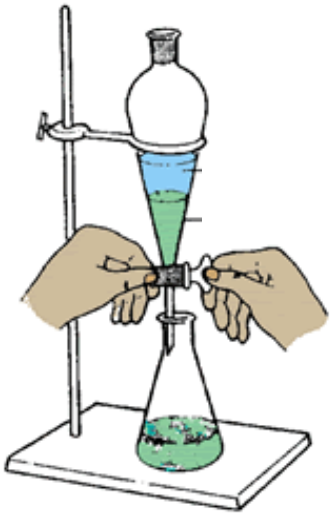

THE FINAL WORD

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JUNE- 2021

M. Sc. Industrial Chemistry

Industrial Chemistry Examination Result 2021

Sr.No	Semester	Appeared	Cleared	Result(%)
1	2nd	98	98	100%

Industrial Chemistry Department

Details Of Summer Inplant Training of Second Semester Students (2020-2021)

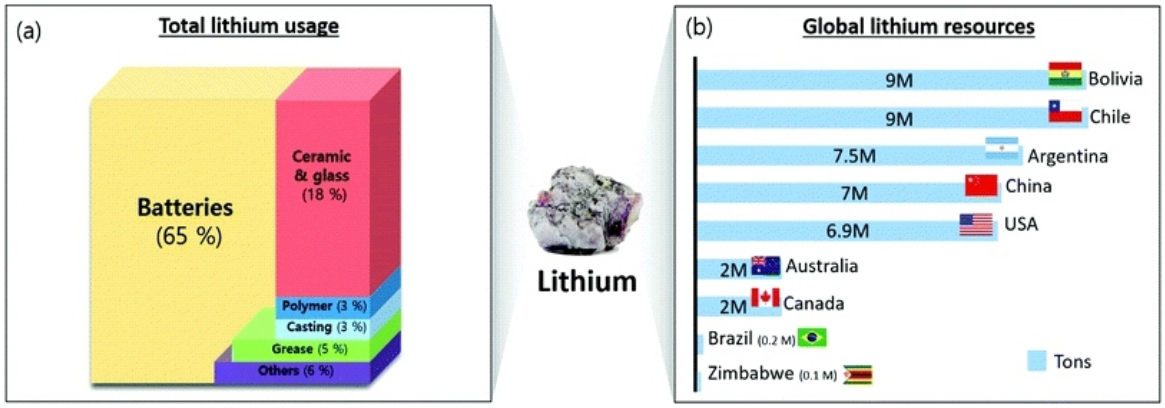
Sr.No.	Student Name	Name Of The Company
1	Bhaumik Hareshbhai Kacha	Cadila Healthcare Ltd.
2	Dhruvkumar V . Bhadja	Cadila Healthcare Ltd.
3	Chhayan Lalitbhai Savaliya	Cadila Healthcare Ltd.
4	Kevin R Borad	Cadila Healthcare Ltd.
5	Harsh B Rajkotiya	Cadila Healthcare Ltd.
6	Aishwarya B Patel	Farbe Firam.
7	Sahira Y Ahmed Patel	Farbe Firam.
8	Adarsh K. Lakhnotra	Ambuja Cement Ltd.
9	Dhrupal P. Ram	Ambuja Cement Ltd.
10	Jaydip B Jotava	Ambuja Cement Ltd.
11	Maitri Patel	Sun Pharmaceutical Ltd.
12	Arshad M Surti	Sun Pharmaceutical Ltd.
13	Dixitkumar M Bavisa	Nirjan Chemicals.
14	Parag J Babariya	Nirjan Chemicals.
15	Bhautik V Korat	Nirjan Chemicals.
16	Shahil Rupapara	Nirjan Chemicals.
17	Mayankkumar H Darji	Panchmahal Enviro Tech.
18	Yashkumar R patel	Panchmahal Enviro Tech.
19	Het.D.Kachhia	Ravi Pharmaceutical Pvt Ltd.
20	Dhruckumar.S.Patel	Ravi Pharmaceutical Pvt Ltd.
21	Kartik D. Mistry	Ravi Pharmaceutical Pvt Ltd.
22	Mansuri Aftab Firozbhai	Paradise Healthcare .
23	Abhishek M Panchal	Paradise Healthcare .
24	Cherish S Santoki	Beepee Coating Pvt Ltd.
25	Dipsa G Patel	Beepee Coating Pvt Ltd.
26	Daksh V Chaudhri	Beepee Coating Pvt Ltd.
27	Dipen D Patel	Beepee Coating Pvt Ltd.
28	Dhruti M Patel	Adroit Pharmachem Pvt Ltd.
29	Nikita Maheshwari	Adroit Pharmachem Pvt Ltd.
30	Shah Priyanka	Adroit Pharmachem Pvt Ltd.
31	Krut N Patel	Link Pharma.
32	Manthan P Patel	Link Pharma.
33	Raj D Patel	Elysium Pharmacutical.
34	Shrey A Patel	Elysium Pharmacutical.
35	Viraj J Parmar	Riddhi Pharma.
36	Meru Gojiya	Riddhi Pharma.
37	Bhavesh J Rathod	Jay Chemical Industry .
38	Parth A Patel	Jay Chemical Industry.
39	Manish Prajapati	Jay Chemical Industry .
40	Anjali C Patel	Deepak Nitrite Ltd.
41	Ankit T Tivari	Eskay Iodine Pvt Ltd.
42	Nileshbhai Sureshbhai Thakor	Marigold Paints Pvt Ltd.
43	Fenil J Bhalani	Jalaqua International.
44	Sagar Patel	Chemcon Speciality Chemicals ltd.
45	Akshil Marakana	Anlon Health Pvt Ltd.
46	Shaktisinh L Sisodiya	Dhanlaxmi Orgo Chem.

Article

Electrochemical Cell Harvests Lithium from Seawater

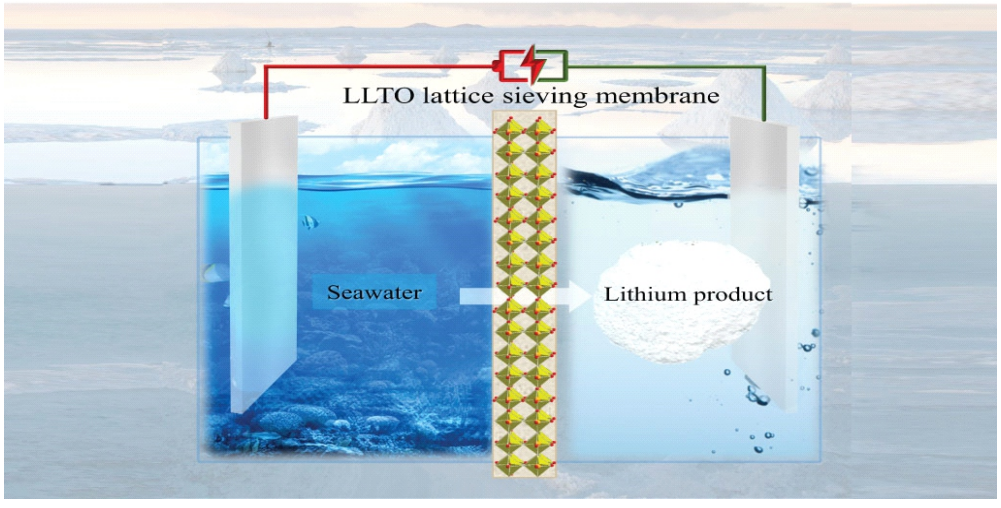
A new scientific paper has outlined a potentially inexpensive way to extract lithium from seawater.

King Abdullah University of Science & Technology (KAUST)Researchers have now developed an economically viable system that extracts high-purity lithium from seawater. This system is cheap and easy. Lithium is a conflict resource. Its scarce, its hard to mine. As shown in figure (a) & (b) Demand of lithium is increasing due to its diverse applications such as rechargeable bat teries, light aircraft alloys, air purification, medical and nuclear fusion etc.



Lithium demand is expected to triple in 2025 through the use in batteries specially in electric vehicles. Lithium market is expected to grow from 184000 TPA of lithium ca rbonate to 534000 TPA in 2025.For this Process Electrolyte membrane or electrochemical cell is use to 'sieve' lithium ions from the water .electrochemical cell containing ceramic membrane made from lithium lanthanum titanium oxide (LLTO).

figure(C)



Its crystal structure contains holes just wide enough to let lithium ions pass through while blocking larger metal ions.

The cell contains three compartments. Seawater flows into a central feed chamber. where positive lithium ions pass through the LLTO membrane into a side compartment . as shown in above figure (C). membrane contains a buffer solution and a copper cathode which is coated with platinum a nd ruthenium.

Negative ions exit the feed chamber through a standard anion exchange membrane and passing into a third compartment containing a sodium chloride solution and a platinum -ruthenium anode.

For testing of system researchers use seawater from th e Red Sea. At a voltage of 3.25V, the cell generates hydrogen gas at the cathode and chlorine gas at the anode. This drives the transport of lithium through the LLTO membrane, where it accumulates in the side -chamber. This lithium -enriched water then becom es the feedstock for four more cycles of processing.

After 2,000 hours of use, the lithium lanthanum titanium oxide membrane showed 'negligible' decay. By Using the electricity, the membrane concentrate lithium ions in a separate solution up to over 9,000 ppm.

Researchers then electrolyzed this solution to create 1kg of lithium phosphate by using approximately 76.3kWh of energy.

This process also created byproducts of hydrogen and chlorine each have its own resale value.

Paper's economy analysis used an e lectricity price of $65 per MWh to calculate its profitability. Using $5 of power, the process created $6.9 -$11.7 of hydrogen and chlorine as byproducts.

Used seawater contain less than 500ppm of salts, allowing it to be treated into freshwater. If treated appropriately this could provide further profit.

We will continue optimizing the membrane structure and cell design to improve the process efficiency," says group leader Zhiping Lai.

Anjali C Patel
(20IC08)