



The organic, non-toxic ingredients delaminate in hot water | Photo source [Jiva Materials Limited](#)

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## THE WORLD'S FIRST FULLY RECYCLABLE COMPUTER CHIP SUBSTRATE

 COMPUTING & TECH

### A soluble circuit board substrate allows the recovery of more precious materials

**Spotted:** E-waste is a huge and growing problem. According to the World Economic Forum, more than [50 million tonnes](#) of Waste Electrical and Electronic Equipment (WEEE) is produced every year, and less than 20 per cent is recycled. One common type of e-waste is computer-printed circuit boards (PCB), which are made from fibreglass.

The only commercial method for recycling PCBs involves shredding and incinerating them to extract the precious metals. This is both inefficient and energy intensive and recovers only some of the precious metals. Now, startup Jiva Materials has developed an alternative.

Jiva's new PCBs are made from a water-soluble, fully biodegradable flax-based material. The company's Soluboard delaminates when it is immersed in warm water. This allows the precious metals and components to be easily and safely recovered and the remaining solution can then be disposed of using standard domestic wastewater systems.

According to [the company](#), "It has been estimated that 10.5 kilogrammes of carbon per square metre of Soluboard PCB would be saved in comparison with an FR-4 PCB – this would suggest a 60 per cent reduction in carbon footprint if Soluboard was successfully integrated into a PCB supply chain." With around [18 billion square metres](#) of PCBs manufactured each year, this would represent a tremendous carbon saving.

The growth of e-waste has led to many new innovations aimed at recycling the materials. Recent projects Springwise has spotted include [a programme that revamps and resells old smartphones](#), improving both digital access and sustainability, and [a social enterprise that allows consumers to exchange used electronics for cash](#).

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## Takeaway:

Jiva claims that Soluboard would have the most significant impact if it were integrated into the supply chain of customers who already offer recycling or take-back schemes, or operate on a circular economy. Switching to Soluboard would allow these manufacturers to sell their old products to electronic waste handlers for higher prices, helping to subsidise the cost of e-waste disposal. In fact, [a survey by the Royal Society of Chemistry \(RSC\)](#) indicates a clear appetite for increased responsibility and transparency in the electronics and electrical markets, with 73 per cent of people feeling it is the responsibility of governments to urgently restructure the e-waste recycling system.