

SAFETY DATA SHEET

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NGHS / English



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1. IDENTIFICATION

Product identifier

Product Name Briggs and Stratton 48V Lithium Ion Battery

Other means of identification

Product Code(s) 1504669

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 Briggs & Stratton Power Products

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2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Oral	Category 3
Acute toxicity - Inhalation (Gases)	Category 4
Acute toxicity - Inhalation (Vapors)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4



Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1B
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1
Aspiration toxicity	Category 1

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

Appearance Varies

Physical state Solid

Odor No data available

GHS Label elements, including precautionary statements

Danger

Hazard statements

- Toxic if swallowed
- Harmful if inhaled
- Causes skin irritation
- Causes serious eye damage
- May cause an allergic skin reaction
- Suspected of causing genetic defects
- May cause cancer
- May damage fertility or the unborn child
- May cause drowsiness or dizziness
- Causes damage to organs through prolonged or repeated exposure
- May be fatal if swallowed and enters airways



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
- Use only outdoors or in a well-ventilated area
- Contaminated work clothing must not be allowed out of the workplace
- Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

- IF exposed or concerned: Get medical advice/attention
- Specific treatment (see supplemental first aid instructions on this label)

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

IF ON SKIN: Wash with plenty of water and soap

Take off contaminated clothing and wash it before reuse
If skin irritation or rash occurs: Get medical advice/attention

Inhalation

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

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor

Do NOT induce vomiting

Rinse mouth

Precautionary Statements - Storage

Store locked up

Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other information

May be harmful in contact with skin. Very toxic to aquatic life with long lasting effects.

Unknown acute toxicity 931.9 % of the mixture consists of ingredient(s) of unknown toxicity
359.15 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
931.9 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
847.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
847.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
847.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable.

Mixture

Chemical name	CAS No.	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Supplier Trade Secret	-	90 - 100%	-	-
Supplier Trade Secret	-	70 - 80%	-	-
Supplier Trade Secret	-	70 - 80%	-	-
Supplier Trade Secret	-	60 - 70%	-	-
Supplier Trade Secret	-	60 - 70%	-	-
Supplier Trade Secret	-	60 - 70%	-	-
Supplier Trade Secret	-	50 - 60%	-	-
Supplier Trade Secret	-	40 - 50%	-	-
Supplier Trade Secret	-	40 - 50%	-	-
Supplier Trade Secret	-	30 - 40%	-	-
Supplier Trade Secret	-	20 - 30%	-	-
Supplier Trade Secret	-	20 - 30%	-	-
Supplier Trade Secret	-	10 - 20%	-	-
Supplier Trade Secret	-	10 - 20%	-	-
Supplier Trade Secret	-	10 - 20%	-	-
Supplier Trade Secret	-	0 - 10%	-	-
Supplier Trade Secret	-	0 - 10%	-	-

4. FIRST AID MEASURES

First aid measures

General advice	First aid is upon rupture of sealed battery. 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. Aspiration into lungs can produce severe lung damage. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Get immediate medical advice/attention. Delayed pulmonary edema may occur.
Eye contact	Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.
Ingestion	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Aspiration hazard if swallowed - can enter lungs and cause damage. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get immediate medical advice/attention.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Avoid breathing dust/fume/gas/mist/vapors/spray. See section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms	Burning sensation. Itching. Rashes. Hives. Difficulty in breathing. Coughing and/ or wheezing. Dizziness. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	May cause sensitization in susceptible persons. Treat symptomatically. Because of the danger of aspiration, emesis or gastric lavage should not be employed unless the risk is justified by the presence of additional toxic substances.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding 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	Product is or contains a sensitizer. May cause sensitization by skin contact.
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 Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid generation of dust. Do not breathe dust.

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. Do not eat, drink or smoke when using this product. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash before reuse. Remove contaminated clothing and shoes. Avoid breathing vapors or mists.

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. Store away from other materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Supplier Trade Secret	TWA: 2 mg/m ³	TWA: 2 mg/m ³ Sn except oxides (vacated) TWA: 2 mg/m ³	IDLH: 100 mg/m ³ TWA: 2 mg/m ³
Supplier Trade Secret	TWA: 2 mg/m ³	(vacated) TWA: 2 mg/m ³	IDLH: 1000 mg/m ³ containing no asbestos and <1% quartz TWA: 2 mg/m ³
Supplier Trade Secret	-	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust

		dust (vacated) TWA: 5 mg/m ³ respirable fraction		
Supplier Trade Secret	TWA: 20 ppm	TWA: 200 ppm (vacated) TWA: 100 ppm (vacated) TWA: 375 mg/m ³ (vacated) STEL: 150 ppm (vacated) STEL: 560 mg/m ³ Ceiling: 300 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m ³ STEL: 150 ppm STEL: 560 mg/m ³	
Supplier Trade Secret	TWA: 0.025 mg/m ³ respirable particulate matter	TWA: 50 µg/m ³ Action Level: 25 µg/m ³ (vacated) TWA: 0.1 mg/m ³ respirable dust : (250)/(%SiO ₂ + 5) mppcf TWA respirable fraction : (10)/(%SiO ₂ + 2) mg/m ³ TWA respirable fraction	IDLH: 50 mg/m ³ respirable dust TWA: 0.05 mg/m ³ respirable dust	
Supplier Trade Secret	TWA: 1 fiber/cm ³ respirable fibers: length >5 µm, aspect ratio >=3:1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination TWA: 5 mg/m ³ inhalable fraction	-		
Supplier Trade Secret	TWA: 1.5 mg/m ³	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³	IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³	
Supplier Trade Secret	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³	
Supplier Trade Secret	TWA: 5 mg/m ³ inhalable particulate matter, particulate matter containing no asbestos and <1% crystalline silica	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust	
Supplier Trade Secret	TWA: 1 mg/m ³ Cu dust and mist	-	IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Cu dust and mist	
Supplier Trade Secret	TWA: 0.2 mg/m ³ fume	TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Cu dust, fume, mist	IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume	
Supplier Trade Secret	STEL: 0.2 mg/m ³ Sn TWA: 0.1 mg/m ³ Sn S*	TWA: 0.1 mg/m ³ Sn (vacated) TWA: 0.1 mg/m ³ Sn (vacated) S*	IDLH: 25 mg/m ³ Sn TWA: 0.1 mg/m ³ except Cyhexatin Sn	
Supplier Trade Secret	TWA: 0.1 mg/m ³ dust and fume	TWA: 0.01 mg/m ³ (vacated) TWA: 0.01 mg/m ³	IDLH: 10 mg/m ³ dust TWA: 0.01 mg/m ³ dust	
Supplier Trade Secret	TWA: 3 mg/m ³ inhalable particulate matter	TWA: 3.5 mg/m ³ (vacated) TWA: 3.5 mg/m ³	IDLH: 1750 mg/m ³ TWA: 3.5 mg/m ³ TWA: 0.1 mg/m ³ Carbon black in presence of Polycyclic aromatic hydrocarbons PAH	
Chemical name	Alberta	British Columbia	Ontario TWA/EV	Quebec
Supplier Trade Secret	TWA: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³



Supplier Trade Secret	TWA: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 3 mg/m ³
Supplier Trade Secret		TWA: 10 mg/m ³ TWA: 3 mg/m ³		TWA: 10 mg/m ³
Supplier Trade Secret	TWA: 50 ppm TWA: 188 mg/m ³ Skin	TWA: 20 ppm	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin
Supplier Trade Secret	TWA: 0.025 mg/m ³	TWA: 0.025 mg/m ³	TWA: 0.10 mg/m ³	TWA: 0.1 mg/m ³
Supplier Trade Secret	TWA: 5 mg/m ³ TWA: 1 fibre/cm ³	TWA: 1 fibre/cm ³ TWA: 5 mg/m ³	TWA: 1 fibre/cm ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³
Supplier Trade Secret	TWA: 1.5 mg/m ³	TWA: 0.05 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³
Supplier Trade Secret	TWA: 10 mg/m ³	TWA: 10 mg/m ³ TWA: 3 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³
Supplier Trade Secret	TWA: 10 mg/m ³	TWA: 10 mg/m ³ TWA: 3 mg/m ³	TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³
Supplier Trade Secret	TWA: 0.2 mg/m ³ TWA: 1 mg/m ³	TWA: 1 mg/m ³ TWA: 0.2 mg/m ³	TWA: 0.2 mg/m ³ TWA: 1 mg/m ³	TWA: 0.2 mg/m ³ TWA: 1 mg/m ³
Supplier Trade Secret	TWA: 0.1 mg/m ³ STEL: 0.2 mg/m ³ Skin	TWA: 0.1 mg/m ³ STEL: 0.2 mg/m ³ Skin	TWA: 0.1 mg/m ³ STEL: 0.2 mg/m ³ Skin	TWA: 0.1 mg/m ³ STEL: 0.2 mg/m ³ Skin
Supplier Trade Secret	TWA: 0.1 mg/m ³	TWA: 0.01 mg/m ³ STEL: 0.03 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³
Supplier Trade Secret	TWA: 3.5 mg/m ³	TWA: 3 mg/m ³	TWA: 3 mg/m ³	TWA: 3.5 mg/m ³

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles.

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are 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. Wash hands before breaks and immediately after handling the product. Avoid breathing dust/fume/gas/mist/vapors/spray.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state Solid
Appearance Varies
Odor No data available



Color No information available
Odor Threshold No information available

<u>Property</u>	<u>Values</u>	<u>Remarks Method</u>
pH	No data available	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)	No data available	None known
Flammability Limit in Air	No data available	None known
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	
Solubility(ies)	No data available	None known
Partition coefficient: n-octanol/water	na	
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other Information

Explosive properties No information available
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.
Chemical stability Stable under normal conditions.
Possibility of Hazardous Reactions None under normal processing.
Hazardous Polymerization Hazardous polymerization does not occur.
Conditions to avoid Excessive heat.
Incompatible materials Strong acids. Strong bases. Strong oxidizing agents.
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. Aspiration into lungs can produce severe lung damage. May cause pulmonary edema. Pulmonary edema can be fatal. May cause irritation of respiratory tract. May cause drowsiness or dizziness. Harmful by inhalation. (based on components).
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Severely irritating to eyes. May cause burns. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). Repeated exposure may cause skin dryness or cracking. Causes skin irritation.
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Potential for aspiration if swallowed. May cause lung damage if swallowed. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways. (based on components).

Information on toxicological effects

Symptoms	Redness. Burning. May cause blindness. Itching. Rashes. Hives. Difficulty in breathing. Coughing and/ or wheezing. Dizziness. May cause redness and tearing of the eyes. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
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Numerical measures of toxicity

Acute Toxicity

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

ATEmix (oral)	217.60 mg/kg
ATEmix (dermal)	4,790.90 mg/kg
ATEmix (inhalation-gas)	6,521.74 mg/L
ATEmix (inhalation-dust/mist)	1.97 mg/L
ATEmix (inhalation-vapor)	15.94 mg/L

Unknown acute toxicity	931.9 % of the mixture consists of ingredient(s) of unknown toxicity
	359.15 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
	931.9 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
	847.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
	847.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
	847.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Supplier Trade Secret	= 700 mg/kg (Rat)	-	-
Supplier Trade Secret	= 3160 mg/kg (Rat)	-	-
Supplier Trade Secret	> 12 g/kg (Rat)	-	-
Supplier Trade Secret	= 2600 mg/kg (Rat)	= 12000 mg/kg (Rabbit)	= 12.5 mg/L (Rat) 4 h
Supplier Trade Secret	= 30 g/kg (Rat)	-	-
Supplier Trade Secret	> 9000 mg/kg (Rat)	-	> 10.2 mg/L (Rat) 1 h
Supplier Trade Secret	> 10000 mg/kg (Rat)	-	-
Supplier Trade Secret	= 307000 mg/kg (Rat)	-	-
Supplier Trade Secret	> 5000 mg/kg (Rat)	-	-
Supplier Trade Secret	= 175 mg/kg (Rat) = 45 mg/kg (Rat)	= 630 mg/kg (Rabbit)	-
Supplier Trade Secret	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rat)	-

Supplier Trade Secret	> 15400 mg/kg (Rat)	> 3 g/kg (Rabbit)	-
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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. Irritating to skin.
Serious eye damage/eye irritation	Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.
Respiratory or skin sensitization	May cause sensitization by skin contact.
Germ cell mutagenicity	Contains a known or suspected mutagen. Classification based on data available for ingredients. Suspected of causing genetic defects.
Carcinogenicity	Classification based on data available for ingredients. Contains a known or suspected carcinogen. May cause cancer.

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

Chemical name	ACGIH	IARC	NTP	OSHA
Supplier Trade Secret	-	Group 3 Group 2B	-	X
Supplier Trade Secret	-	Group 3	-	-
Supplier Trade Secret	A2	Group 1	Known	X
Supplier Trade Secret	-	Group 3	-	-
Supplier Trade Secret	-	Group 2B	Reasonably Anticipated	X
Supplier Trade Secret	-	Group 2B	-	X
Supplier Trade Secret	A3	Group 2B	-	X

Legend**ACGIH (American Conference of Governmental Industrial Hygienists)**

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

Group 3 - Not Classifiable as to Carcinogenicity in Humans

NTP (National Toxicology Program)

Known - Known Carcinogen

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	Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.
STOT - single exposure	May cause drowsiness or dizziness.
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	May be fatal if swallowed and enters airways.

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)
Supplier Trade Secret	-	96h LC50: > 100 g/L (Brachydanio rerio)	-	-
Supplier Trade Secret	96h EC50: > 433 mg/L (Pseudokirchneriella subcapitata) 72h EC50: = 12.5 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 5.89 - 7.81 mg/L (Oncorhynchus mykiss) 96h LC50: = 12.6 mg/L (Pimephales promelas) 96h LC50: 14.1 - 17.16 mg/L (Oncorhynchus mykiss) 96h LC50: = 28.2 mg/L (Poecilia reticulata) 96h LC50: = 54 mg/L (Oryzias latipes) 96h LC50: 15.22 - 19.05 mg/L (Pimephales promelas) 96h LC50: 50.87 - 70.34 mg/L (Poecilia reticulata) 96h LC50: = 5.8 mg/L (Oncorhynchus mykiss) 96h LC50: 11.0 - 15.0 mg/L (Lepomis macrochirus)	EC50 = 19.7 mg/L 30 min	48h EC50: 5.46 - 9.83 mg/L 48h EC50: = 11.5 mg/L
Supplier Trade Secret	-	96h LC50: = 13.6 mg/L (Morone saxatilis)	-	-
Supplier Trade Secret	72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 1.3 mg/L (Cyprinus carpio) 96h LC50: = 10.4 mg/L (Cyprinus carpio) 96h LC50: > 100 mg/L (Brachydanio rerio)	-	48h EC50: > 100 mg/L 48h EC50: = 1 mg/L
Supplier Trade Secret	-	96h LC50: = 752.4 mg/L (Lepomis macrochirus)	EC50 > 10000 mg/L 30 min	24h EC50: > 500 mg/L
Supplier Trade Secret	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.8 mg/L (Cyprinus carpio)	-	48h EC50: = 0.03 mg/L
Supplier Trade Secret	-	48h LC50: = 2 mg/L (Oryzias latipes)	EC50 = 0.576 mg/L 30 min	-
Supplier Trade Secret	-	96h LC50: = 0.0062 mg/L (Oncorhynchus mykiss)	-	48h EC50: = 0.00024 mg/L

		96h LC50: = 0.064 mg/L (Lepomis macrochirus) 96h LC50: 0.00155 - 0.00293 mg/L (Pimephales promelas)		
Supplier Trade Secret	-	-	-	24h EC50: > 5600 mg/L

Persistence and Degradability No information available.

Component Information			
Supplier Trade Secret			
Method	Value	Exposure time	Results
OECD Test No. 301B: Ready Biodegradability: CO2 Evolution Test (TG 301 B)			

Bioaccumulation

Component Information

Chemical name	Log Pow
Supplier Trade Secret	2.7

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.

US EPA Waste Number D006 D011 D005

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Supplier Trade Secret			Toxic waste waste number F025 Waste description: Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and	



			positions of chlorine substitution.	
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California Waste Codes 141

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

Chemical name	California Hazardous Waste
Supplier Trade Secret	Toxic Ignitable
Supplier Trade Secret	Toxic powder Ignitable powder
Supplier Trade Secret	Toxic
Supplier Trade Secret	Toxic
Supplier Trade Secret	Toxic
Supplier Trade Secret	Toxic

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
 Proper Shipping Name NOT REGULATED
 Hazard Class NON REGULATED
 Emergency Response Guide Number N/A
 147

TDG
 UN-No. UN3480
 Proper Shipping Name LITHIUM ION BATTERIES
 Hazard Class 9
 Description UN3480, LITHIUM ION BATTERIES, 9

MEX
 UN-No. UN3480
 Proper Shipping Name LITHIUM ION BATTERIES
 Hazard Class 9
 Description UN3480, LITHIUM ION BATTERIES, 9

ICAO
 UN-No. UN3480
 Proper Shipping Name LITHIUM ION BATTERIES



Hazard Class 9
Description UN3480, LITHIUM ION BATTERIES, 9

IATA

UN-No. UN3480
Proper Shipping Name LITHIUM ION BATTERIES
Hazard Class 9
Description UN3480, LITHIUM ION BATTERIES, 9

IMDG/IMO

UN-No. UN3480
Proper Shipping Name LITHIUM ION BATTERIES
Hazard Class 9
EmS-No. F-A, S-I
Marine Pollutant This product contains a chemical which is listed as a severe marine pollutant according to IMDG/IMO
Description UN3480, LITHIUM ION BATTERIES, 9

RID

UN-No. UN3480
Proper Shipping Name LITHIUM ION BATTERIES
Hazard Class 9
Classification code M4
Description UN3480, LITHIUM ION BATTERIES, 9

ADR

UN-No. UN3480
Proper Shipping Name LITHIUM ION BATTERIES
Hazard Class 9
Classification code M4
Tunnel restriction code (E)
Description UN3480, LITHIUM ION BATTERIES, 9

ADN

UN-No. UN3480
Proper Shipping Name LITHIUM ION BATTERIES
Hazard Class 9
Classification code M4
Special Provisions 188, 230, 310, 348, 636, 661
Description UN3480, LITHIUM ION BATTERIES, 9
Limited Quantity 0

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.
DSL/NDL Contact supplier for inventory compliance status.
EINECS/ELINCS Contact supplier for inventory compliance status.
ENCS Contact supplier for inventory compliance status.
KECL Contact supplier for inventory compliance status.



PICCS Contact supplier for inventory compliance status.
AICS Contact supplier for inventory compliance status.

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - 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 %
Supplier Trade Secret -		60 - 70%	1.0
Supplier Trade Secret -		60 - 70%	1.0
Supplier Trade Secret -		40 - 50%	0.1
Supplier Trade Secret -		20 - 30%	1.0
Supplier Trade Secret -		20 - 30%	1.0
Supplier Trade Secret -		10 - 20%	1.0
Supplier Trade Secret -		0 - 10%	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
Supplier Trade Secret	1000 lb	X	X	X
Supplier Trade Secret		X	X	
Supplier Trade Secret		X	X	
Supplier Trade Secret		X	X	

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
Supplier Trade Secret	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
Supplier Trade Secret	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
Supplier Trade Secret	5000 lb		RQ 5000 lb final RQ



Supplier Trade Secret	1000 lb 1 lb	RQ 2270 kg final RQ
		RQ 1000 lb final RQ
		RQ 454 kg final RQ

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical name	California Proposition 65
Supplier Trade Secret -	Developmental
Supplier Trade Secret -	carcinogen, 10/1/1988 (airborne particles of respirable size)
Supplier Trade Secret -	carcinogen, 10/1/1989 (metallic)
Supplier Trade Secret -	Carcinogen
Supplier Trade Secret -	Carcinogen
Supplier Trade Secret -	carcinogen, 10/1/1987
Supplier Trade Secret -	carcinogen, 10/1/1987
	Developmental
	Male Reproductive

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
Supplier Trade Secret	X	X	X		
Supplier Trade Secret	X	X	X		X
Supplier Trade Secret	X	X	X		
Supplier Trade Secret	X		X	X	
Supplier Trade Secret	X	X	X	X	X
Supplier Trade Secret	X	X	X		X
Supplier Trade Secret	X	X	X	X	X
Supplier Trade Secret	X	X	X		
Supplier Trade Secret	X	X	X	X	
Supplier Trade Secret	X	X	X	X	X
Supplier Trade Secret	X	X	X	X	
Supplier Trade Secret	X	X	X		X

16. OTHER INFORMATION

NFPA	Health hazards 1	Flammability 0	Instability 0	Physical and Chemical Properties - Personal Protection X
HMIS	Health hazards 0	Flammability 0	Physical hazards 0	



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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