NOCO Genius Boost Lithium-ion Jumpstarter LVGB500

JAS Oceania

Chemwatch Hazard Alert Code: **4**

Chemwatch: **5344-68**
Version No: **2.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **12/03/2019**
Print Date: **12/03/2019**
S.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	NOCO Genius Boost Lithium-ion Jumpstarter LVGB500
Synonyms	LVGB500
Proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Other means of identification	Not Available

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

Relevant identified uses	Jump start motor vehicles. NOTE: Hazard statement relates to battery contents. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically or electrically abused.

Details of the supplier of the safety data sheet

Registered company name	**JAS Oceania**
Address	54-58 Lillee Crescent Tullamrine VIC 3043 Australia
Telephone	+61 3 9317 2600
Fax	+61 3 9317 2690
Website	http://www.jasoceania.com.au/
Email	Not Available

Emergency telephone number

Association / Organisation	**Not Available**
Emergency telephone numbers	13 11 26
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

Poisons Schedule	Not Applicable
Classification [1]	Skin Corrosion/Irritation Category 1A, Serious Eye Damage Category 1, Specific target organ toxicity - repeated exposure Category 2, Chronic Aquatic Hazard Category 4
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

Label elements

Hazard pictogram(s)	
SIGNAL WORD	**DANGER**

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Hazard statement(s)

H314	Causes severe skin burns and eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.
H413	May cause long lasting harmful effects to aquatic life.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P273	Avoid release to the environment.

Precautionary statement(s) Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.

Precautionary statement(s) Storage

P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
Not Available		Sealed metal containers contains:
12190-79-3	33.28	lithium cobaltate
7782-42-5	17.55	graphite
21324-40-3	13.8	lithium fluorophosphate
7440-50-8	11.93	copper
7429-90-5	8.5	aluminium
9002-88-4	7.02	polyethylene
24937-79-9	4.5	vinylidene fluoride homopolymer
9003-55-8	1.32	styrene/ butadiene rubber
24937-16-4	1.22	nylon 12
9000-11-7	0.88	carboxymethylcellulose

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Immediately hold eyelids apart and flush the eye continuously with running water. ▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▸ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▸ Transport to hospital or doctor without delay. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

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Skin Contact	If there is evidence of severe skin irritation or skin burns: ▸ Avoid further contact. Immediately remove contaminated clothing, including footwear. ▸ Flush skin under running water for 15 minutes. ▸ Avoiding contamination of the hands, massage calcium gluconate gel into affected areas, pay particular attention to creases in skin. ▸ Contact the Poisons Information Centre. ▸ Continue gel application for at least 15 minutes after burning sensation ceases. ▸ If pain recurs, repeat application of calcium gluconate gel or apply every 20 minutes. ▸ If no gel is available, continue washing for at least 15 minutes, using soap if available. If patient is conscious, give six calcium gluconate or calcium carbonate tablets in water by mouth. ▸ Transport to hospital, or doctor, urgently.
Inhalation	▸ If fumes or combustion products are inhaled remove from contaminated area. ▸ Lay patient down. Keep warm and rested. ▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▸ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▸ Transport to hospital, or doctor.
Ingestion	▸ Generally not applicable.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
for copper intoxication:

- Unless extensive vomiting has occurred empty the stomach by lavage with water, milk, sodium bicarbonate solution or a 0.1% solution of potassium ferrocyanide (the resulting copper ferrocyanide is insoluble).
- Administer egg white and other demulcents.
- Maintain electrolyte and fluid balances.
- Morphine or meperidine (Demerol) may be necessary for control of pain.
- If symptoms persist or intensify (especially circulatory collapse or cerebral disturbances, try BAL intramuscularly or penicillamine in accordance with the supplier's recommendations.
- Treat shock vigorously with blood transfusions and perhaps vasopressor amines.
- If intravascular haemolysis becomes evident protect the kidneys by maintaining a diuresis with mannitol and perhaps by alkalinising the urine with sodium bicarbonate.
- It is unlikely that methylene blue would be effective against the occassional methaemoglobinemia and it might exacerbate the subsequent haemolytic episode.
- Institute measures for impending renal and hepatic failure.

[GOSSELIN, SMITH & HODGE: Commercial Toxicology of Commercial Products]

- A role for activated for charcoals or emesis is, as yet, unproven.
- In severe poisoning CaNa2EDTA has been proposed.

[ELLENHORN & BARCELOUX: Medical Toxicology]

Clinical effects of lithium intoxication appear to relate to duration of exposure as well as to level.

- Lithium produces a generalised slowing of the electroencephalogram; the anion gap may increase in severe cases.
- Emesis (or lavage if the patient is obtunded or convulsing) is indicated for ingestions exceeding 40 mg (Li)/Kg.
- Overdose may delay absorption; decontamination measures may be more effective several hours after cathartics.
- Charcoal is not useful. No clinical data are available to guide the administration of catharsis.
- Haemodialysis significantly increases lithium clearance; indications for haemodialysis include patients with serum levels above 4 meq/L.
- There are no antidotes.

[Ellenhorn and Barceloux: Medical Toxicology]

- Chronic exposures to cobalt and its compounds results in the so-called "hard metal pneumoconiosis" amongst industrial workers. The lesions consist of nodular conglomerate shadows in the lungs, together with peribronchial infiltration. The disease may be reversible. The acute form of the disease resembles a hypersensitivity reaction with malaise, cough and wheezing; the chronic form progresses to cor pulmonale.
- Chronic therapeutic administration may cause goiter and reduced thyroid activity.
- An allergic dermatitis, usually confined to elbow flexures, the ankles and sides of the neck, has been described.
- Cobalt cardiomyopathy may be diagnosed early by changes in the final part of the ventricular ECG (repolarisation). In the presence of such disturbances, the changes in carbohydrate metabolism (revealed by the glucose test) are of important diagnostic value.
- Treatment generally consists of a combination of Retabolil (1 injection per week over 4 weeks) and beta-blockers (average dose 60-80 mg Obsidan/24 hr). Potassium salts and diuretics have also proved useful.

BIOLOGICAL EXPOSURE INDEX (BEI)

Determinant	Sampling time	Index	Comments
Cobalt in urine	End of shift at end of workweek	15 ug/L	B
Cobalt in blood	End of shift at end of workweek	1 ug/L	B, SQ

B: Background levels occur in specimens collected from subjects NOT exposed

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

At temperatures above 1500 C, carbon, graphite or graphene reacts with substances containing oxygen, including water and carbon dioxide. In case of

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intensely hot fires sand should be used to cover and isolate these materials.
- **DO NOT** use halogenated fire extinguishing agents.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Reacts with acids producing flammable / explosive hydrogen (H2) gas ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result ▸ Keep dry ▸ **NOTE:** May develop pressure in containers; open carefully. Vent periodically.

Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves in the event of a fire. ▸ Prevent, by any means available, spillage from entering drains or water courses. ▸ Use fire fighting procedures suitable for surrounding area. Slight hazard when exposed to heat, flame and oxidisers.
Fire/Explosion Hazard	Articles and manufactured articles may constitute a fire hazard where polymers form their outer layers or where combustible packaging remains in place. Certain substances, found throughout their construction, may degrade or become volatile when heated to high temperatures. This may create a secondary hazard. carbon dioxide (CO_2) hydrogen fluoride nitrogen oxides (NOx) phosphorus oxides (POx) metal oxides other pyrolysis products typical of burning organic material.
HAZCHEM	4W

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	▸ Clean up all spills immediately. ▸ Secure load if safe to do so. ▸ Bundle/collect recoverable product. ▸ Collect remaining material in containers with covers for disposal.
Major Spills	▸ Clean up all spills immediately. ▸ Wear protective clothing, safety glasses, dust mask, gloves. ▸ Secure load if safe to do so. Bundle/collect recoverable product.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ Use in a well-ventilated area. ▸ Prevent concentration in hollows and sumps.
Other information	▸ Store in original containers. ▸ Keep containers securely sealed. ▸ Store in a cool, dry, well-ventilated area. ▸ Store away from incompatible materials and foodstuff containers. ▸ Store away from incompatible materials.

Conditions for safe storage, including any incompatibilities

Suitable container	Generally packaging as originally supplied with the article or manufactured item is sufficient to protect against physical hazards. If repackaging is required ensure the article is intact and does not show signs of wear. As far as is practicably possible,

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	reuse the original packaging or something providing a similar level of protection to both the article and the handler.
Storage incompatibility	▸ Keep dry ▸ Avoid reaction with oxidising agents ▸ Avoid strong acids, bases.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

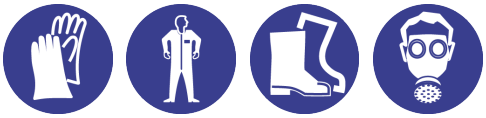
Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	graphite	Graphite (all forms except fibres) (respirable dust) (natural & synthetic)	3 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	copper	Copper, dusts & mists (as Cu)	1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	copper	Copper (fume)	0.2 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	aluminium	Aluminium, pyro powders (as Al)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	aluminium	Aluminium (metal dust)	10 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	aluminium	Aluminium (welding fumes) (as Al)	5 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
graphite	Graphite; (Mineral carbon)	6 mg/m3	16 mg/m3	95 mg/m3
lithium fluorophosphate	Lithium hexafluorophosphate	7.5 mg/m3	83 mg/m3	500 mg/m3
copper	Copper	3 mg/m3	33 mg/m3	200 mg/m3
polyethylene	Polyethylene	28 mg/m3	310 mg/m3	1,000 mg/m3

Ingredient	Original IDLH	Revised IDLH
lithium cobaltate	Not Available	Not Available
graphite	1,250 mg/m3	Not Available
lithium fluorophosphate	Not Available	Not Available
copper	100 mg/m3	Not Available
aluminium	Not Available	Not Available
polyethylene	Not Available	Not Available
vinylidene fluoride homopolymer	Not Available	Not Available
styrene/ butadiene rubber	Not Available	Not Available
nylon 12	Not Available	Not Available
carboxymethylcellulose	Not Available	Not Available

Exposure controls

Appropriate engineering controls	Articles or manufactured items, in their original condition, generally don't require engineering controls during handling or in normal use. Exceptions may arise following extensive use and subsequent wear, during recycling or disposal operations where substances, found in the article, may be released to the environment.
Personal protection	
Eye and face protection	▸ Safety glasses with side shields. ▸ Chemical goggles. ▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.

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Skin protection	See Hand protection below
Hands/feet protection	‣ Elbow length PVC gloves **NOTE:** ‣ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ‣ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.
Body protection	See Other protection below
Other protection	‣ Overalls. ‣ P.V.C. apron. ‣ Barrier cream.

Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Respiratory protection not normally required due to the physical form of the product.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Silver coloured battery; insoluble in water.

Physical state	Manufactured	**Relative density (Water = 1)**	Not Applicable
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Applicable
pH (as supplied)	Not Applicable	**Decomposition temperature**	Not Applicable
Melting point / freezing point (°C)	Not Applicable	**Viscosity (cSt)**	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	Not Applicable	**Taste**	Not Available
Evaporation rate	Not Applicable	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Applicable	**Surface Tension (dyn/cm or mN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Applicable	**Volatile Component (%vol)**	Not Applicable
Vapour pressure (kPa)	Not Applicable	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Applicable
Vapour density (Air = 1)	Not Applicable	**VOC g/L**	Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	‣ Unstable in the presence of incompatible materials. ‣ Product is considered stable. ‣ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

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Information on toxicological effects

Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.
Ingestion	The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion. Accidental ingestion of the material may be damaging to the health of the individual. Not normally a hazard due to physical form of product.
Skin Contact	The material can produce severe chemical burns following direct contact with the skin. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Irritation and skin reactions are possible with sensitive skin Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	The material can produce severe chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage. Irritation of the eyes may produce a heavy secretion of tears (lachrymation).
Chronic	This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population.

NOCO Genius Boost Lithium-ion Jumpstarter LVGB500	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
lithium cobaltate	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Not Available
	Oral (rat) LD50: >5000 mg/kg[1]	
graphite	**TOXICITY**	**IRRITATION**
	Inhalation (rat) LC50: >2 mg/l4 h[1]	Not Available
	Oral (rat) LD50: >2000 mg/kg[2]	
lithium fluorophosphate	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: 50-300 mg/kg[1]	Not Available
copper	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Not Available
	Inhalation (rat) LC50: 0.733 mg/l4 h[1]	
	Oral (rat) LD50: 300-500 mg/kg[1]	
aluminium	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: >2000 mg/kg[1]	Not Available
polyethylene	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[2]	Not Available
	Inhalation (mouse) LC50: 1.5 mg/l/30m[2]	
	Oral (rat) LD50: >3000 mg/kg[2]	
vinylidene fluoride homopolymer	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
styrene/ butadiene rubber	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >18800 mg/kg[2]	Eye (rabbit): 500 mg/24h - mild

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	Oral (rat) LD50: 67022 mg/kg[2]	
nylon 12	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
carboxymethylcellulose	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*	

COPPER	for copper and its compounds (typically copper chloride): **Acute toxicity:** There are no reliable acute oral toxicity results available. In an acute dermal toxicity study (OECD TG 402), one group of 5 male rats and 5 groups of 5 female rats received doses of 1000, 1500 and 2000 mg/kg bw via dermal application for 24 hours. The LD50 values of copper monochloride were 2,000 mg/kg bw or greater for male (no deaths observed) and 1,224 mg/kg bw for female. Four females died at both 1500 and 2000 mg/kg bw, and one at 1,000 mg/kg bw. WARNING: Inhalation of high concentrations of copper fume may cause "metal fume fever", an acute industrial disease of short duration. Symptoms are tiredness, influenza like respiratory tract irritation with fever.
POLYETHYLENE	For poly-alpha-olefins (PAOs): PAOs are highly branched, isoparaffinic chemicals produced by oligomerisation of 1-octene, 1-decene and/or 1-dodecene. The crude polyalphaolefin mixture is then distilled into appropriate product fractions to meet specific viscosity specifications and hydrogenated. In existing data, there appears to be no data to show that these structural analogs cause health effects. In addition, there is evidence in the literature that alkanes with 30 or more carbon atoms are unlikely to be absorbed when given by mouth. Inclusion of polyethylene in the diet of rats at 8 g/kg/day did not result in treatment-related effects. Polyethylene implanted into rats and mice has reportedly caused local tumorigenic activity at doses of 33 to 2120 mg/kg, but the relevance to human exposure is not certain. The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing. polyethylene pyrolyzate
STYRENE/ BUTADIENE RUBBER	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
LITHIUM COBALTATE & GRAPHITE & LITHIUM FLUOROPHOSPHATE & ALUMINIUM & VINYLIDENE FLUORIDE HOMOPOLYMER & NYLON 12 & CARBOXYMETHYLCELLULOSE	No significant acute toxicological data identified in literature search.
GRAPHITE & LITHIUM FLUOROPHOSPHATE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.

Acute Toxicity	✗	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✓	**Reproductivity**	✗
Serious Eye Damage/Irritation	✓	**STOT - Single Exposure**	✗
Respiratory or Skin sensitisation	✗	**STOT - Repeated Exposure**	✓
Mutagenicity	✗	**Aspiration Hazard**	✗

Legend: ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

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NOCO Genius Boost Lithium-ion Jumpstarter LVGB500

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

lithium cobaltate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.001-0.406mg/L	2
EC50	48	Crustacea	0.002-0.618mg/L	2
EC50	96	Algae or other aquatic plants	0.071-0.314mg/L	2
NOEC	96	Crustacea	0.001-0.2819mg/L	2

graphite

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	>100mg/L	2
EC50	48	Crustacea	>100mg/L	2
EC50	72	Algae or other aquatic plants	>100mg/L	2
NOEC	72	Algae or other aquatic plants	>=100mg/L	2

lithium fluorophosphate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	42mg/L	2
EC50	48	Crustacea	98mg/L	2
EC50	96	Algae or other aquatic plants	43mg/L	2
NOEC	528	Fish	0.2mg/L	2

copper

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.001-0.09mg/L	2
EC50	48	Crustacea	0.001mg/L	2
EC50	72	Algae or other aquatic plants	0.013335mg/L	4
BCF	960	Fish	200mg/L	4
EC25	6	Algae or other aquatic plants	0.00150495mg/L	4
NOEC	96	Crustacea	0.0008mg/L	4

aluminium

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.001-0.134mg/L	2
EC50	48	Crustacea	0.7364mg/L	2
EC50	72	Algae or other aquatic plants	0.001-0.799mg/L	2
BCF	360	Algae or other aquatic plants	9mg/L	4
NOEC	168	Crustacea	0.001-mg/L	2

polyethylene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	16.252mg/L	3
EC50	96	Algae or other aquatic plants	61.666mg/L	3

vinylidene fluoride homopolymer

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	39.014mg/L	3
EC50	96	Algae or other aquatic plants	149.630mg/L	3

styrene/ butadiene rubber

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

nylon 12

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

carboxymethylcellulose

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

Continued...

Legend:	*Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

May cause long-term adverse effects in the aquatic environment.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
polyethylene	LOW	LOW
vinylidene fluoride homopolymer	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
polyethylene	LOW (LogKOW = 1.2658)
vinylidene fluoride homopolymer	LOW (LogKOW = 1.24)

Mobility in soil

Ingredient	Mobility
polyethylene	LOW (KOC = 14.3)
vinylidene fluoride homopolymer	LOW (KOC = 35.04)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	·Recycle wherever possible or consult manufacturer for recycling options. ·Consult State Land Waste Management Authority for disposal.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO Not Applicable
HAZCHEM	4W

Land transport (ADG)

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class(es)	Class: 9 Subrisk: Not Applicable
Packing group	Not Applicable
Environmental hazard	Not Applicable
Special precautions for user	Special provisions: 188 230 310 348 376 377 384 387 Limited quantity: Not Applicable

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Air transport (ICAO-IATA / DGR)

UN number	3480
UN proper shipping name	Lithium ion batteries (including lithium ion polymer batteries)
Transport hazard class(es)	ICAO/IATA Class: 9 ICAO / IATA Subrisk: Not Applicable ERG Code: 9F
Packing group	Not Applicable
Environmental hazard	Not Applicable
Special precautions for user	Special provisions: A88 A99 A154 A164 A183 A201 A206 A331 Cargo Only Packing Instructions: See 965 Cargo Only Maximum Qty / Pack: See 965 Passenger and Cargo Packing Instructions: Forbidden Passenger and Cargo Maximum Qty / Pack: Forbidden Passenger and Cargo Limited Quantity Packing Instructions: Forbidden Passenger and Cargo Limited Maximum Qty / Pack: Forbidden

Sea transport (IMDG-Code / GGVSee)

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class(es)	IMDG Class: 9 IMDG Subrisk: Not Applicable
Packing group	Not Applicable
Environmental hazard	Not Applicable
Special precautions for user	EMS Number: F-A , S-I Special provisions: 188 230 310 348 376 377 384 387 Limited Quantities: 0

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

LITHIUM COBALTATE(12190-79-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)

GRAPHITE(7782-42-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
Australia Inventory of Chemical Substances (AICS)

LITHIUM FLUOROPHOSPHATE(21324-40-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Inventory of Chemical Substances (AICS)
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Chinese)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Spanish)

COPPER(7440-50-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

Australia Exposure Standards
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix A
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

ALUMINIUM(7429-90-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Exposure Standards
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Chinese)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Spanish)

POLYETHYLENE(9002-88-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

VINYLIDENE FLUORIDE HOMOPOLYMER(24937-79-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

STYRENE/ BUTADIENE RUBBER(9003-55-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)
GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations
International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft

NYLON 12(24937-16-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

CARBOXYMETHYLCELLULOSE(9000-11-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	No (lithium fluorophosphate)
Canada - NDSL	No (vinylidene fluoride homopolymer; carboxymethylcellulose; polyethylene; graphite; copper; nylon 12; styrene/ butadiene rubber; aluminium; lithium cobaltate)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	No (vinylidene fluoride homopolymer; carboxymethylcellulose; polyethylene; nylon 12; styrene/ butadiene rubber)
Japan - ENCS	No (graphite; copper; aluminium; lithium fluorophosphate)
Korea - KECI	Yes
New Zealand - NZIoC	No (lithium fluorophosphate)
Philippines - PICCS	No (lithium cobaltate)
USA - TSCA	Yes
Legend:	*Yes = All ingredients are on the inventory* *No = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

Revision Date	12/03/2019
Initial Date	12/03/2019

SDS Version Summary

Version	Issue	Sections Updated

Continued...

	Date	
2.1.1.1	12/03/2019	Fire Fighter (extinguishing media), First Aid (eye), First Aid (inhaled), First Aid (skin), Ingredients, Personal Protection (eye), Personal Protection (hands/feet), Spills (major), Use

Other information

Ingredients with multiple cas numbers

Name	CAS No
copper	7440-50-8, 133353-46-5, 133353-47-6, 195161-80-9, 65555-90-0, 72514-83-1
aluminium	7429-90-5, 91728-14-2
polyethylene	9002-88-4, 101484-63-3, 101484-75-7, 101484-82-6, 1021428-03-4, 103843-11-4, 106705-26-4, 110736-46-4, 11098-28-5, 11119-24-7, 11119-25-8, 112041-35-7, 112821-11-1, 112821-13-3, 113690-26-9, 1137119-09-5, 114013-55-7, 114451-17-1, 114471-09-9, 1187527-29-2, 121761-95-3, 1227178-23-5, 1228118-98-6, 126040-16-2, 126040-17-3, 126879-40-1, 12728-29-9, 1281939-84-1, 131461-84-2, 131461-85-3, 1365657-57-3, 1365657-58-4, 136958-80-0, 1383916-56-0, 1393813-70-1, 142985-61-3, 150632-74-9, 151595-17-4, 153302-16-0, 156799-29-0, 159251-50-0, 160612-77-1, 161051-67-8, 163751-84-6, 172451-63-7, 174594-04-8, 176365-96-1, 177529-72-5, 177771-90-3, 177893-37-7, 183076-46-2, 184182-05-6, 187619-93-8, 189120-95-4, 191490-32-1, 199128-49-9, 201948-42-7, 202876-24-2, 208196-83-2, 211174-40-2
styrene/ butadiene rubber	61789-96-6, 9003-55-8, 39316-59-1, 53800-79-6, 56833-53-5, 60476-46-2, 9007-96-9, 9049-91-6
nylon 12	24937-16-4, 25038-74-8, 1104729-50-1, 115296-77-0, 142281-14-9, 142281-15-0

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index