Elastocaloric Effect

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- When rubber bands are twisted and untwisted, it produces a cooling effect called the “electrocaloric” effect.
- The electrocaloric effect can be regarded as the entropy change under isothermal condition or temperature change under the adiabatic condition when mechanical stress is used or released in a given material.
- Basically, electrocaloric materials are solids capable of stress-induced reversible phase transformations during which latent heat is released or absorbed.

Why in news?

- This method, according to a research paper published recently, can be used to do away with refrigerants (These are leak-prone fluids and can contribute to global warming in refrigerators and air conditioners).
- The transfer of heat in the electrocaloric effect is as effective as the expansion and compression of fluent refrigerant.

- The researchers compared the cooling capacity of rubber fibres, nylon and polyethene fishing lines and nickel-titanium wires to find out how the twisting mechanism would allow a cooling system.