

Cellulose crystal powder

Excellent Redispersibility filler which is high activity since no modify surface

Overview

Cellulose nanofiber (CNF) and cellulose nanocrystal (CNC), which are lighter and stronger than steel, are expected as a filler to replace an inorganic material. Although CNC with a lower aspect ratio and higher crystallinity than CNF is more suitable as a filler, research and development for commercialization has not progressed. This technology relates to a method for simply and easily producing CNC by homogenizing microcrystalline cellulose in a low-permittivity organic solvent and drying the solvent.

[Effect]

- CNC can be easily mass-produced by homogenizing high-concentration microcrystalline cellulose at one time.
- CNC is powdery which does not easily cause keratinization and aggregation due to drying of the dispersion medium.
- CNC is excellent redispersibility in water, and the surface modification for use as a filler can be easily.

Product Application

- ❑ Filler in plastic
- ❑ Material for high proton conductivity electrolyte membrane
- ❑ Material for water electrolysis membrane
- ❑ Additive (Denaturer) for paper

IP Data

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Properties of CNCs

solvent	Relative dielectric constant	Cellulose In Solvent (%)	Appearance of hornification	Redispersibility In Water (Appearance)	CNC In supernatant (%)
Toluene	2.38	10	none	Suspended after 60min	0.133
Cyclohexane	2.02	10	none	Suspended after 60min	0.108
Ethyl acetate	6.02	2	Semi-rigid membrane	Suspended after 60min	0.108
Acetonitrile	37.5	10	Rigid membrane	sedimented after 10min	0.034
DMAc	37.8	10	Rigid membrane	sedimented after 10min	N.D.

Related Works

[1] Chem. Lett. 2017, 46, 1438-1441

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