	Near Habibganj Naka Hoshangabad Road Bhopal (M.P.)- 462 026

Tender Creator Details

Created By	Sanjay Kumar
Designation	Section Officer

Created Date	15-Nov-2022 04:19 PM
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Expression of Interest

CSIR-Advanced Materials and Processes Research Institute, Bhopal has developed knowhow for 'Lead Free red mud based X-Ray radiation shielding polymeric hybrid composite panels and doors' using red mud, a solid waste produced in the process of alumina production from bauxite. The applications of developed red mud based X-ray radiation shielding composites panels are for hospital as X-Ray radiation shielding panels/ door, radiation shielding partition wall, wall tiles, false ceiling, and radiation shielding furniture.

Novelty

- ✓ Durable and stronger, Eco Friendly, Lead Free and Cost Effective
- ✓ High strength to weight ratio
- ✓ Resistance to weather, termite, corrosion
- ✓ Thermal Insulation
- ✓ Maintenance Free, Green composite
- ✓ Multifunctional applications in Hospital, Airports and Nuclear Sector
- ✓ Converting red mud into high end products

CSIR-AMPRI, Bhopal invites expression of interest from Industries to manufacture and commercialize the knowhow 'Lead Free red mud based X-Ray radiation shielding polymeric hybrid composite panels and doors' within the country and globally under the license of CSIR-AMPRI, Bhopal.

Opportunities

- Low Energy consuming high performance polymeric radiation shielding materials
- Create start-up, entrepreneurship & employment generation
- Technology is ready for commercialization
- An efficient cost-effective X-ray radiation shielding 'Make-in-India' product.

Features & Specifications:

- As per the attached brochure

Interested parties may provide the following information in response to this EOI:

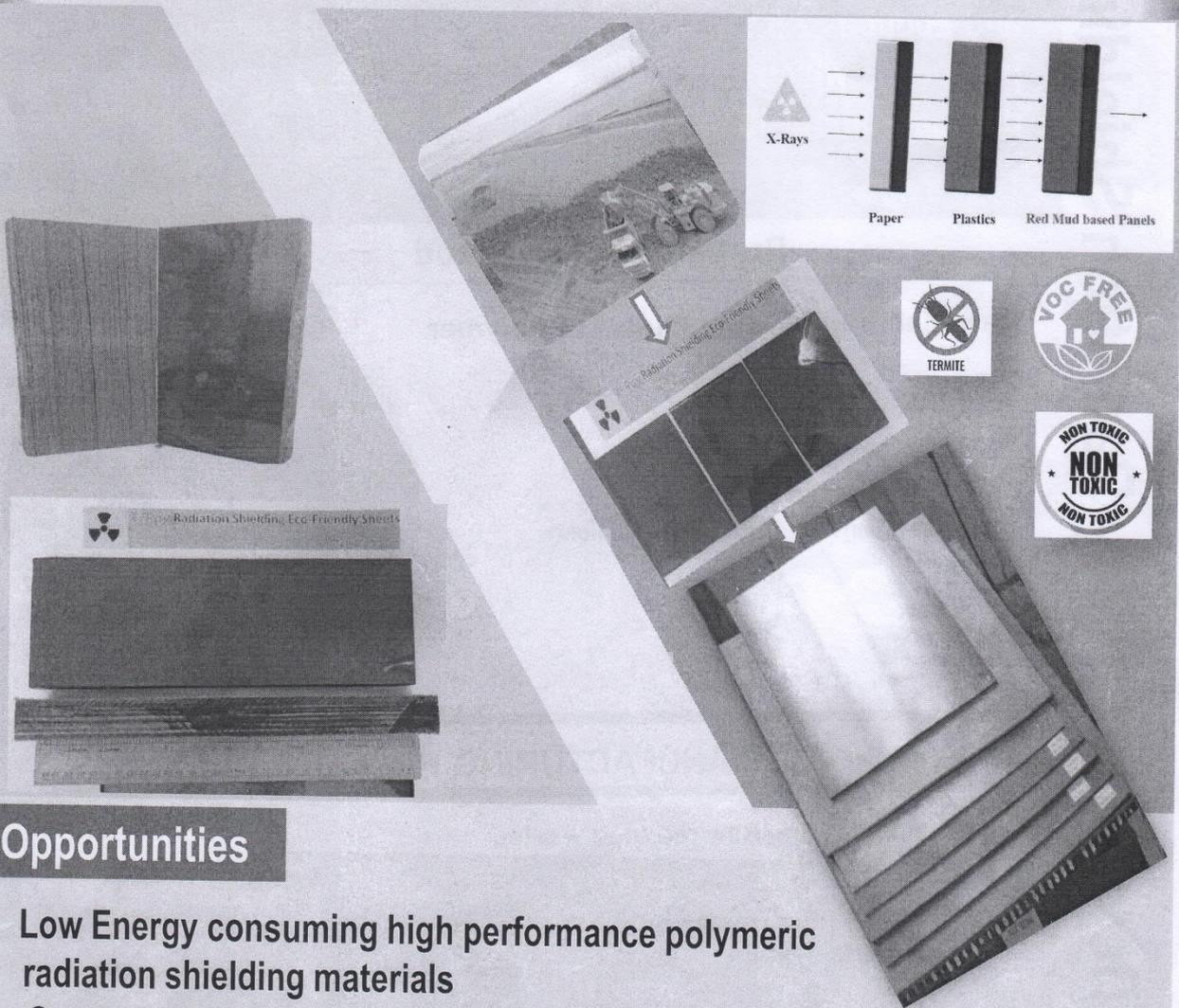
- Audited balance sheet of three immediate past preceding years', including profit and loss account and the Annual Report.
- List of quality certifications/accreditations that are currently valid, with copies of such certificates.
- A notarized Affidavit confirming that the party has not been banned or blacklisted at any time for supplies to government agencies.

Interested parties are requested to apply with all the required documents through email to sandeeps@ampri.res.in within 15 days from the date of publication of this EoI.



Lead Free red mud based X-Ray radiation shielding polymeric hybrid composite panels and doors

Recycling Technology for Bulk Use of Bauxite Red Mud Waste for High End Application



Opportunities

- Low Energy consuming high performance polymeric radiation shielding materials
- Create start-up, entrepreneurship & employment generation
- Transforming red mud into high value added product
- Technology is ready for commercialization
- An efficient cost-effective X-ray radiation shielding products

**CSIR-ADVANCED MATERIALS AND PROCESSES RESEARCH INSTITUTE (AMPRI)
BHOPAL-462026 (M.P.), INDIA**

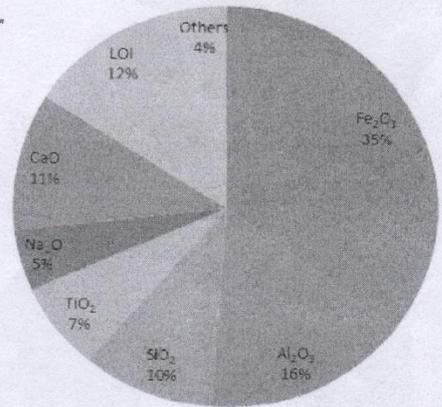
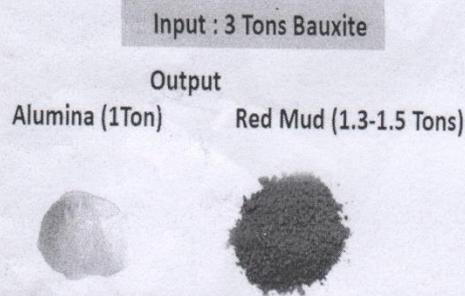
RED MUD WASTE PARTICULATES

Red mud, a solid waste produced in the process of alumina production from bauxite. More than 13 million tons of red mud is generated annually in India only. (e. g. NALCO, HINDALCO) $Fe_2O_3 \sim 30.9\%$, $Al_2O_3 \sim 14\%$.

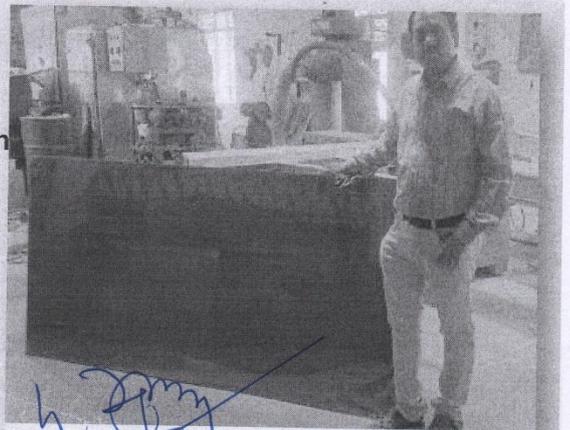
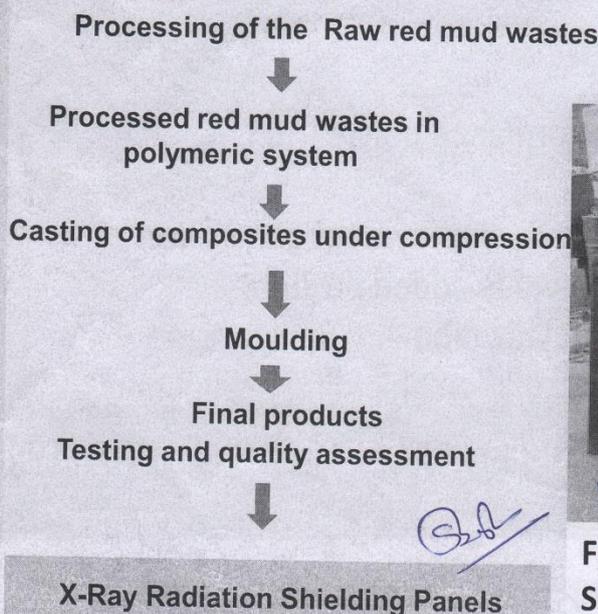
Red Mud is produced during the process for alumina production and about 1- 2.5 tons of red mud is generated per ton of alumina produced which is 6.25% of world's total generation India produces about 13 millions ton.

Properties of Red Mud

Raw Materials: Red Mud Polymer



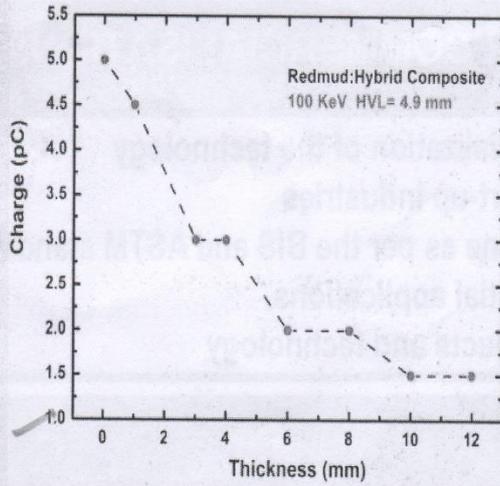
MANUFACTURING PROCESS



Full Scale X-Ray Radiation Shielding Panel 12 mm Thick

CSIR-AMPRI Developed X-Ray Radiation Shielding Panels

Performance of Red-Mud X-Ray Radiation Shielding Panels



Physical Properties	Values
Particle size (µm)	0.5 - 170
Bulk density (g/cc)	1.25 - 1.8
Specific gravity	2.2 - 3.4
Porosity (%)	45 - 68
pH	4 - 12.5
Water holding capacity (%)	< 45
Electrical conductivity (µmohs / HP)	450 - 800

X-Ray Attenuation Coefficient

$$I = I_0 e^{-(\mu/\rho)\rho x}$$



Product Performance

Density: 1.4– 2 g/c

Tensile Strength: 25 -120 MPa

Flexural Strength: 35-120 MPa

Water Absorption: 0.25- 0.30 %

Peak Voltage (kVp)	Lead HVL mm	Concretes (mm)	AMPRI Radiation Shielding Product mm
100	0.27	15.10	4.9

Novelty

- Durable and stronger, Lead Free
- High strength to weight ratio
- Resistance to weather, termite, corrosion
- Fire retardant, Self Extinguishing
- Maintenance Free, Green composite
- Cost-effective than lead panels
- Multifunctional applications in Hospital and Nuclear Sector

Environmental & Social Impact

- Converting red mud into high end products
- Carbon sequestration, control air and water pollution
- Contribution to reduce global warming and climate change issues
- A new class of material to X-Ray room and health care system

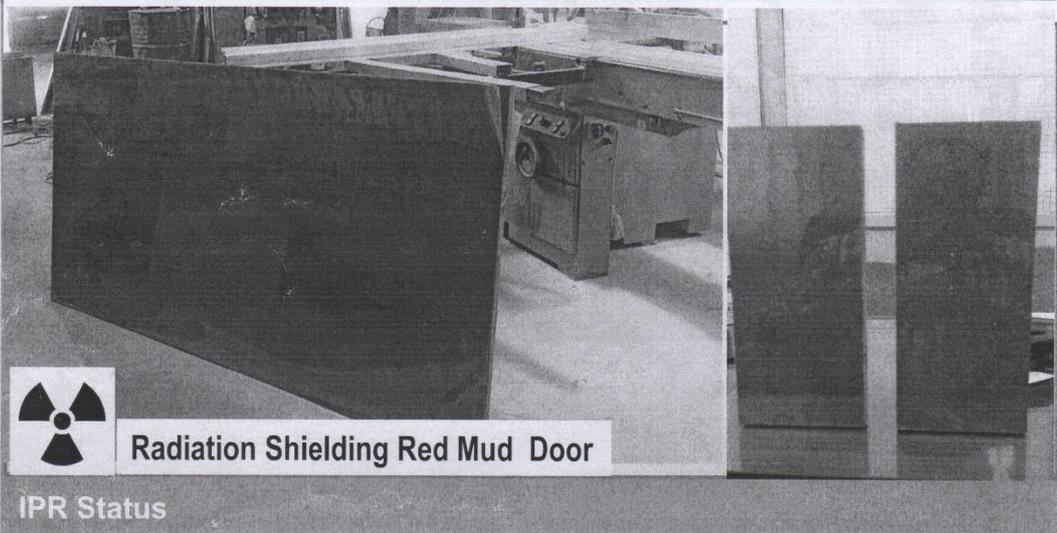
CSIR-AMPRI Developed X-Ray Radiation Shielding Panels

TECHNOLOGY READY FOR COMMERCIALISATION: TRF-6

- Technology transfer for commercialization of the technology
- Convert lab research & Create start-up industries
- All essential testing have been done as per the BIS and ASTM standard and confirmed the suitability for potential applications.
- Energy saving & eco friendly products and technology

Commercial Opportunities

- Transforming bauxite red mud waste into wealth for medical sectors
- Convert lab research & Create start-up industries
- Enhance economy & employment
- Process know-how, Make In India, Aatma Nirbhar Bharat



Radiation Shielding Red Mud Door

IPR Status

Title: Radiation Shielding Red Mud Based Hybrid Composite Panels And Process For Preparing The Same

Inventor: Manoj Kumar Gupta, Asokan Pappu, Sanjai Kumar Singh Rathore, Avanish Kumar, Srivastava, Teerthraj Verma, Anit Parihar

Patent Number: 0052NF2019. PD040919PCT, Filed In USA, India and Europe (19 Feb, 2020)

CREATE BUSINESS FROM RED MUD ON CSIR-AMPRI TECHNOLOGY

CSIR-AMPRI facilitate R&D business for large scale utilization of red mud wastes for manufacturing durable hybrid X-Ray radiation shielding doors/panels

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