

## Grade Profile: BGB Ultra™ Cellulose Nanocrystals Suspension (Technical Grade)

Blue Goose Biorefineries Inc. BGB Ultra™ CNC is an 8.0% w/w suspension of type I cellulose nanocrystals in reverse osmosis water. It is produced with a transition metal catalyzed oxidative process. Features of BGB Ultra™ include:

- Uniform crystal size
- Non-Newtonian fluid behaviour (thixotropic)
- Chiral nematic network formation in water
- Dried films are birefringent
- No sulfate half ester moiety

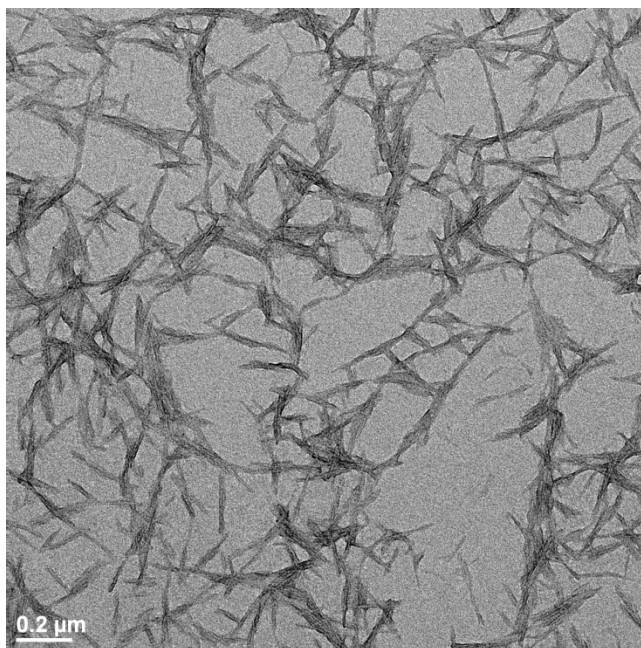
This is a technical grade, suitable for research purposes. This material is not suitable for human consumption.

### Typical Values (Not Specifications)

**Biomass Source:** Acetate grade dissolving pulp (Western Hemlock)

**Appearance:** Translucent gel

<i>Parameter</i>	<i>Value</i>	<i>units</i>	<i>Test Method</i>
Crystallinity index	80%		Segal method
Crystal length	100-150	nm	TEM
Crystal diameter	9-14	nm	TEM
Hydrodynamic diameter	150	nm	DLS*
Zeta Potential	-35	mV	DLS*
Carboxyl Content	0.15	mmol/g	Conductivity titration + FTIR



*Image obtained using FEI Tecnai 12 BioTwin microscope at 120 kV. Uranyl acetate stain on copper TEM grid coated with amorphous silica.*

\*Using Malvern Zetasizer model Nano-ZS