
Announcing the world's first easily dispersible wet powder cellulose nanofiber samples
OJI Holdings has successfully developed technology to produce powder with ultra-high fluidity

OJI Holdings Corporation (OJI) has been advancing research targeting core technology for cellulose nanofibers (CNF). The development of production methods for the world's first CNF in the form of easily dispersible wet powder has made it possible for OJI to start supplying samples of this product.

Since CNF exhibit high viscosity when dispersed in water, they have expected applications as thickeners.*1 Currently used thickeners are supplied as powders, while CNF are supplied as slurries (low concentration liquids) due to restrictions in the production process. These CNF slurries have extremely high viscosity, making them difficult to handle, and, because of their high water content, can only take a limited volume of additives. Transporting CNF containing such large volumes of water is problematic in terms of environmental impacts and cost.

The wet powder CNF newly developed by OJI is a world's first. Containing zero additives, its volume of solids content is 20% or higher for easy solubility in water. Compared to standard thickeners, wet powder CNF also possesses high thickening effects that are on a par with CNF slurries (comparison made with OJI's CNF slurry).

Furthermore, OJI has successfully developed wet powder CNF with extremely high fluidity, thanks to the use of additives, which accommodates customer needs for easy handling.

Use of this type of wet powder CNF has the potential for broader applications and lower environmental impacts from energy used in transportation, which is expected to accelerate the commercialization of CNF. Going forward, OJI will add improvements targeting the needs of users as we continue our development of ever more appealing products.

-Provision of new CNF samples

Sample provision will commence from October 2015. Please refer inquiries to the contact address below .

-Information on CNF

CNF, derived from wood pulp, are nano-sized*2 fibers, the width of which ranges from 4 to a few dozen nanometers. CNF are clear, have a low coefficient of linear thermal expansion (the degree to which they elongate under high temperature) on a par with glass fibers, and possess an exceptional coefficient of elasticity (the degree to which they resist deformation) on a par with aramid fibers used in bulletproof vests and other applications. CNF dispersed in water (as a gel) also possess thixotropic properties*3 and perform exceptionally well as moisturizers, rheology thickeners, and dispersion agents. Moreover, CNF are plant-derived and have environmental impacts as small as those of paper. They are arguably a highly recyclable material.

Due to these beneficial characteristics, various applications of CNF are anticipated, including reinforcing materials for clear plastic such as acrylic resins, thickeners and dispersion agents utilizing the high moisturizing properties of CNF gel, gas barrier films preventing gas permeation thanks to the close overlapping structure of CNF, and flexible organic EL display circuit boards.

*1 Thickener: A general name given to a group of additives used to give viscosity to liquids. Thickeners are used in cosmetic, food, pharmaceutical, and other products that we encounter daily, and are also used in industrial applications.

*2 Nanometer: 1 nm = a billionth of 1 m

*3 Thixotropic properties: The ability of certain colloidal gels to liquefy when agitated and to return to gel form when at rest.

-Contact

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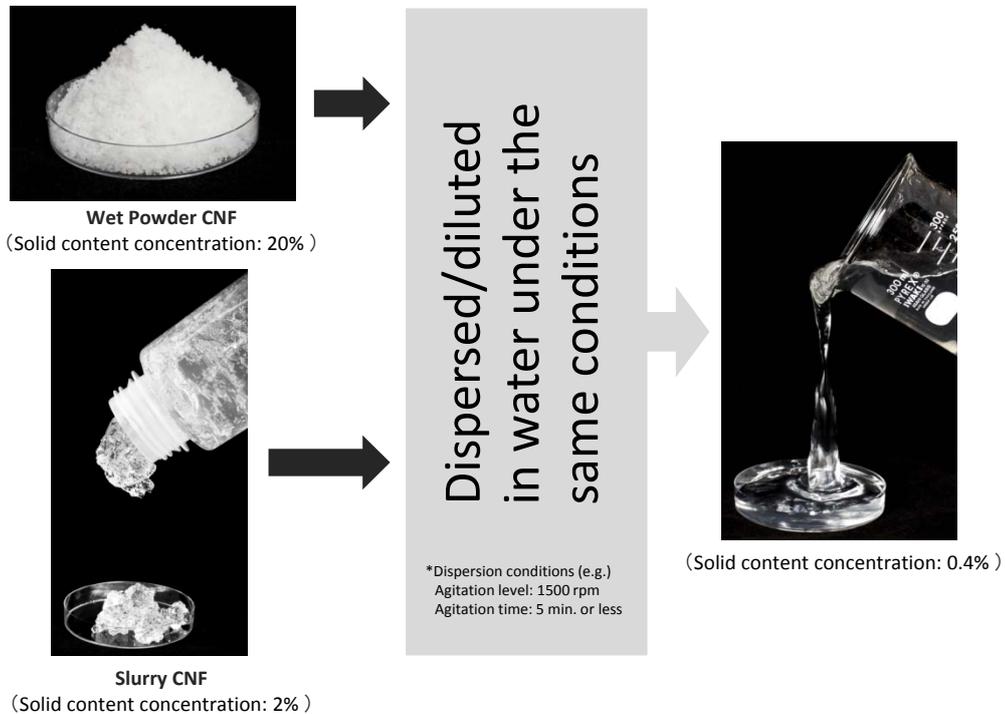
Wet Powder **CNF**

Development of production methods for CNF in the form of easily dispersible wet powder



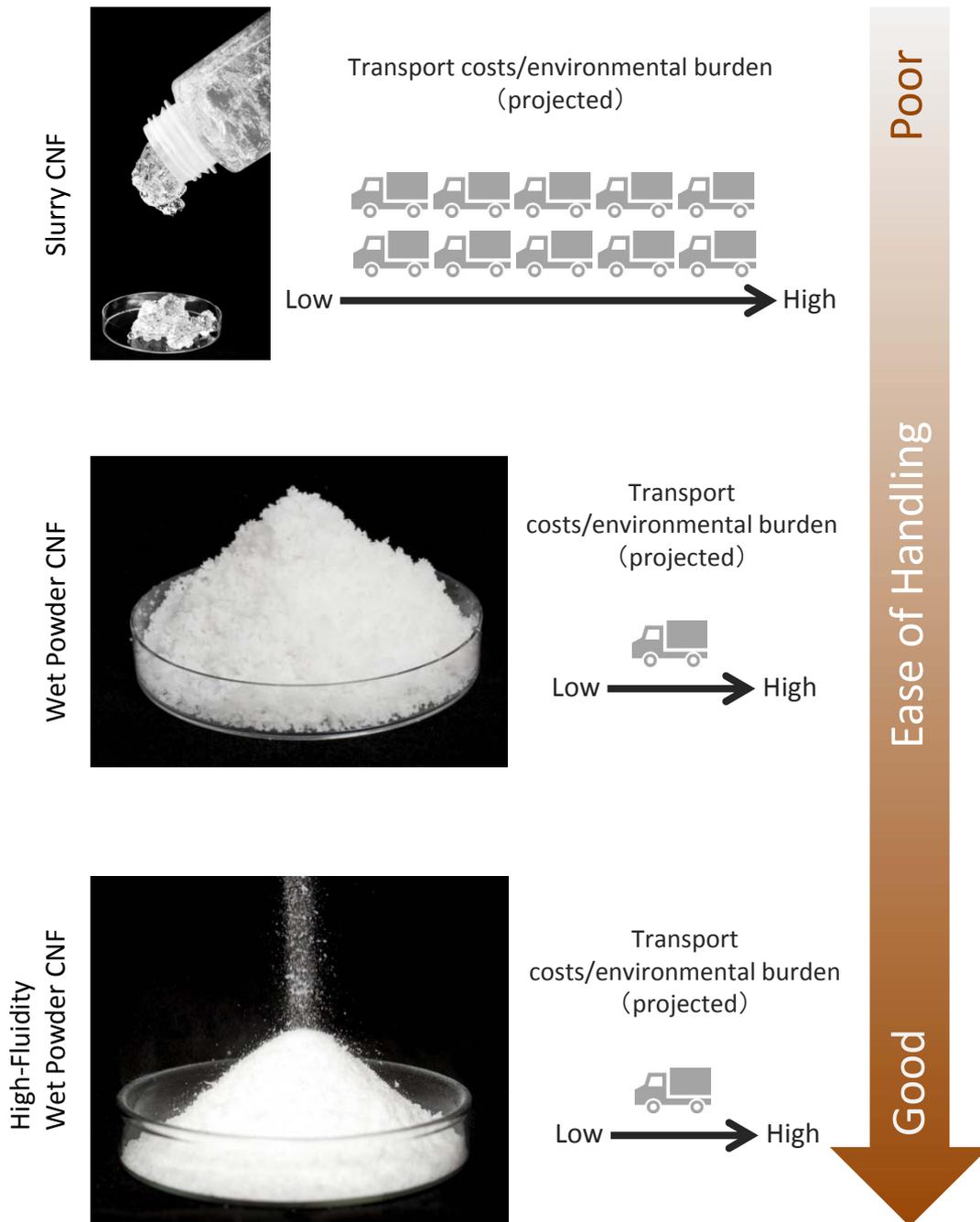
Merits of Wet Powder **CNF** (1)

- Can be handled as a powder
- Wet powder CNF only contributes 1/10 or less of the water volume when diluted
- Dispersibility on par with slurry CNF



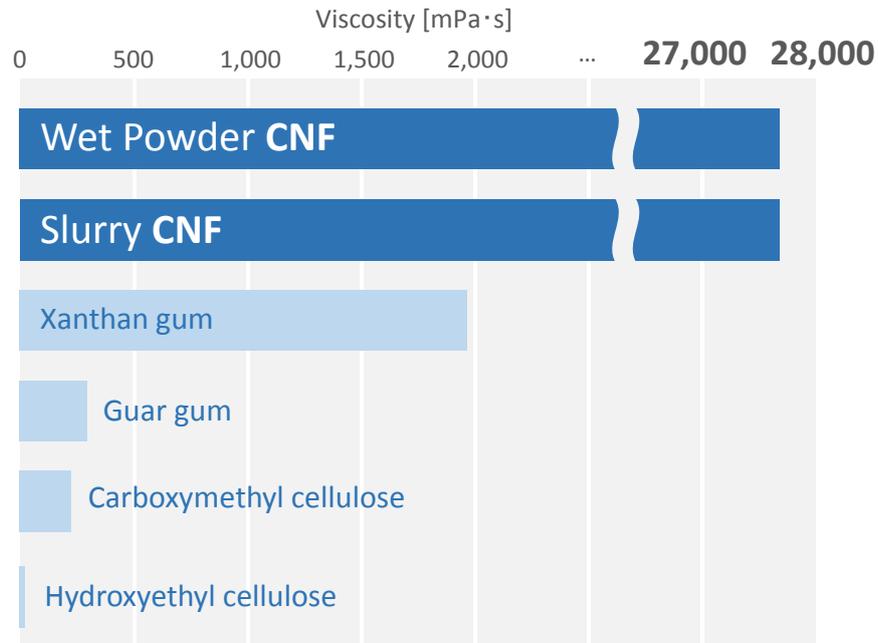
Merits of Wet Powder CNF (2)

- Reduced transport costs (environmental burden)
- Further improved handling due to increased fluidity



Thickening Effects of Wet Powder CNF

Greater thickening effects than other thickeners
(on par with slurry CNF)!



CNF and each thickener formulated with solid content concentration of 0.4%

Particle dispersion effects of wet powder CNF

Able to disperse glass beads heavier than water!

