

07-07-2022

Single-Crystalline Scandium Nitride

Why in Newspapers?

Recently researchers from Bangalore's Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR) have discovered a new material called "single-crystalline scandium nitride (ScN)" which can convert infrared light into renewable energy.

Quick Issue?

- Earlier, the Ease of Doing Business (EoDB) ranking was released by the Ministry of Commerce and Industry, which is based on the Business Reforms Action Plan (BRAP) Report, 2020.
- The Startup India initiative of the Government of India envisages building a strong startup ecosystem in the country to foster innovation and provide opportunities to budding entrepreneurs.

Historical Background?

- Scientists have used a scientific method called polariton excitation, which occurs in analogous materials in which light is added to light either by mass free electron oscillations or with polar lattice vibrations.
- Infrared light is beyond the visible light range to the human eye and lies between visible light and the microwave region (the wavelength is longer than visible light).
- historical background?
- "Infrared sources, emitters and sensors are in great demand, from electronics to healthcare, defence and security to energy technologies. Scandium nitride will enable its applications in many devices, such as infrared polaritons."
- It has high efficiency in emitting, detecting and modulating infrared light, which makes it useful for solar and thermal energy harvesting as well as optical communication devices.
- Scientists carefully control physical properties to excite polaritons (a quasi-particle) and achieve strong light-matter interactions in single-crystalline scandium nitride (ScN) using infrared light .

Other Key Facts?

About Jn.U.A.K.

- **Establishment** - Year 1989
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNEWAK) in 1989 by the initiatives taken by the Department of Science and Technology, Government of India, the first Prime Minister of India, Pandit Jawaharlal Nehru - who was the founder of independent India. He was a fervent advocate of scientific progress and development - that came into existence as a commemoration of the birth centenary. The first President of Prof. CNR Rao, who is closely associated with the Chemistry and Materials Science Unit (CPMU) and the Neochemistry Unit (NCU) as well as the Director - International Centre for Materials Science (ICMS). From the year 2019, Prof. Yes. You. Kulkarni Jn.U.A.K. serves as the Chairman.



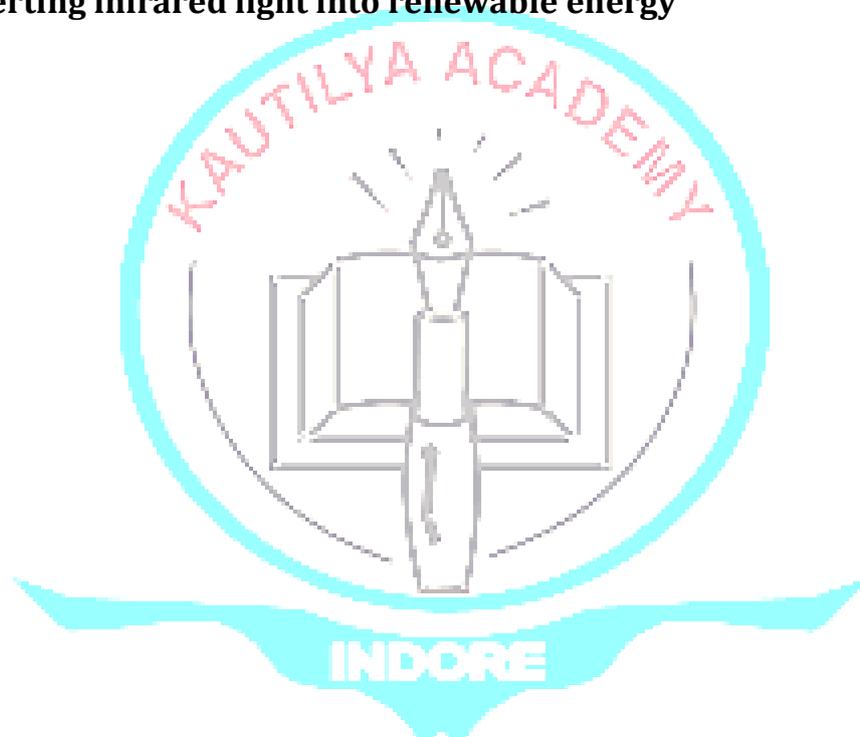
- Since these polaritons in ScN are also compatible with modern complementary-metal-oxide-semiconductor (CMOS) or Si-chip technology, they can be easily integrated for on-chip optical communication devices.
- These extraordinary polaritons in ScN can be used in solar and thermal energy conservation.

Likely Question Asked In Preliminary Exam

Question: What is the function of single-crystalline scandium nitride (ScN)?

- converting infrared light into renewable energy
- converting infrared light into electrical energy
- converting infrared light into light energy
- converting infrared light into solar energy

Answer: (a) converting infrared light into renewable energy





Surrogate Advertising

Why in Newspapers?

Bolo Zubaan Kesari.... Promotion of pan masala by raising two fingers. The talk started with Ajay Devgan. It reached Shahrukh Khan and then Ranveer Singh and then the megastars of the century Amitabh Bachchan and Akshay Kumar. Everything else is fine but when Bachchan sahib and Akshay Kumar promoted this pan masala, people raised a lot of objection through social media. Later, Amitabh terminated the contract with the brand Pan Masala citing surrogate advertising.

Quick Issue?

- Akshay Kumar also apologized on social media and said not to do such publicity in future.
- In view of similar cases of surrogate advertising, the government has recently issued a guideline in this regard.

Historical Background?

- Surrogate Advertisement - Often seen on TV the promotion of any alcohol, tobacco or any such product in which it is promoted by giving some other name instead of talking about that product directly.
- For example, by telling intoxicants as energy drinks or by telling pan masala etc. as mouth fresheners. That is, such a promotion, in which some other product is shown, whereas the actual product is something else and it is directly related to the brand. This is what surrogate advertising is all about.
- Why is there a need for surrogate advertisement ~ Why is the product not promoted directly in its name? Actually, there are many such products in the market, whose direct promotion is legally banned. Usually these include products like alcohol, cigarettes and pan masala. In such a situation, the route of surrogate advertising is adopted for the promotion of these products.
- Which such laws exist in India?~ India has also passed many such laws. For example, the Cigarettes and Other Tobacco Products Act was brought in 2003 to prevent direct promotion of cigarettes and tobacco-related products. Its full form is the Cigarettes and Other Tobacco Products (Prohibition of Advertising and Regulation of Trade and

Other Key Facts?

What is law?

- Direct advertisement of cigarettes and tobacco products cannot be done through a law in India. it is prohibited. For this, the Cigarettes and Other Tobacco Products Act was passed in 2003. It is also called COTPA. Directly advertising related to tobacco and cigarettes is punishable with imprisonment of 2 to 5 years and fine from 1 thousand to 5 thousand.

History of advertising controversy

- In 2016, Pierce Brosnan, who played James Bond in a pan masala brand advertisement, acted. A notice was sent to him after the controversy, in response to which the actor said that the company had kept him in the deception. They were told that it was a mouth freshener and its harmful side was hidden.



Commerce, Production, Supply and Distribution) Act, 2003. It is also called COTPA in short.

- Directly promoting tobacco and cigarette-related products is punishable with imprisonment of up to 2 - 5 years and a fine of up to 1 - 5 thousand. Apart from this, direct promotion of cigarettes, tobacco, alcohol or any other intoxicant has also been banned through the Cable Television Networks Act 1994.
- In the year 2016, there was a lot of controversy regarding a promotion of a pan masala brand. In this, famous actor Pierce Brosnan, who played James Bond, was seen promoting Pan Masala. When the matter caught more attention, the actor had said that the company had kept him in deception. They were told that it is a mouth freshener and did not tell them what the harmful aspect of it was.
- Recently, the Ministry of Consumer Affairs has issued 'Prevention of Misleading Advertisements and Necessary Caution Guidelines for Advertisements-2022' in order to prevent companies and celebrities from misleading people further.
- In this, 19 provisions have also been made regarding advertisements targeting children. The new guidelines have come into force with immediate effect. In case of violation, action will be taken under the Central Consumer Protection Act. Under these new guidelines, now the famous stars will also have to fix the accountability of the advertisement.
- If he has a stake in the company or is the owner of that company, then he will have to inform the consumer about it also. Surrogate advertisements have also been banned. Ads will no longer run without proving their veracity. Its purpose is to stop misleading advertisements.
- Along with this, the focus has also been on making advertising accountable to consumers and creating a transparent system from advertisement creation to display.

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