

Safety Data Sheet

CELLULOSE NANOCRYSTALS (aqueous suspension)

Section 1: Identification

Product Name: Cellulose nanocrystals (CNC)
Synonyms: Nanocrystalline cellulose (NCC), cellulose crystallites, cellulose nanowhiskers
CAS no: 9004-34-6 (nanocrystalline form)
Chemical Formula: $(C_6H_{10}O_5)_n$
Recommended Use: For research and development purposes.

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Section 2: Hazard Identification

Note: This material has not been fully evaluated for its hazardous properties. The following is based on the information currently available.

Classification

WHMIS 2015 Classification: Not WHMIS controlled

Label Elements: None required

Hazardous Materials Identification System (scale 0-4)

Health Rating:	0 – None
Flammability Rating	0 – None
Reactivity Rating	0 – None

Other Hazards

In normal use conditions and in its original form, the product itself does not involve any other risk for health and the environment. If allowed to dry, particles may form combustible dust in high concentrations. Treat similarly to a nuisance dust.

Section 3: Composition/Information on Ingredients

Ingredient	CAS No	Percent
Cellulose Nanocrystals	N/A	1-15%
Water	7789-20-0	85-99%

Section 4: First Aid Measures

General

Due to the composition and type of substances present in the product, no particular warnings are necessary.

Inhalation: Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention for any breathing difficulty.

Ingestion: If large amounts were swallowed, give water to drink and get medical advice.

Skin Contact: Wash exposed area with soap and water. Get medical attention if irritation develops.

Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

Most important symptoms and effects, both acute and delayed

No known acute or delayed effects from exposure to the product.

Indication of any immediate medical attention and special treatment needed

No further relevant information available. Treat symptomatically.

Section 5. Fire Fighting Measures

Fire

As an aqueous suspension, the material will not burn. However, upon drying, as with most organic solids, fire is possible at elevated temperatures, contact with an ignition source or contact with strong oxidizers may cause fire.

Suitable Extinguishing Media

Water, alcohol-resistant foam, dry chemical, or carbon dioxide.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

Fine mist dispersed in air may dry to dust, which in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear.

6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

Use personal protective equipment as specified in Section 8. Keep unprotected persons away. Avoid dust formation. Ensure adequate ventilation.

Methods for Containment and Cleaning Up

Use appropriate tools to put the spilled material into a convenient waste disposal container. If allowed to dry to a dust, avoid inhalation of particles. Clean up dust by wet wiping or vacuum with HEPA-filtered unit.

7. Handling and Storage

Precautions for Safe Handling

Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid ingestion and inhalation. Avoid dust formation. Ensure adequate ventilation. Avoid contact with skin, eyes, and clothing. Containers of this material may be hazardous when empty since they retain product residues (dust, solids)

Conditions for Safe Storage

Keep container tightly closed in a dry and well ventilated place.

8. Exposure Controls/Personal Protection

Control Parameters

At this time there are currently no exposure limits for nano-scale cellulose particles. The information in the following table applies to cellulose dusts in general and is meant to serve as a guideline.

Chemical Name		
Cellulose (dust) CAS: 9004-34-6	ACGIH TLV	TWA: 10 mg/m ³
	OSHA PEL	TWA: 15 mg/m ³ (total dust) TWA: 5 mg/m ³ (respirable fraction) STEL: 10 mg/m ³
	NIOSH	TWA: 10 mg/m ³ (total dust) TWA: 5 mg/m ³ (respirable fraction)

	British Columbia OEL	TWA: 10 mg/m ³ (total dust) TWA: 3 mg/m ³ (respirable fraction)
	Mexico OEL	TWA: 10 mg/m ³ (total dust) STEL: 20 mg/m ³

Appropriate Engineering Controls

Ensure that eyewash stations and safety showers are close to the workstation location. A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Individual Protection Measures

Respiratory Protection

Respiratory protection not required if the recommended technical measures are observed. Where protection from nuisance levels of dusts are desired, use type N95 or better dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

Eye/Face Protection

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection

Wear appropriate gloves and clothing to prevent skin exposure.

9. Physical and Chemical Properties

Appearance:	Translucent viscous gel.
Odor:	Odorless.
Odor Threshold:	Not Applicable.
pH:	Approximately neutral as sodium form.
Melting Point:	No information available.
Boiling Point:	No information available.
Flash Point:	No information available.
Evaporation Rate:	No information available.
Flammability:	No information available.
Flammability or Explosive Limit:	No information available.
Vapor Pressure:	Not Applicable.
Vapor Density (Air=1):	Not Applicable.
Relative Density:	No information available.
Solubility:	Not soluble in water; Forms a colloidal suspension in water.
Partition coefficient:	No information available.
Auto-Ignition Temperature:	No information available.
Decomposition Temperature:	360 °C
Viscosity:	No information available.

10. Stability and Reactivity

Reactivity:	No information known.
Stability:	Stable under ordinary conditions of use and storage.
Possibility of Hazardous Reactions:	No information known.
Conditions to Avoid:	Dust formation. Misting. Excessive heat. Sparks.
Incompatibilities:	Strong oxidizing agents. Strong acids or bases.
Hazardous Decomposition Products:	Carbon dioxide and carbon monoxide may form when dried materials heated to decomposition.

11. Toxicological Information

Likely Routes of Exposure:	Skin contact.
Acute Toxicity:	No acute toxicity information available.
LC50/LD50 Values:	No information available.
Skin Corrosion / Irritation:	No information available.
Serious Eye Damage / Irritation:	No information available.
STOT - Single Exposure:	None known.
STOT - Repeated Exposure:	None known.
Carcinogenicity:	No information available.
Reproductive Toxicity:	No information available.
Development of Offspring:	No information available.
Sexual Function and Fertility:	No information available.
Effects on or via Lactation:	No information available.
Germ Cell Mutagenicity:	No information available.
Interactive Effects:	No information available.
Other Adverse Effects:	The toxicological properties have not been fully investigated at this time.

12. Ecological Information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and Biodegradability

Expected to biodegrade based on similar cellulose materials.

Environmental Toxicity

No information available.

Other Adverse Effects

No information available.

13. Disposal Considerations

Disposal Methods

This material, as supplied, is not a hazardous waste product. This material could become a hazardous waste product if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Dispose of remaining product in accordance with federal, regional and local requirements. Offer the container for recycling where facilities permit.

14. Transport Information

Transport Regulations

DOT	Not regulated.
TDG	Not regulated.
ICAO/IATA	Not regulated.
IMDG/IMO	Not regulated.

Environmental Hazards Not classified as hazardous to the environment.

15. Regulatory Information

Safety, Health and Environmental Regulations

WHMIS 2015 Classification Not WHMIS controlled.

This Product has been classified in accordance with the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

16. Other Information

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End of Safety Data Sheet