SECTION 1: PRODUCT & COMPANY IDENTIFICATION

1.1 Product Identifiers

NEI Product ID: CBP-52C

Product Description: $LiNbO_3$-coated Lithium Nickel Manganese Cobalt Oxide ("NMC532") powder

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Identified Uses: Laboratory chemicals, research & development, lithium-ion batteries

1.3 Details of the Supplier of the Safety Data Sheet

Company: NEI Corporation

Address: 400 Apgar Drive, Unit E | Somerset, NJ 08873 – USA

Phone: +1 (732) 868-3141 Fax: +1 (732) 868-3143

Email: productinfo@neicorporation.com

1.4 Emergency Telephone Number

Manufacturer: +1 (732) 868-3142 (9am to 6pm EST / UTC -0500)

U.S. Poison Control Center: +1-800-222-1222

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin sensitization (Category 1), H317

Respiratory sensitization (Category 1), H334

Carcinogenicity (Category 1), H350

Specific target organ toxicity, repeated exposure (Category 1), H372

2.2 GHS Label elements, including precautionary statements

GHS Label Elements, including precautionary statements

Pictogram(s):

Signal Word: Danger

Hazard Statement(s):

H317	May cause an allergic skin reaction
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure

Precautionary Statement(s):

P202	Do not handle until all safety precautions have been read and understood
P232	Protect from moisture
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves, protective clothing, & eye protection
P285	In case of inadequate ventilation wear respiratory protection.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention
P363	Wash contaminated clothing before reuse
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

None

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Component Name	Synonym	Formula	CAS #	Weight %
Lithium Nickel Manganese Cobalt Oxide	NMC532	$LiNi_{0.5}Mn_{0.3}Co_{0.2}O_2$	193215-53-1	99 – 99.25%
Hazards: *Skin sensitization (Cat. 1, H317); Respiratory sensitization (Cat 1, H334); Carcinogenicity (Cat 1, H350); STOT, repeated exposure (Cat 1, H372)*				
Lithium Niobate	Lithium niobium trioxide	$LiNbO_3$	12031-63-9	0.75 – 1%
Hazards: *None*				

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice:

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

After Inhalation:

Keep patient calm, remove to fresh air. If breathing difficulties develop, aid in breathing and seek immediate medical attention.

After Skin Contact:

Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Get medical advice/attention.

After Eye Contact:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical advice/attention.

After Swallowing:

Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labelling (see sections 2.2 and 11)

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No Data Available

SECTION 5: FIREFIGHTING MEASURES

5.1 Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.2 Hazardous Combustion Products

None

5.3 Advice for Firefighters

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

5.4 Other Information

Closed containers may explode from heat of a fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and Materials for Containment and Cleaning Up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in closed containers for disposal.

6.4 Reference to Other Sections

For personal protection, see section 8; for disposal see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Appropriate personal protective equipment should be used at all times. Handle in a well-ventilated area. Avoid prolonged or repeated breathing of dust. Avoid contact with eyes and skin. Wash hands thoroughly after handling. See Section 2.2 for precautions.

7.2 Conditions for Safe Storage (including any incompatibilities)

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

7.3 Specific End Uses

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

Components with workplace control parameters:

Contains no substances with occupational exposure limit values.

8.2 Exposure Controls

Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal Protective Equipment

Eye / Face Protection:

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin Protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Recommendation: Nitrile rubber, 0.11mm thick (full or splash contact).

Recommendations are advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use. It should not be construed as offering an approval for any specific use scenario.

Body Protection:

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory Protection:

This product contains a substance regulated by the EPA under a Significant New Use Rule (SNUR) 40 CFR 721.10201. Follow all applicable respiratory provisions.
Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of Environmental Exposure

Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State:	Solid (powder)
Color:	Black

Odor:	Odorless
Odor Threshold:	No Data Available
pH (20 °C):	No Data Available
Melting Point / Range:	No Data Available
Boiling Point / Range:	No Data Available
Flash Point:	No Data Available
Evaporation Rate:	No Data Available
Flammability:	No Data Available
Upper Explosion Limit:	No Data Available
Lower Explosion Limit:	No Data Available
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Relative Density:	No Data Available
Water Solubility:	No Data Available
Partition Coefficient:	No Data Available
Auto-ignition Temperature:	No Data Available
Decomposition Temperature:	No Data Available
Viscosity:	No Data Available
Explosive Properties:	No Data Available
Oxidizing Properties:	No Data Available

9.2 Other Safety Information

No Data Available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

The product is chemically stable. No hazardous reactions when stored and handled according to instructions.

10.4 Conditions to Avoid

Avoid dust formation and exposure to moisture.

10.5 Incompatible Materials

Oxidizing agents

10.6 Hazardous Decomposition Products

Possible thermal decomposition products: cobalt oxides, metallic oxides, carbon monoxide, carbon dioxide

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute Toxicity

Component	Oral LD50	Dermal LD50	Inhalation LC50
NMC532	No data available	No data available	No data available
Lithium Niobate	No data available	No data available	No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity

No Data Available

Carcinogenicity

IARC: Group 1 (Carcinogenic to humans).

ACGIH: No component of this product (present at levels greater than or equal to 0.1%) is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product (present at levels greater than or equal to 0.1%) is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product (present at levels greater than or equal to 0.1%) is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No Data Available

Teratogenicity

No Data Available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No Data Available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

Causes damage to lungs through prolonged or repeated inhalation.

Aspiration hazard

Not applicable

Additional Information

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Component	**Green Algae** (OECD 201)	**Freshwater Fish** (OECD 203)	**Water Flea** (OECD 202)
NMC532	No data available	No data available	No data available
Lithium Niobate	No data available	No data available	No data available

12.2 Persistence and Degradability

No Data Available

12.3 Bioaccumulative Potential

No Data Available

12.4 Mobility in Soil

No Data Available

12.5 Results of PBT and vPvB Assessment

PBT/vPvB assessment not available as chemical safety assessment not conducted

12.6 Other Adverse Effects

Do not allow to enter drains or waterways.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods – Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

13.2 Waste Treatment Methods – Contaminated Packaging

Dispose of as unused product, clean residue from packaging (do not allow in drains), & dispose of properly.

SECTION 14: TRANSPORT INFORMATION

14.1 Department of Transportation (DOT - US)

Not classified as a dangerous good under transport regulations

14.2 International Maritime Dangerous Goods (IMDG)

Not classified as a dangerous good under transport regulations

14.3 International Air Transport Association (IATA)

Not classified as a dangerous good under transport regulations

14.4 Additional Transport Information

HS Code: 2825.90 **Schedule B:** 2825.90.9000

SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Right to Know Components

Component	CAS #	State
Lithium Nickel Manganese Cobalt Oxide	193215-53-1	NJ, PA Right to Know
Lithium Niobate	12031-63-9	NJ, PA Right to Know

California Proposition 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Toxic Substances Control Act (TSCA) Chemical Substance Inventory

Components: Lithium Niobium Oxide (CAS #12031-63-9)

15.2 Chemical Safety Assessment

A chemical safety assessment was not carried out for this product.

SECTION 16: OTHER INFORMATION

REACH Number

A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

IMPORTANT

NEI has attempted to provide current and accurate information to the best of its knowledge. NEI makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, injury of any kind which may result from or arise out of the use of or reliance on the information by any person. Employers should use this information only as a supplement to other information gathered by them and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

– END OF SDS –