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IISER makes graphene cheaper than its price

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Nirmalya Ballav interacts with researchers at IISER

The material with strength and conductive properties is future for electronic devices and electric vehicles

Graphene has been globally recognised as a wonder-material for its strength and conductive capacities, with amazing application in electronic devices and electric vehicles. Now, scientists at the Indian Institute of Science Education and Research (IISER), Pune, are working to indigenously produce the substance at remarkably reduced costs.

A derivative of graphite, the material is fast gaining acceptance as an agent to improve efficiencies of various products and have a wide range of application. However, the global price of the material is prohibitive.

“We have created 1gm of reduced graphene oxide (rGO), a modified version of graphene in the lab, which is 100 times less costly than the commercial rGO available today. A gram of rGO from a reputed international chemical company costs about Rs 70,000, whereas our laboratory has been able to make it at a cost of just Rs 700,” informed Nirmalya Ballav, a senior scientists at IISER.

He added that this cost can be brought down further through economies of scale when produced commercially. “India plans to have electric vehicles accounting for 30 per cent of the total vehicle population on its roads in the next decade. Graphene is a material that is environment-friendly and can provide power to supercapacitor for these vehicles. This will reduce the use of toxic lead-acid batteries,” Ballav pointed out.

The scientist, who is also an associate professor at IISER, explained that the institute is targeting on producing 100 gms of rGO by next year to be used to power electronic devices. It will also make another 400 gms to power electric vehicles. “We’ve received funds from the government through the department of science and technology and are working to create these supercapacitors with SPEL Technologies Pvt Ltd as our industrial collaborator for the project and to evolve India-specific applications,” he explained.

Specialising in production of supercapacitors, Rajendra Kumar Sharma, chairman and managing director of SPEL Industries, said they’ve already experimented by powering an indigenous electric traction motor with a battery-aided supercapacitor and then with a graphenesupported supercapacitor. “We’ve also tied up with over 20 research institutes for developing India-specific energy storage solutions. Prime Minister Narendra Modi during his visit to IISER last week

also took cognisance of the effort," he told Mirror.