SAFETY DATA SHEET

Issuing Date 21-July-2022 Revision Date 11-July-2022 Revision Number 1

NGHS / English



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(UL)

1. IDENTIFICATION

Product identifier

Product Name BFN Li-ion 18650 2600mAh 3.7V Battery

Other means of identification

Product Code(s)

Recommended use of the chemical and restrictions on use

Recommended Use LITHIUM ION BATTERIES

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Identification Shenzhen Bofuneng Battery Co., LTD

Address A&E Building, Chunyang Industrial Park, Wulian, Longgang

Shenzhen Guangdong 51817 China

Telephone Phone:86 755 89312858

Fax:86 755 89312389

E-mail bfn@bfnbattery.com

Emergency telephone number

Company Emergency Phone

Number

86 755 89322386

2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 3
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

This is a battery. In case of rupture: the above hazards exist.

Appearance Blue Physical state Solid Odor No information available

GHS Label elements, including precautionary statements

Danger

Hazard statements

Harmful if swallowed
Toxic in contact with skin
Causes severe skin burns and eye damage
Suspected of causing cancer
Causes damage to organs through prolonged or repeated exposure



Precautionary Statements - Prevention

Obtain special instructions before use

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

Wear protective gloves/protective clothing/eye protection/face protection

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

Specific treatment (see supplemental first aid instructions on this label)

Immediately call a POISON CENTER or doctor

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing Immediately call a POISON CENTER or doctor

Skin

Call a POISON CENTER or doctor if you feel unwell

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

Wash contaminated clothing before reuse

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing

Immediately call a POISON CENTER or doctor

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

Rinse mouth

Do NOT induce vomiting

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other information

Very toxic to aquatic life with long lasting effects.

Unknown acute toxicity

96.23 % of the mixture consists of ingredient(s) of unknown toxicity

78.16 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

80.88 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

96.23 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

96.23 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

96.23 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable.

<u>Mixture</u>

Chemical name	CAS No.	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Lithium Cobalt Oxide (CoLiO2)	12190-79-3	39.6	-	-
Graphite	7782-42-5	23.2	-	-
Phosphate(1-), hexafluoro-, lithium	21324-40-3	15.35	-	-
Copper	7440-50-8	9.8	-	-
Aluminum	7429-90-5	5.56	-	-

4. FIRST AID MEASURES

First aid measures

General advice First aid is upon rupture of sealed battery. In case of rupture: Show this safety data sheet to

the doctor in attendance. Immediate medical attention is required. IF exposed or concerned:

Get medical advice/attention.

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical

attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical

advice/attention.

Eye contact Get immediate medical advice/attention. Rinse immediately with plenty of water, also under

the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected

area. Remove contact lenses, if present and easy to do. Continue rinsing.

Skin contact Get immediate medical advice/attention. Wash off immediately with soap and plenty of water

while removing all contaminated clothes and shoes.

Ingestion Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water.

Never give anything by mouth to an unconscious person. Get immediate medical

advice/attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination. Wear personal protective clothing

(see section 8). Avoid direct contact with skin. Use barrier to give mouth-to-mouth

resuscitation. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. FIRE-FIGHTING MEASURES

environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the

chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition

can lead to release of irritating gases and vapors.

Hazardous Combustion Products Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact None. Sensitivity to Static Discharge None.

Special protective equipment for

fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate

ventilation. Use personal protective equipment as required. Evacuate personnel to safe

areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling In case of rupture: Handle in accordance with good industrial hygiene and safety practice.

Avoid contact with skin, eyes or clothing. Take off contaminated clothing and wash before reuse. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or

smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach

of children. Store locked up. Protect from moisture. Store away from other materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits

Chemical name		ACGIH T		09	SHA PEL		NIOSH IDL	.Н
Lithium Cobalt Oxide (CoL 12190-79-3	iO2)				-			
Graphite 7782-42-5		TWA: 2 mg/m³ respirable particulate matter all forms except graphite fibers TWA: 15 mg/m³ total dus synthetic TWA: 5 mg/m³ respirable fraction synthetic (vacated) TWA: 2.5 mg/m³ respirable dust natural (vacated) TWA: 10 mg/m³ total dus synthetic (vacated) TWA: 5 mg/m³ respirable fraction synthet TWA: 15 mppcf natural		ynthetic g/m³ respirable yn synthetic TWA: 2.5 mg/m³ le dust natural vA: 10 mg/m³ total synthetic) TWA: 5 mg/m³ fraction synthetic 5 mppcf natural	TWA: 2.5 mg/m³ respir dust /m³ ral total m³ hetic al		respirable	
Phosphate(1-), hexafluor lithium 21324-40-3	0-,	TWA: 2.5 m((vacated)	2.5 mg/m³ F TWA: 2.5 mg/m³		IDLH: 250 mg.	
Copper 7440-50-8		TWA: 0.2 mg/n	n ³ fume	TWA: 1 mg/ (vacated) T	1 mg/m³ fume /m³ dust and mist WA: 0.1 mg/m³ Cu , fume, mist	TWA:	and mist	dust, fume ust and mist fume
Aluminum 7429-90-5		TWA: 1 mg/m³ respirable particulate matter		TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 15 mg/m³ tota dust (vacated) TWA: 5 mg/m³ respirable fraction		TW	A: 10 mg/m³ A: 5 mg/m³ u dust	total dust respirable
Chemical name		Alberta	British (Columbia	Ontario TWAE	V	Queb	ес
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	TV	VA: 0.02 mg/m ³	TWA: 0.0	02 mg/m ³	TWA: 0.02 mg/r	m ³	TWA: 0.02	
Graphite 7782-42-5		ΓWA: 2 mg/m ³	TWA: 2 mg/m ³		TWA: 2 mg/m ³		TWA: 2	mg/m³
Phosphate(1-), hexafluoro-, lithium 21324-40-3		WA: 2.5 mg/m ³	TWA: 2	.5 mg/m³	TWA: 2.5 mg/n		TWA: 2.5	mg/m ³
Copper 7440-50-8		WA: 0.2 mg/m ³ 「WA: 1 mg/m ³		1 mg/m³ .2 mg/m³	TWA: 0.2 mg/n TWA: 1 mg/m		TWA: 0.2 TWA: 1	
Aluminum 7429-90-5		WA: 10 mg/m ³		.0 mg/m ³	TWA: 1 mg/m		TWA: 10	

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962

(11th Cir., 1992).

Appropriate engineering controls

Engineering controls Showers

Eyewash stations Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield.

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace.

None known

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state Solid **Appearance** Blue

No information available Odor Color No information available **Odor Threshold** No information available

Property Values Remarks Method

No data available Hq None known Melting / freezing point No data available None known Boiling point / boiling range No data available None known **Flash Point** No data available None known **Evaporation Rate** No data available None known Flammability (solid, gas) None known No data available None known

Flammability Limit in Air

Upper flammability limit No data available Lower flammability limit No data available

Vapor pressure No data available None known Vapor density No data available None known Relative density No data available None known

Water Solubility Insoluble in water No data available Solubility(ies)

Partition coefficient: n-octanol/water0

Autoignition temperature No data available None known **Decomposition temperature** No data available None known Kinematic viscosity No data available None known

Dynamic viscosity

Other Information

No information available **Explosive properties** Oxidizing properties No information available Softening Point No information available **Molecular Weight** No information available **VOC Content (%)** No information available **Liquid Density** No information available **Bulk Density** No information available **Particle Size** No information available **Particle Size Distribution** No information available

10. STABILITY AND REACTIVITY

Reactivity No information available.

Stable under normal conditions. Chemical stability

Possibility of Hazardous Reactions None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to avoid Exposure to air or moisture over prolonged periods.

Incompatible materials Acids. Bases. Oxidizing agent.

Hazardous Decomposition Products Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information Product does not present an acute toxicity hazard based on known or supplied information

In case of rupture:

Inhalation Specific test data for the substance or mixture is not available. Corrosive by inhalation.

(based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs.

Pulmonary edema can be fatal.

Eye contact Specific test data for the substance or mixture is not available. Causes burns. (based on

components). Corrosive to the eyes and may cause severe damage including blindness.

Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact Specific test data for the substance or mixture is not available. Corrosive. (based on

components). Causes burns. Toxic in contact with skin.

Ingestion Specific test data for the substance or mixture is not available. Causes burns. (based on

components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung

damage if swallowed. May be fatal if swallowed and enters airways.

Information on toxicological effects

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Numerical measures of toxicity

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document

 ATEmix (oral)
 705.20 mg/kg

 ATEmix (dermal)
 373.70 mg/kg

Unknown acute toxicity 96.23 % of the mixture consists of ingredient(s) of unknown toxicity

78.16 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

80.88 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

96.23 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas) 96.23 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

96.23 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes burns.

Serious eye damage/eye irritation Classification based on data available for ingredients. Risk of serious damage to eyes.

Causes burns.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for

ingredients. Suspected of causing cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide	A3	Group 2B	Reasonably Anticipated	Χ
(CoLiO2) 12190-79-3				

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicology Program)

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposureCauses damage to organs through prolonged or repeated exposure.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Copper	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas) 96h LC50: = 0.8 mg/L (Cyprinus carpio)	-	48h EC50: = 0.03 mg/L

Persistence and Degradability No information available.

Bioaccumulation There is no data for this product.

Mobility No information available.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products

Dispose of in accordance with local regulations. Dispose of waste in accordance with

environmental legislation.

Contaminated packaging Do not reuse empty containers.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	Toxic
Copper 7440-50-8	Toxic
Aluminum 7429-90-5	Ignitable powder

14. TRANSPORT INFORMATION

Note:

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)

Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

DOT

NOT REGULATED NON-REGULATED

Proper Shipping Name Hazard Class

Emergency Response Guide

N/A

Number

147

TDG Not regulated

MEX Not regulated

ICAO Not regulated

Not regulated **IATA** NON REGULATED

Proper Shipping Name

Hazard Class N/A

IMDG/IMO Not regulated

Hazard Class N/A EmS-No. F-A, S-I

RID Not regulated

ADR Not regulated

ADN Not regulated

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Regulations

Ozone-depleting substances (ODS) Not applicable

Persistent Organic Pollutants Not applicable

Export Notification requirements Not applicable

International Inventories

TSCA

Contact supplier for inventory compliance status.

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Lithium Cobalt Oxide (CoLiO2) - 12190-79-3	12190-79-3	39.6	0.1
Copper - 7440-50-8	7440-50-8	9.8	1.0
Aluminum - 7429-90-5	7429-90-5	5.56	1.0

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper 7440-50-8		X	Х	

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Copper 7440-50-8	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	X		X	X	Х
Graphite 7782-42-5	X	Х	Х		
Phosphate(1-), hexafluoro-, lithium 21324-40-3	Х				
Copper 7440-50-8	Х	Х	Х	Х	Х
Aluminum 7429-90-5	X	X	X	X	

16. OTHER INFORMATION

NFPA Health hazards 1 Flammability 0 Instability 0 Physical and Chemical

Properties -

Health hazards 0 Flammability 0 Physical hazards 0 Personal Protection X

Prepared By Product Stewardship

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Revision Note No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet