

BIOCHEM show case

Develop plastics and composites that can be effectively used in small consumer electronic products. A range of biopolymers already exist, but they lack performance required for products such as mobile phones and portable computers.

Problem

Many consumer products are made from a variety of petrochemically derived plastics and composites. There is a desire to use renewable materials to reduce reliance on non-renewables and to avoid the predicted rising cost of petrochemically derived materials.

Technical solution

NEC were interested in using polylactic acid for mobile phone casings, but the commercially available polymer lacked strength, heat resistance and processability. Working with the polymer company Unitka, NEC developed a composite using kenaf fibre. Kenaf is a fast growing relative of the hibiscus grown across Africa and Asia. It produces high quality fibres mostly used for papermaking. The composite has better heat resistance and rigidity than conventional petrochemical ABS polymers, and is much more mouldable than pure PLA.

In 2006 the material was used for the first commercial launch of mobile phones in Japan with a largely bioplastic case. 75% of the surface of the phone is bioplastic with only the screen and keypads made from conventional materials.

Benefits

- **Uses renewable materials**
- **Superior heat resistance and rigidity to conventional ABS**

Partnerships for better
innovation support



- **Superior impact strength and processability compared to pure PLA**
- **Good surface feel attractive to consumers**
- **Meets Japanese regulations for green purchasing and green electronic devices**