

REGISTRATION FEES WAIVED OFF FOR STUDENTS

TO: MEMBERS, NON-MEMBERS AND STUDENTS / PROFESSORS FROM ACADEMIC INSTITUTIONS

Sub: Webinars on RARE EARTHS, INTRODUCTION, ECONOMIC IMPORTANCE, GEOPOLITICS & WAY FORWARD: AN INDIAN PROSPECTIVE **on 24 April 2024 from 3.30 – 5.00 p.m. virtually**

Dear Sir / Madam,

Greetings from Indian Chemical Council (ICC)!

Under the aegis of the Technology & Energy Expert Committee, ICC has been organizing a series of technical webinars, aiming to provide updated insights on emerging technologies, processes, and innovations shaping the future of the chemical industry.

We are pleased to inform you that the ICC will be organising following **Webinars** virtually from **3.30 – 5.00 p.m.** as follows:

Webinar on “**RARE EARTHS, INTRODUCTION, ECONOMIC IMPORTANCE, GEOPOLITICS & WAY FORWARD: AN INDIAN PROSPECTIVE** ” **on 24 April 2024**. The eminent speaker for the Webinar is Dr. R N Patra, Past President of Indian Institute of Metals, Kolkata and former Chairman & Managing Director, Indian Rare Earth Limited (IREL), Mumbai.

WHO SHOULD ATTEND?

Industry professionals, Engineers working in R&D and Operations, EHS personnel, Academicians, Students pursuing Chemistry or Chemical Engineering, and new recruits in the chemical sector.

About the topic:

“Rare earth” the term owes its origin to 18th century when a piece of heavy black ore was found in a feldspar and quartz quarry of a mine in Sweden. This was called rare because such a rock was never found before and earth was the geological term for rocks that dissolved in acid. Discovery of REEs spanning over two centuries 18th to 20th centuries has been guided by deeper understanding of scientific principles and development of analytical techniques such as spectroscope. The International Union of Pure and Applied Chemists (IUPAC) defines rare earths (RE) as a group of seventeen elements having atomic numbers 21 representing Scandium (Sc), 39 for Yttrium (Y) and the lanthanides that is Lanthanum (La) having atomic number 57 to Lutetium (Lu) of atomic number 71. These elements have similar chemical properties and are placed in group III of the modern periodic table. The atomic structures of the lanthanides having gradually filled 4f electron sub orbitals shielded by the 5d and 6s sub orbitals endow these elements with exceptional magnetic, electrical, optical, thermal and other physical properties.

RE usage has become essential in various high technology equipment and gadgets pertaining to multitude of industry sectors such as energy, environmental science & climate change, health care, information & communication technology, manufacturing, healthcare as well as security & defense. The value of world rare earths market is estimated to be 5.14 billion US dollars in 2024 and expected to grow at 6% year over year till 20230. The size of RE market, though insignificant compared to the size of the world economy, supported manufacturing of various industrial intermediate and final products of trillions of dollars amounting to 500 to 1000 times their market value. Downstream value-added products of rare earths are of high-value and low-volume. They are designed for specific functions, unlike bulk commodities, providing unique performance characteristics to end products in industries like automotive, fluorescent lighting, electronics, petroleum refineries, glass, ceramic and a multitude of other industries. These products are demanded by the industries based on their applications or quality and require significant R&D, complex manufacturing, and close customer collaboration.

Mining of rare earth bearing mineral monazite commenced in Malabar coast of India in early twentieth century for supply to the user industries in western countries as an alternate supply source to counter the bottlenecks arising out of the prevailing geopolitical situation. Post Independence commercial production of rare earth production commenced in the country by processing monazite. The value-added downstream processing industries such as gas mantles, glass polishing powders, mischmetal production units flourished in western India. The industrial production as well the rare-earth producing industries declined gradually after 1980 owing to

loss of market competitiveness due to availability of superior rare earth products from overseas, absence of adoption to rapidly changing technology scenarios and lack of supporting R & D to the industries. The presentation deals with a brief overview of the history of discoveries of RE elements, RE minerals of commercial significance as well as their domestic availability, brief on processing technologies and the evolution of rare earth downstream value-added industries through twentieth century. The dynamics of international trade, effect of product obsolescence and technology choices on supply demand balance and role of innovative applications of knowledge of basic sciences for effective solutions to building a resilient supply chain system are also covered in this lecture. The shared information addresses the importance of the development of suitable industrial ecosystem and enabling infrastructure for leveraging natural mineral resources as instrument of strategic advantage for India.

REGISTRATION FEES:

For Students:

Free for students of academic institutions

(Only first 200 registrations on a first-come, first-served basis will be considered)

Note for Students:

Registration confirmation is subject to uploading valid college ID.

One participant per registration only.

Video must be kept ON during the webinar.

Student Registration Link: <https://forms.gle/eH9N6TkeNiwJ9ph6A>

For Industry Delegates:

ICC Member Companies, Non-member Companies, Professors: **Rs. 1500/- + 18% GST** (Total Rs. 1180/- per delegate)

Note for Industry Delegates:

Registration confirmed only upon receipt of payment.

Webinar link will be shared post confirmation.

Participants must keep their video ON.

Kindly send details of delegates in the link given below:

Registration Link: https://icc.zivents.com/form/evt_20260406_103402/delegate

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We encourage you to take advantage of this valuable learning opportunity and request you to register or nominate participants from your organization.

Please confirm your participation by sending registration details to **ICC**

Mumbai at iccmumbai@iccmail.in / trade@iccmail.in

We look forward to your active participation.

With best regards,

SHRADDHA RANE

Secretary General

INDIAN CHEMICAL COUNCIL

Registered Office & National Headquarters: