

Cellulose Nanofiber Composite

Biobased and biodegradable filler alternative to glass fibers in plastic parts

Cellulose Technology

For more than 90 years Asahi Kasei has been using cotton linter, a byproduct of the cotton yield, as raw material for various products. Building on this rich know-how, the company is now adapting this material as an alternative to glass fiber fillers in PA6, PA66, and POM, contributing to an improved recyclability of plastic parts. In addition, lightweighting of parts is possible due to the low specific gravity, high rigidity and dimensional stability of the composite.

Cellulose Nano Fiber (CNF) Composite Portfolio

Matrix Polymer	PA6	PA66	POM
CNF Composition Ratio	~20wt%	~20wt%	10wt%
CFP Data *1 [CO ₂ kgeq/kg]	5.9-8.5 @modifiedCNF12%	9.6-12.1 @modifiedCNF12%	3.9-6.5 @modifiedCNF10%
Common Features	Lightweight (specific gravity of CNF is 1.5g/cm ³) Excellent friction properties and low abrasion (without grease) Rigidity at high temp Thixotropy (shearing increases fluidity)		
Features	Mechanical recyclability Low linear expansivity High flowability	Low linear expansivity High flowability	Dimensional stability Excellent creep strength
Target Application	Sliding parts Interior parts	Gears Sliding parts Small & thin parts	Gears Sliding parts

*1 The values were calculated by using LCA database IDEA v2.3 and are not guaranteed values but reference values.

Application Fields

Gear parts: Seats, ventilation systems, window lifters, door actuators, etc.

Sliding parts: Sunroof, window lifters, seats, switch modules, etc.



Sustainability

Mechanical recyclability of CNFRP is superior to that of GFRP.

