

One thing we have learnt this week – transparent wood

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[Band Birch trunk](#) This week we learnt of a remarkable new material transparent wood. Two groups at the University of Maryland and the KTH institute of Technology in Sweden have developed a see through wood. Not only that but it can store and release heat. The researchers have achieved this by removing the lignin. This absorbs visible light and is achieved by boiling the wood in a mixture of sodium hydroxide and sodium sulphite for some hours. Adding hydrogen peroxide completes the process. Than an epoxy compound is added to occupy the space liberated by the lignin. Finally by adding glycol you can give its insulating heat storage capabilities. When the now transparent wood warms the glycol warms absorbing the energy. When it cools the glycol freezes again, liberating the heat energy. Different glycols melt at different temperatures so you can easily adapt the material to a particular application. Its also stronger than plastic. There is talk of electronic applications and even producing solar cells. The advantages are that by using it you are trying up carbon in structures that may be used for many years, acting as a much needed carbon store. The material also reduces our oil dependency. The disadvantage is that the process is still oil dependent unless the chemicals can be made by bio-refining. In addition 100g absorbs as much heat as a 1W bulb uses in one hour. So we are not talking about huge amounts here of energy storage in my view. Nevertheless this is a fascinating idea that could find widespread application. Neil

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