

Development of Cellulose Nanofiber Composite for Commercial Use

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[Abstract]

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To solve marine pollution caused by marine plastic waste, especially as a substitute for disposable plastic products and paper products composited with plastic lamination, we have developed a "cellulose nanofiber composite (CNC)" that is made of 100% cellulose, biodegradable in seawater, recyclable, and practical. The following requirements for social implementation have been attained.

- 1) Established a technology for continuous production of various CNC paper rolls for different uses.
- 2) Good biodegradability was demonstrated under ISO and ASTM test environments of compost, soil, fresh water, and seawater.
- 3) Demonstrated good oxygen barrier property, oil resistance, and heat resistance required for food container packaging.
- 4) 5% recycled pulp could be utilized in the nano-composite layer.
- 5) Prototype CNC food containers were produced using only CNC paper rolls as raw material.
- 6) The properties of the CNC food container showed the heat resistance and durability required for frozen food containers.
- 7) CNC food containers could be upcycled into seedling pots for horticulture.

[References]

None