



Daily Article (Bharath's Reading list) - Answers and Explanations 22.01.2024

Article link : [Link](#) (Why scientists are making transparent wood)

1. Which of the following is not an essential step in making transparent wood?

- A. Ensuring the wood is less than a millimeter to around a centimeter thick
- B. Infiltrating the wood skeletons with a polymer like polyvinyl alcohol
- C. Filling the cell pockets with a substance like epoxy resin
- D. Bleaching lignin's color away or otherwise removing it

Explanation : B

According to the article, all steps except B are integral to making transparent wood. Option B relates to making transparent wood conduct less heat than glass: 'Hu and colleagues have also used polyvinyl alcohol, or PVA — a polymer used in glue and food packaging — to infiltrate the wood skeletons, making transparent wood that conducts heat at a rate five times lower than that of glass, the team reported in 2019 in Advanced Functional Materials.'

2. Based on the article, which of the following is incorrect?

- A. Transparent wood has been shown to have lower end-of-life environmental impacts than glass
- B. Millimeter-thin sheets of the resin-filled wood skeletons let through 80 to 90 percent of light
- C. Transparent wood has been shown to be stronger than transparent plastics and tougher than glass
- D. Transparent wood is a far better insulator than glass, so it could help buildings retain heat or keep it out

Explanation: A

Note the line, 'These more environmentally friendly approaches help limit the amount of toxic chemicals and fossil-based polymers used in production, but for now, glass still has lower end-of-life environmental impacts than transparent wood, according to an analysis by Dhar and colleagues in Science of the Total Environment.'

3. All the following help improve the sustainability of transparent wood production, except:

- A. Replacing the resin used to fill the wood scaffolding with a fully bio-based polymer
- B. Leaning on hydrogen peroxide and UV radiation for lignin bleaching
- C. Limiting the amount of toxic chemicals and fossil-based polymers used in production
- D. Sandwiching an electrochromic polymer between layers of transparent wood coated with an electrode polymer

Explanation: D

All points except D relate to sustainable production of transparent wood.