# lithium battery pack

Issue Date: 2021-01-20

# Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

## 1. Identification

| | |
|---|---|
| **1.1. Product identifier** | |
| Product name | lithium battery pack |
| Synonyms | - |
| CAS# | See section 3 |
| Product code | KBP01-BAT, BPAIBAT |
| **1.3. Details of the supplier of the safety data sheet** | |
| Company | **V-TUF** is a brand of Fenco Group Ltd |
| Address | Fenco Group Ltd<br>Unit 5 Chris Sharp Building<br>Till Bridge Lane<br>Scampton<br>LN1 2SX |
| Website | www.v-tuf.com |
| Tel | 01522 515767 |
| Fax | 01522 787838 |
| Email | enquiries@v-tuf.com |
| **1.4. Emergency telephone number** | |
| Emergency telephone number | 01522 515767 |
| Company | V-TUF Helpline<br>- Opening Hours: 7am – 5pm<br>- Monday ~ Friday |

## 2. Hazard(s) identification

| **GHS classification** | |
|---|---|
| Physical hazards | Not classified |
| Health hazards | Not classified |
| Environmental hazards | Not classified |
| **GHS label elements** | |
| Hazard Pictograms | No hazard pictogram is used. |
| Signal word | No signal word is used. |
| Hazard statement | Not applicable. |
| **Precautionary statement** | |
| Prevention | Not applicable. |
| Response | Not applicable. |
| Storage | Not applicable. |
| Disposal | Not applicable. |

## 3. Composition / information on ingredients

| **Components** | **CAS#** | **Percent** |
|---|---|---|
| Cobalt lithium manganese nickel oxide | 113066-89-0 | 35% |
| Graphite | 7782-42-5 | 19% |
| Iron | 7439-89-6 | 13% |
| Copper | 7440-50-8 | 10% |
| Dimethyl carbonate | 616-38-6 | 6% |
| Aluminum | 7429-90-5 | 6% |
| Ethylene carbonate | 96-49-1 | 3% |
| Polyethylene | 9002-88-4 | 3% |
| Phosphate(1-), hexafluoro-, lithium | 21324-40-3 | 3% |
| Ethyl methyl carbonate | 623-53-0 | 1% |
| Nickel | 7440-02-0 | 1% |

## 4. First-aid Measures

| First aid procedures | |
|---|---|
| Eye contact | Rinse immediately with plenty of water for at least 15 mins. Contact a doctor if symptoms persist. |
| Skin contact | If there is any unwell reaction, wash thoroughly with soap & water, flush with plenty of water. If irritation persists, seek medical advice. |
| Inhalation | Remove from exposure site to fresh air. Keep at rest. Obtain medical attention. |
| Ingestion | Rinse mouth out with water. Seek medical advice immediately. |
| | |
| Notes to physician | Treat symptoms. |

## 5. Fire-fighting measures

| | |
|---|---|
| Flammable properties | Not available. |
| Extinguishing media | |
| Suitable extinguishing media | Use foam, dry powder or dry sand, CO2 as appropriate. |
| Unsuitable extinguishing media | Not available. |
| Firefighting equipment/instructions | Firefighters must wear fire resistant protective equipment |
| | and appropriate breathing apparatus. The staff must equip with filter mask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment. |
| Hazardous combustion products | Oxides of carbon. Metal oxides, Irritating fumes. |

## 6. Accidental release measures

| | |
|---|---|
| Personal precautions | If the battery is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area and allow the vapors to dissipate. Avoid skin and eyes contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerated. If leakage of the battery happens, liquid could be absorbed wit sand, earth or other inert substance and contaminated area should be ventilated meantime. |
| Environmental precautions | Do not allow product to reach sewage system or any water source. Inform respective authorities in case of seepage into water course or sewage system. Do not allow to enter sewers/ surface or ground water. |
| Methods for cleaning up | If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters. |

## 7. Handling and storage

| | |
|---|---|
| Handling | Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries Use recommended charging time and current. |
| Storage | The battery should be stored in a sealed container. Store in a dry, cool, ventilated environment, avoid temperature changes or high temperatures. Keep away from heat sources and avoid prolonged sunlight exposure. |

## 8. Exposure controls / personal protection

Occupational exposure limits

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | PEL | 5 mg/m3<br>15 mg/m3 | Respirable fraction.<br>Total dust. |
| Copper (CAS 7440-50-8) | PEL | 1 mg/m3<br>0.1 mg/m3 | Dust and mist.<br>Fume. |
| Graphite (CAS 7782-42-5) | PEL | 5 mg/m3<br>15 mg/m3 | Respirable fraction.<br>Total dust. |
| Nickel (CAS 7440-02-0) | PEL | 1 mg/m3 | |

**US. OSHA Table Z-3 (29 CFR 1910.1000)**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 5 mg/m3<br>15 mg/m3<br>50 mppcf<br>15 mppcf | Respirable fraction.<br>Total dust.<br>Total dust.<br>Respirable fraction. |
| Graphite (CAS 7782-42-5) | TWA | 15 mppcf | |
| Polyethylene (CAS 9002-88-4) | TWA | 5 mg/m3<br>15 mg/m3<br>50 mppcf<br>15 mppcf | Respirable fraction.<br>Total dust.<br>Total dust.<br>Respirable fraction. |

**US. ACGIH Threshold Limit Values**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 1 mg/m3 | Respirable fraction. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3<br>0.2 mg/m3 | Dust and mist.<br>Fume. |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m3 | Respirable fraction. |
| Nickel (CAS 7440-02-0) | TWA | 1.5 mg/m3 | Inhalable fraction. |

**US. NIOSH: Pocket Guide to Chemical Hazards**

| Components | Type | Value | Form |
|---|---|---|---|
| Aluminium (CAS 7429-90-5) | TWA | 5 mg/m3<br><br>5 mg/m3<br>10 mg/m3 | Welding fume or pyrophoric powder.<br>Respirable.<br>Total |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m3<br>0.1 mg/m3 | Dust and mist.<br>Fume. |
| Graphite (CAS 7782-42-5) | TWA | 2.5 mg/m3 | Respirable. |
| Nickel (CAS 7440-02-0) | TWA | 0.015 mg/m3 | |

| | |
|---|---|
| Biological limit values | No biological exposure limits noted for the ingredient(s). |
| Appropriate engineering controls: | Use in a well-ventilated area. |
| Individual protection measures, such as personal protective equipment: | |
| Eye / face protection | None required under normal conditions. Use approved chemical work safety goggles or face shield, if handling a leaking or rupture battery. |
| Skin protection | None under normal use. In case of spilling, use PVC, neoprene or nitrile gloves of 15miles (0.015 inch) or thicker. Use rubber apron and protective working in case of handling of a rupture battery. |
| Respiratory protection | No necessary under normal use. In case electrolyte leakage from the battery, protect hand with chemical resistant rubber gloves. If battery is burning, leave the area immediately. In abuse, use NIOSH approved acid gas filter mask or self-contained breathing apparatus. |
| General hygiene considerations | Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. |

## 9. Physical and chemical properties

| | |
|---|---|
| Appearance | Solid |
| Physical state | Solid |
| Form | Not available |
| Color | Not available |
| Odor | Not available |
| Odor threshold | Not available |
| pH | Not available |
| Vapor pressure | Not available |
| Melting point/Freezing point | Not available |
| initial boiling point and boiling range | Not available |
| Flash point | Not available |
| Evaporation rate | Not available |
| Flammability (solid, gas) | Not available |
| Explosion limits | Not available |
| Vapor density | Not available |
| Density | Not available |
| Solubility (water) | Not available |
| Partition coefficient | Not available |
| Auto-ignition temperature | Not available |
| Decomposition temperature | Not available |
| Specific gravity | Not available |
| Flammability limits in air, upper, %by volume | Not available |
| Flammability limits in air, lower, % by volume | Not available |
| VOC | Not available |
| Percent volatile | Not available |
| Other data | |
| Viscosity | Not available |
| Upper/lower explosive limits | Not available |
| Surface tension | Not available |

## 10. Stability and reactivity

| | |
|---|---|
| Chemical stability | Material is stable under normal conditions. |
| Conditions to avoid | Incompatible materials. Do not subject Li-ion Battery |
| | to mechanical shock. Keep away from open flames, |
| | high temperature. |
| Incompatible materials | Strong oxidizing agents. |
| Hazardous decomposition products | Oxides of carbon. Metal oxides, Irritating fumes. |
| Possibility of hazardous reactions | No dangerous reactions known. |

## 11. Toxicological information

| | |
|---|---|
| Toxicokinetics, metabolism and distribution: | |
| Non-human toxicological data: | Not available |
| Information on toxicological effects: | |
| Acute toxicity: | |
| LD50(Oral, Rat): | Not available |
| LD50(Dermal, Rat): | Not available |
| LC50(Inhalation, Rat): | Not available |
| Skin corrosion/Irritation: | Not available |
| Serious eye damage/irritation: | Not available |
| Respiratory or skin sensitization: | Not available |
| Germ cell mutagenicity: | Not available |
| Carcinogenicity: | Not available |
| Reproductive toxicity: | Not available |
| STOT- single exposure: | Not available |
| STOT-repeated exposure: | Not available |
| Aspiration hazard: | Not available |

## 12. Ecological information

Toxicity:

| Acute toxicity | | Time | Species | Method | Evaluation | Remarks |
|---|---|---|---|---|---|---|
| LC50 | N/A | 96h | Fish | OECD 203 | N/A | N/A |
| EC50 | N/A | 48h | Daphnia | OECD 202 | N/A | N/A |
| EC50 | N/A | 72h | Algae | OECD 201 | N/A | N/A |

| | |
|---|---|
| Persistence and degradability: | Not available |
| Bioaccumulative potential: | Not available |
| Mobility in soil: | Not available |
| Results of PBT&vPvB assessment: | Not available |

## 13. Disposal considerations

| | |
|---|---|
| Disposal instructions | If the battery is not completely discharged or only partially discharged, because part of the un-depleted lithium is present in the battery, the battery should be completely discharged, and the discarded battery should be submitted to the relevant department. All waste must refer to the United Nations, the country and Disposal by local regulations. Under the permission of relevant laws and regulations, batteries can be recycled. |
| Contaminated packaging | Since emptied containers may retain product residue, follow label warnings even after container is emptied. |

## 14. Transport information

DOT

| | |
|---|---|
| Basic shipping requirements: | |
| UN number | UN3481 |
| Proper shipping name | LITHIUM ION BATTERIES PACKED WITH EQUIPMENT |
| Hazard class | 9 |
| Packing group - | - |
| Environmental hazards | No |

IATA

| | |
|---|---|
| UN number | UN3481 |
| Proper shipping name | LITHIUM ION BATTERIES PACKED WITH EQUIPMENT |
| Hazard class | 9 |
| Packing group - | - |
| Environmental hazards | No |

IMDG

| | |
|---|---|
| UN number | UN3481 |
| Proper shipping name | LITHIUM ION BATTERIES PACKED WITH EQUIPMENT |
| Hazard class | 9 |
| Packing group - | - |
| Environmental hazards | No |

## 15. Regulatory information

US federal regulations

**Toxic Substances Control Act (TSCA)**

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

| | |
|---|---|
| Copper (CAS 7440-50-8) | Listed. |
| Dimethyl carbonate (CAS 616-38-6) | Listed. |
| Nickel (CAS 7440-02-0) | Listed. |

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by wt. |
|---|---|---|
| Aluminium | 7429-90-5 | 6% |
| Copper | 7440-50-8 | 10% |
| Nickel | 7440-02-0 | 1% |

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Nickel (CAS 7440-02-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

California Proposition 65

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Nickel (CAS 7440-02-0) Listed: October 1, 1989

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Aluminium (CAS 7429-90-5)

Copper (CAS 7440-50-8)

Iron (CAS 7439-89-6)

Nickel (CAS 7440-02-0)

## 16. Other information, including date of preparation or last revision

| | |
|---|---|
| HMIS®ratings | Health: 0<br>Flammability: 1<br>Physical hazard: 0 |
| NFPA ratings | Health: 0<br>Flammability: 1<br>Instability: 0 |
| Disclaimer | The information in the sheet was written based on the best knowledge and experience currently available. |