Rechargeable Lithium ion Cell – 606090
Safety Data Sheet

SECTION 1: Identification

1.1. Identification

Product name : Rechargeable Lithium ion Cell – 606090

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Battery

1.3. Details of the supplier of the safety data sheet

Tech gear 5.7 Inc. DBA Fieldsheer Apparel Technologies
2910 Norman Strasse Rd. #104
San Marcos, CA 92069
888-908-6024

1.4. Emergency telephone number

Emergency number : 760-295-3527

SECTION 2: Hazard(s) identification

For the battery cell, chemical materials are stored in a hermetically sealed case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous materials leakage. However, if exposed to a fire, added mechanical shocks, decomposed, or added electric stress by misuse the cell case will be breached and hazardous materials may be released. Moreover, if heated strongly by the surrounding fire, acrid gas may be emitted.

The following hazard classification may be applicable if the battery is damaged, or if proper handling and use instructions are not followed.

2.1. Classification of the substance or mixture

GHS US classification

Flam. Sol. 1	H228
Water-react. 1	H260
Skin Irrit. 2	H315
Eye Dam. 1	H318
Skin Sens. 1	H317
Carc. 1B	H350
STOT RE 1	H372

2.2. Label elements

GHS US labeling

Hazard pictograms (GHS US) :

GHS02 GHS05 GHS07 GHS08

Signal word (GHS US) : Danger

Hazard statements (GHS US) :
H228 - Flammable solid
H260 - In contact with water releases flammable gases which may ignite spontaneously
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H350 - May cause cancer
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary statements (GHS US) :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P223 - Do not allow contact with water.
P231+P232 - Handle under inert gas. Protect from moisture.
P240 - Ground/Bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting equipment.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 - If on skin: Wash with plenty of water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P310 - Immediately call a poison center or doctor.
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P335+P334 - Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P363 - Wash contaminated clothing before reuse.
P370+P378 - In case of fire: Use media other than water to extinguish.
P402+P404 - Store in a dry place. Store in a closed container.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%
Manganese	(CAS-No.) 7439-96-5	20 – 24
Graphite	(CAS-No.) 7782-42-5	18 – 21
Copper	(CAS-No.) 7440-50-8	8 – 11
Nickel	(CAS-No.) 7440-02-0	5 – 8
Aluminum	(CAS-No.) 7429-90-5	4 – 6
Lithium	(CAS-No.) 7439-93-2	2 – 3
Cobalt	(CAS-No.) 7440-48-4	2 – 3

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing. Seek medical attention.

First-aid measures after skin contact : Remove contaminated clothes and shoes immediately. After contact with skin, wash immediately with plenty of water and soap.

First-aid measures after eye contact : Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

First-aid measures after ingestion : Get immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : May cause respiratory irritation.

Symptoms/effects after skin contact : Causes severe skin burns irritation. May cause an allergic skin reaction

Symptoms/effects after eye contact : Causes eye damage.

Symptoms/effects after ingestion : Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use suitable extinguishing agent for surrounding fire.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable solid.

Explosion hazard : Cell may burst and release hazardous decomposition products when exposed to fire. Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature (>150℃), when damaged or abused; may burn rapidly with flare-burning effect; may ignite other batteries in close proximity.

5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

Clear the area and allow batteries to cool and vapor to dissipate.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment : No special containment necessary.

Methods for cleaning up : Collect material and place in sealed containers for reclamation or disposal.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid mechanical or electrical mishandling. Do not short or install with incorrect polarity. Do not open destroy or incinerate.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a cool, dry well-ventilated area. Store away from flammable materials.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Graphite (7782-42-5)		
ACGIH	ACGIH OEL TWA	2 mg/m³ (all forms except graphite fibers-respirable particulate matter)
OSHA	OSHA PEL (TWA) [1]	15 mg/m³ (synthetic-total dust) 5 mg/m³ (synthetic-respirable fraction)
IDLH	IDLH	1250 mg/m³
NIOSH	NIOSH REL (TWA)	2.5 mg/m³ (natural-respirable dust)

Copper (7440-50-8)		
ACGIH	ACGIH OEL TWA	0.2 mg/m³ (fume)
OSHA	OSHA PEL (TWA) [1]	0.1 mg/m³ (fume) 1 mg/m³ (dust and mist)
IDLH	IDLH	100 mg/m³ (dust, fume and mist)
NIOSH	NIOSH REL (TWA)	1 mg/m³ (dust and mist) 0.1 mg/m³ (fume)

Aluminum (7429-90-5)		
ACGIH	ACGIH OEL TWA	1 mg/m³ (respirable particulate matter)
OSHA	OSHA PEL (TWA) [1]	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
NIOSH	NIOSH REL (TWA)	10 mg/m³ (total dust) 5 mg/m³ (respirable dust)

Nickel (7440-02-0)		
ACGIH	ACGIH OEL TWA	1.5 mg/m³ (inhalable particulate matter)
OSHA	OSHA PEL (TWA) [1]	1 mg/m³
IDLH	IDLH	10 mg/m³
NIOSH	NIOSH REL (TWA)	0.015 mg/m³

Lithium (7439-93-2)
Not applicable

Manganese (7439-96-5)		
ACGIH	ACGIH OEL TWA	0.02 mg/m³ (respirable particulate matter) 0.1 mg/m³ (inhalable particulate matter)
OSHA	OSHA PEL (Ceiling)	5 mg/m³ (fume)
IDLH	IDLH	500 mg/m³
NIOSH	NIOSH REL (TWA)	1 mg/m³ (fume)
NIOSH	NIOSH REL (STEL)	3 mg/m³

Cobalt (7440-48-4)		
ACGIH	ACGIH OEL TWA	0.02 mg/m³
OSHA	OSHA PEL (TWA) [1]	0.1 mg/m³ (dust and fume)
IDLH	IDLH	20 mg/m³ (dust and fume)
NIOSH	NIOSH REL (TWA)	0.05 mg/m³ (dust and fume)

8.2. Exposure controls

Appropriate engineering controls : General (mechanical) room ventilation is expected to be satisfactory for normal handling.

Hand protection : None required under normal product handling conditions.

Eye protection : None required under normal product handling conditions.

Skin and body protection : None required under normal product handling conditions.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Color : Silvery-white

Odor : No data available

Odor threshold : No data available

pH : No data available

pH solution : Not applicable

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Flammability (solid, gas) : No data available

Vapor pressure : No data available

Relative vapor density at 20 °C : No data available

Relative density : No data available

Solubility : Insoluble

Partition coefficient n-octanol/water (Log Pow) : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity : No data available

Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

In contact with water releases flammable gas.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

When cell is exposed to an external short-circuit, crushes, deformation, high temperature above 100 degree C, it will cause heat generation and ignition. Avoid direct sunlight and high humidity.

10.5. Incompatible materials

Conductive materials, strong oxidizers, mineral acids, strong alkalis, and halogenated hydrocarbons.

10.6. Hazardous decomposition products

Hydrogen and lithium oxide fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Nickel (7440-02-0)	
LD50 oral rat	> 9000 mg/kg
LC50 Inhalation - Rat	> 10.2 mg/l (Exposure time: 1 h)

Manganese (7439-96-5)	
LD50 oral rat	9 g/kg
ATE US (oral)	9000000 mg/kg

Cobalt (7440-48-4)	
LD50 oral rat	6171 mg/kg
LC50 Inhalation - Rat	> 10 mg/l (Exposure time: 1 h)
ATE US (oral)	6170 mg/kg

Skin corrosion/irritation	:	Causes skin irritation.
Serious eye damage/irritation	:	Causes serious eye damage.
Respiratory or skin sensitization	:	May cause an allergic skin reaction.
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	May cause cancer.

Nickel (7440-02-0)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	3 - Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes

Cobalt (7440-48-4)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity, 3 - Reasonably anticipated to be Human Carcinogen

Cobalt (7440-48-4)	
In OSHA Hazard Communication Carcinogen list	Yes

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Copper (7440-50-8)	
LC50 - Fish [1]	0.0068 – 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 - Crustacea [1]	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 - Fish [2]	< 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])

Nickel (7440-02-0)	
LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 - Crustacea [1]	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 - Fish [2]	1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 - Crustacea [2]	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

Cobalt (7440-48-4)	
LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Cobalt (7440-48-4)	
BCF - Fish [1]	(no bioaccumulation)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description (DOT) : UN3480 Lithium ion batteries including lithium ion polymer batteries, 9

UN-No.(DOT) : UN3480

Proper Shipping Name (DOT) : Lithium ion batteries including lithium ion polymer batteries

Class (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

Hazard labels (DOT)	:	9 - Class 9 (Miscellaneous dangerous materials)

DOT Packaging Non Bulk (49 CFR 173.xxx)	:	185
DOT Packaging Bulk (49 CFR 173.xxx)	:	185
DOT Special Provisions (49 CFR 172.102)	:	422 - When labelling is required, the label to be used must be the label shown in §172.447. Labels conforming to requirements in place on December 31, 2016 may continue to be used until December 31, 2018. When a placard is displayed, the placard must be the placard shown in §172.560. A51 - When transported by cargo-only aircraft, an oxygen generator must conform to the provisions of an approval issued under Special Provision 60 and be contained in a packaging prepared and originally offered for transportation by the approval holder. A54 - Lithium batteries or lithium batteries contained or packed with equipment that exceed the maximum gross weight allowed by Column (9B) of the 172.101 Table may only be transported on cargo aircraft if approved by the Associate Administrator.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	185
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	35 kg
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
Emergency Response Guide (ERG) Number	:	147
Other information	:	No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Graphite (7782-42-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Copper (7440-50-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	1 %

Aluminum (7429-90-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1 % (dust or fume only)

Nickel (7440-02-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	0.1 %

Lithium (7439-93-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Manganese (7439-96-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1 %

Cobalt (7440-48-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	0.1 %

15.2. US State regulations

Nickel (7440-02-0)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
Yes	No	No	No	

Cobalt (7440-48-4)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
Yes	No	No	No	

Graphite (7782-42-5)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Copper (7440-50-8)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Aluminum (7429-90-5)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Nickel (7440-02-0)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Lithium (7439-93-2)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Manganese (7439-96-5)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Cobalt (7440-48-4)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.