



List of R&D projects completed through IRELTDC till 31.03.2023

1. Augmentation of PREE Solvent Extraction Test facility at RED.
2. Pilot Scale Production of Nano sized Rare Earth Phosphate and Development of Industrially Potential Application areas.
3. Design and Development of rare earth based colorants.
4. Inflight Processing of Metallized Ilmenite in a DC Plasma Furnace for continuous production of Titania Rich Slag and Pig iron.
5. Development of Cerium Oxide based nano materials for application in chemical-mechanical planarization/ polishing CMP slurry.
6. Recovery of heavy rare earths from phosphoric acid using Phosphorous based commercial extractants and their mixtures
7. Synthesis and Properties of electrodeposited Ni/Ceria Nano composite coatings
8. Catalysis by Nano Crystalline Ceria modified with transition metals
9. Design and scale up of Annular Centrifugal Extractor (ACE)
10. Processing of REE bearing mineral by sulphuric acid route for the recovery of uranium, thorium and rare earths
11. Preparation of Mullite and Zirconia toughened mullite from sillimanite
12. Study of suitability of magnetic separators as replacement for air tables for recovery of REE bearing mineral.
13. Versatile Nano Zirconia production facility at IREL, OSCOM
14. Development of High Field Composite Varistors based on RE Oxide
15. Development of Smart Magneto Rheological Elastomers based on RE magnets.
16. Process development for the production of nano Titania from 'OR' Ilmenite by sulphuric acid route and establishment of a pilot plant to process one ton of Ilmenite per batch.
17. Pilot plant Production of Environmentally Secure Rare Earth Oxide Brown Pigment for Surface Coating Applications



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18. Optimization of Processing parameters to produce high aspect ratio synthetic Wollastonite
19. Design, Fabrication of 1 t batch reactor and 1 t batch digestion of monazite with sulphuric acid.
20. Development of efficient Ceria/Zirconia based catalysts using IREL chemicals for industrial applications including environmental catalysis
21. Studies for improving recovery of heavy minerals at IREL plants using spiral separators.
22. Study on suitability of Rare Earth Drum Magnetic Separator to increase plant efficiency at IREL, Chavara.
23. Development of self-cleaning coatings on glass using TiO₂ Nano particles developed at IREL.
24. Processing of NIR reflective CeO₂ nanoparticles for energy saving glaze coatings and cool textiles
25. Treatment of Wastewater containing primary amines using novel approach of combined hydrodynamic cavitation and oxidation processes
26. Extraction of Neodymium metal By Molten Salt Electrolytic Process
27. Development of flow sheet for production of 99.99 % Gadolinium oxide and 99.99% Europium oxide from Gadolinium concentrate by solvent extraction using P507
28. Eco-friendly Natural Dyeing of Cotton and Silk using Rare Earths Metal Salts as Mordants.