



Revolutionary Crystal Cooling for Sustainable Fridges

Description

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Refrigerators and freezers usually use harmful fluids for cooling.

Credit: Mint Images Limited/Alamy

A new type of crystal could help refrigerators and air conditioners cool without harming the environment.

These devices work by cycling a liquid that absorbs heat to create cold. However, many of these liquids add to global warming. Researchers at Deakin University have now developed a climate-friendly solution using "plastic crystals."

These crystals can change under pressure, absorbing heat and cooling the surroundings. The unique thing about this crystal is that it can work at temperatures suitable for household appliances.

Although the technology shows promise, the high pressures needed are a challenge. Experts believe that with further development, this eco-friendly cooling method could be the future.

Vocabulary List:

1. **Refrigerators** /rɪˈfrɪdʒəreɪtərz/ (noun): Appliances used for keeping food and drinks cold.
2. **Absorbs** /əbˈzɔːrbz/ (verb): Takes in or soaks up a substance.
3. **Cooling** /ˈkuːlɪŋ/ (noun): The process of lowering temperature.
4. **Climate-friendly** /ˈklaɪmət ˈfrendli/ (adjective): Having a minimal negative impact on the climate.
5. **Challenge** /ˈtʃælɪndʒ/ (noun): A difficult task or situation.
6. **Developed** /dɪˈvələpt/ (verb): Created or advanced something over time.

Comprehension Questions

Multiple Choice

1. What type of fluids do refrigerators and freezers typically use for cooling?
Option: Environmentally friendly fluids
Option: Plastic crystals
Option: Harmful fluids
Option: Heat-absorbing liquids
2. How do the new plastic crystals help refrigerators and air conditioners cool?
Option: By emitting heat



- Option: By cycling a liquid
- Option: By adding to global warming
- Option: By absorbing heat under pressure

3. What is the unique characteristic of the plastic crystals developed by researchers at Deakin University?

- Option: They emit cold
- Option: They are suitable for industrial use only
- Option: They work at extreme temperatures
- Option: They can change under pressure

4. What is identified as a challenge for the eco-friendly cooling method involving plastic crystals?

- Option: Low efficiency
- Option: High temperatures
- Option: High pressures
- Option: Limited cooling capacity

5. What could the future potential of the eco-friendly cooling method be according to experts?

- Option: Increasing global warming
- Option: Extinction of harmful fluids
- Option: Widespread adoption
- Option: Low consumer interest

6. What is the primary purpose of the plastic crystals in the context of refrigerators and air conditioners?

- Option: To emit heat
- Option: To absorb CO2 emissions
- Option: To absorb heat and cool the surroundings
- Option: To increase global warming

True-False

- 7. Refrigerators and freezers typically use environmentally friendly fluids for cooling.
- 8. Researchers at Deakin University developed plastic crystals as an eco-friendly solution.
- 9. The plastic crystals can only work at extremely high temperatures.
- 10. High pressures are not a challenge for the use of plastic crystals in cooling devices.
- 11. Experts believe that the eco-friendly cooling method using plastic crystals may not be widely adopted in



the future.

12. The plastic crystals in refrigerators and air conditioners primarily release heat into the surroundings.

Gap-Fill

14. The plastic crystals developed by Deakin University researchers can work at temperatures suitable for _____ appliances.

15. According to the text, plastic crystals can absorb heat and cool the surroundings under _____.

16. Although the technology shows promise, the main challenge identified is the requirement for high _____.

17. Experts believe that with further development, the eco-friendly cooling method using plastic crystals could be the _____.

18. The plastic crystals differ from traditional coolants in their ability to change under _____.

Answer

Multiple Choice: 1. Harmful fluids 2. By absorbing heat under pressure 3. They can change under pressure 4. High pressures 5. Widespread adoption 6. To absorb heat and cool the surroundings

True-False: 7. False 8. True 9. False 10. False 11. False 12. False

Gap-Fill: 14. household 15. pressure 16. pressures 17. future

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. Which household appliance is used to keep food cold?



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- Option: Microwave
Option: Refrigerators
Option: Toaster
Option: Blender
2. Which field focuses on the application of engineering principles to biological systems?
Option: Astronomy
Option: Bioengineering
Option: Botany
Option: Geology
3. What term describes a positive or hopeful attitude towards the future?
Option: Depressed
Option: Optimistic
Option: Pessimistic
Option: Anxious
4. What is the presence of harmful substances in the environment known as?
Option: Cleanliness
Option: Pollution
Option: Purity
Option: Hygiene
5. Which term refers to events where people come together in one place?
Option: Isolation
Option: Gatherings
Option: Solitude
Option: Separation
6. What is a state of complete disorder and confusion called?
Option: Calm
Option: Order
Option: Chaos
Option: Peace
7. Which term is related to the study of the natural world through observation and experimentation?
Option: Artistic
Option: Scientific
Option: Philosophical
Option: Literary
8. Which word means linked or joined together?
Option: Separated
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- Option: Disconnected
- Option: Lonely
- Option: Connected

9. What are slight to moderate earthquakes often felt over a large area?

- Option: Hurricanes
- Option: Blizzards
- Option: Tremors
- Option: Tsunamis

10. What are lines or creases on the surface of something?

- Option: Smooth
- Option: Folds
- Option: Wrinkles
- Option: Curves

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. _____ practices aim to reduce the impact on the environment.
12. The new software was meticulously _____ by a team of experts.
13. The detective uncovered the _____ painting in the art gallery.
14. Exams can be very _____ for students.
15. The company is planning on _____ its operations into new markets.
16. Regular exercise is essential for maintaining good _____.
17. The meeting was _____ for those who could not attend.
18. The firefighters _____ the cat from the burning building.
19. The recent policy changes have _____ many businesses in the area.
20. It is wise to _____ in your education for a better future.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. Rapid technological have transformed various industries in recent years.



22. In today's digital age people are more through social media platforms.
23. Adverse weather may cause flight delays.
24. The weather forecast heavy rainfall for the weekend.
25. The art dealer confirmed that the painting was indeed .
26. Following the accident there was utter at the scene.
27. It is important to time in building meaningful relationships.
28. The heart is a vital in the human body.
29. combines principles from biology and engineering to solve medical problems.
30. Reducing carbon emissions is crucial in the fight against climate .

Answer

Multiple Choice: 1. Refrigerators 2. Bioengineering 3. Optimistic 4. Pollution 5. Gatherings 6. Chaos 7. Scientific 8. Connected 9. Tremors 10. Wrinkles

Gap-Fill: 11. Climate-friendly 12. Developed 13. Fake 14. Stressful 15. Expanding 16. Well-being 17. Recorded 18. Rescued 19. Affected 20. Invest

Matching sentence: 1. Advancements 2. Connected 3. Conditions 4. Predicted 5. Fake 6. Chaos 7. Invest 8. Organ 9. Bioengineering 10. Pollution

CATEGORY

1. Sci/Tech - LEVEL2

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