



Refrigerator | Photo source nrd on Unsplash

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ECO-FRIENDLY CRYSTALS COULD REPLACE CHEMICAL COOLANTS IN FRIDGES

  SUSTAINABILITY

The way we currently cool refrigerators and air conditioners is unsustainable, and these plastic crystals could replace traditional coolants

Spotted: A joint British-Spanish team of researchers has found a green alternative to the chemicals we use to keep refrigerators cool. The discovery could lead to less toxic waste and reduce energy consumption, according to the scientists.

Most refrigerators (and air conditioners) use toxic and flammable gases — hydrofluorocarbons and hydrocarbons (HFCs and HCs) — to stay work. Appliances compress and expand HFC and HCs to keep things cool.

The team achieved the same cooling affect using a solid alternative that is cheaper, more efficient and less toxic. Plastic crystals of neopentylglycol (NPG) cool when their microscopic structure is changed. The crystals are not really plastic — that term refers to their malleability. Their chemical makeup makes it easier to compress. NGP is already widely used for other purposes, including to make paints, polyesters and lubricants.

The team is currently working with Cambridge Enterprise to bring their findings to the commercial market.

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Takeaway:

The way we currently cool refrigerators and air conditioners is unsustainable. The cooling process is inefficient and the chemicals are actually dangerous for humans. “Refrigeration and air conditioning currently devour **a fifth of the energy produced worldwide**, and demand for cooling is only going up,” noted **Dr Xavier Moya**, from the University of Cambridge. Moya led the research on the plastic crystals with Professor Josep Lluís Tamarit, **from the Universitat Politècnica de Catalunya**. Their work with plastic crystals is an example of the growing body of scientific research aimed at making everyday technology more sustainable. Springwise has also spotted research teams working on **eco-friendly batteries** and **reducing fabric waste**.