Section 1. Identification

1.1 Product Identifiers

Product Name: CBP-55

Product Description: NMC622, single-crystal Lithium Nickel Manganese Cobalt Oxide powder

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

Identified Uses: Negative electrode / anode material for energy storage systems; laboratory chemicals; synthesis of substances; research and development

Uses Advised Against: Not for use in commercial 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 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: Hazard(s) Identification

2.1 Classification of the Substance or Mixture

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

Skin sensitization (Category 1), H317

Carcinogenicity (Category 2), H351

2.2 GHS Label elements, including precautionary statements

GHS Label Elements, including precautionary statements

Pictogram(s):



Signal Word: Warning

Hazard Statements:

H317 May cause an allergic skin reaction

H351 Suspected of causing cancer

Precautionary Statements:

Prevention

P202 Do not handle until all safety precautions have been read and understood

P232 Protect from moisture

P261 Avoid breathing dust

P272 Contaminated work clothing should not be allowed out of the workplace

P280 Wear protective gloves, protective clothing, & eye protection

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water

P308 + P313 IF exposed or concerned: Get medical advice/ attention

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse

Storage

P405 Store locked up

Disposal

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 Substance / Mixture: Substance

Component Name	Synonym	Formula	CAS #	Weight %
Lithium Nickel Manganese Cobalt Oxide	NMC622	$LiNi_{0.6}Mn_{0.2}Co_{0.2}O_2$	193215-05-3	≤ 100%
Hazards: *Skin sensitization (Category 1, H317); Carcinogenicity (Category 2, H351)*				

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:

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Seek medical attention.

After Skin Contact:

Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

After Eye Contact:

Rinse out with plenty of water. Remove contact lenses. Call an ophthalmologist.

After Swallowing:

Never give anything by mouth to an unconscious person. Make victim drink water (2 glasses at most). Consult a physician.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No Data Available

Section 5. Fire-Fighting Measures

5.1 Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. No limitations of extinguishing agents are given.

5.2 Hazardous Combustion Products

Nickel / nickel oxides, Lithium oxides, Cobalt / cobalt oxides, Manganese / manganese oxides

Not combustible. Ambient fire may liberate hazardous vapors.

5.3 Advice for Firefighters

Wear self-contained breathing apparatus for firefighting. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further Information

Not combustible. Ambient fire may liberate hazardous vapors. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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

Cover drains. 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. Provide appropriate exhaust ventilation at places where dust is formed. 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. Hygroscopic; 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:

Component	OSHA PEL (C)	ACGIH TLV (TWA)	NIOSH REL (TWA)
NMC (193215-05-3)	5 mg/m^3 (Manganese)	0.02 mg/m^3 (Cobalt)	1 mg/m^3 (Manganese) 0.015 mg/m^3 (Nickel)

**PEL - Permissible Exposure Limit; TWA - Time-Weighted Average; TLV - Threshold Limit Value; REL - Recommended Exposure Limit*

8.2 Exposure Controls

Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal Protective Equipment

Respiratory Protection:

Required when dusts are generated. Filter type P3 recommended based on DIN EN 143, DIN 14387 and other standards.

Eye / Face Protection:

Face shield and/or safety glasses should be worn. Use eye protection equipment that is tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin / Hand Protection:

Handle with impervious gloves, such as 0.11mm thick nitrile 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.

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.

Control of Environmental Exposure

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

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Appearance:	Black powder
Odor:	Odorless
Odor Threshold:	No Data Available
pH:	No Data Available
Melting / Freezing Point:	554 °F / 290 °C
Initial Boiling Point / Range:	No Data Available
Flash Point:	No Data Available
Evaporation Rate:	No Data Available

Flammability (solid):	Not Flammable
Upper/Lower Explosion Limit:	No Data Available
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Relative Density:	No Data Available
Solubility:	Soluble (68 °F / 20 °C)
Partition Coefficient:	No Data Available
Auto-ignition Temperature:	No Data Available
Decomposition Temperature:	No Data Available
Viscosity:	No Data Available
Particle Characteristics:	~4 µm (D50 particle size)

9.2 Other Safety Information

No Data Available

Section 10. Stability and Reactivity

10.1 Reactivity

No Data Available

10.2 Chemical Stability

Stable under ambient conditions

10.3 Possibility of Hazardous Reactions

Violent reactions possible with strong oxidizing agents

10.4 Conditions to Avoid

Moisture, humidity

10.5 Incompatible Materials

No Data Available

10.6 Hazardous Decomposition Products

Under fire conditions: Nickel / nickel oxides, Lithium oxides, Cobalt / cobalt oxides, Manganese / manganese oxides

Section 11. Toxicological Information

11.1 Information on Toxicological Effects

Acute Toxicity

No Data Available

Skin corrosion/irritation

No Data Available

Serious eye damage/eye irritation

No Data Available

Respiratory or skin sensitization

May cause allergic skin reaction

Germ cell mutagenicity

No Data Available

Carcinogenicity

Suspected of causing cancer

IARC: Group 1 – Carcinogenic to humans (Lithium Nickel Manganese Cobalt Oxide)

NTP: Known to be human carcinogen (Lithium Nickel Manganese Cobalt Oxide)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens

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)

No Data Available

Aspiration hazard

No Data Available

Additional Information

To the best of our knowledge, the chemical, physical, & 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)
NMC622	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 as a precaution.

Section 13. Disposal Considerations

13.1 Waste Treatment Methods – Product

Dispose of in accordance with applicable local, state, regional, and national regulations. Do not discharge waste material into drains, sewers, surface waters, or soil. Hazardous waste characteristics (such as heavy metal content for nickel, cobalt, and manganese) must be evaluated at the time of disposal. Collect unused powder in suitable, sealed, & clearly labeled containers.

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 regulated as a dangerous goods

14.2 International Maritime Dangerous Goods (IMDG)

Not regulated as a dangerous goods

14.3 International Air Transport Association (IATA)

Not regulated as a dangerous goods

14.4 Additional Transport Information

HS Code: 2841.90 **Schedule B:** 2841.90.5000

Section 15. Regulatory Information

15.1 US Federal Regulations

SARA 302 Components

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

SARA 313 Components

Subject to reporting requirements for Nickel Compounds and Cobalt Compounds.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Toxic Substances Control Act (TSCA) Chemical Substance Inventory

Not listed on the active TSCA Inventory. Supplied strictly for research, development, or laboratory evaluation purposes under the TSCA R&D Exemption (40 CFR Section 720.36).

15.2 US State Regulations

US State Right to Know (RTK) Components

New Jersey, Pennsylvania: Lithium Nickel Manganese Cobalt Oxide (CAS #193215-05-3)

US State Chemicals of High Concern

Maine, Vermont, Washington: Lithium Nickel Manganese Cobalt Oxide (CAS #193215-05-3)

California Proposition 65

Warning: This product can expose you to chemicals including Nickel compounds and Cobalt compounds, which are known to the State of California to cause cancer.

15.3. International Regulations

EU REACH (EC) No 1907/2006:

Registration & Status: Exempt from standard REACH registration under Scientific Research and Development (SR&D) provisions (Article 9) as annual quantities are below 1 metric ton.

SVHC Candidate List: Does not contain any listed Substances of Very High Concern above 0.1% (w/w).

Annex XVII Restrictions: Subject to generic category restrictions for nickel and cobalt compounds regarding downstream exposure. No CAS-specific restrictions apply.

EU RoHS Directive: This product complies with EU Directive 2011/65/EU (RoHS 2) and its amendments. It does not contain restricted heavy metals or regulated brominated flame retardants above permissible limits.

DSL / NDSL (Canada): Subject to R&D exemption requirements; not listed on the Domestic Substances List.

IECSC (China) / ENCS (Japan) / KECI (Korea): Not listed on active national inventories. Supplied strictly for research, development, or laboratory-scale evaluation in accordance with applicable national chemical control exemptions.

Section 16. Other Information

Rating System	Health	Flammability	Physical Hazard / Instability	Special
NFPA 704	2	0	0	None
HMIS	2*	0	0	E

**Chronic Health Hazard (may cause cancer or damage to organs through prolonged or repeated exposure via inhalation).*
HMIS PPE Code - Safety Glasses, Gloves, Dust Respirator

Additional Notes

Unlisted Abbreviations: ACGIH: American Conference of Governmental Industrial Hygienists; **CAS:** Chemical Abstracts Service; **ECHA:** European Chemicals Agency; **HMIS:** Hazardous Materials Identification System; **NFPA:** National Fire Protection Association; **NIOSH:** National Institute for Occupational Safety and Health; **OSHA:** Occupational Safety and Health Administration; **REACH:** Registration, Evaluation, Authorisation and Restriction of Chemicals (EU); **DSL:** Domestic Substances List; **NDSL:** Non-Domestic Substances List; **IECSC:** Inventory of Existing Chemical Substances in China; **ENCS:** Existing and New Chemical Substances; **KECI:** Korea Existing Chemicals Inventory; **EU RoHS:** European Union Restriction of Hazardous Substances; **NOS:** Not Otherwise Specified; **PPE:** Person Protective Equipment

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