Powerwall 3

Safety Data Sheet

according to the Work Health and Safety (WHS) Regulations
Issue date: 15/04/2024 Revision date: 15/04/2024 Version: 1.0

SECTION 1: Product identifier

1.1. GHS Product identifier

Product form : Powerwall shell (Article), Electrolyte (Mixture)
Product name : Powerwall 3

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Fully-integrated AC battery system. Contains sealed Lithium Ion Battery.

1.4. Details of manufacturer or importer

Supplier
Tesla Motors, Inc.
1 Tesla Rd.
Austin, TX 78725
USA
T (877) 798-3752

Distributor
Tesla Motors Australia, Pty Ltd.
North Sydney, NSW 2060
Australia
Non-Emergency Contact: +1-800-686-705

1.5. Emergency phone number

Emergency number : Asia/Australia/New Zealnd (24x7): +61 2 432 802 81
1-(800)424-9300 (US/Canada)
+1-703-741-5970 (International)

SECTION 2: Hazard identification

2.1. Classification of the hazardous chemical

Lithium ion batteries described in this SDS are hermetically sealed and designed to withstand temperatures and pressures encountered during normal use. Under normal conditions of use, there is no physical danger of ignition, explosion or chemical danger of hazardous materials leakage. The materials contained in this battery may only represent a hazard if the integrity of the battery is compromised or if the battery is mechanically, thermally or electrically abused.

Classification according to the model Work Health and Safety Regulations (WHS Regulations)

Powerwall 3 Shell

Not classified

Electrolyte

Flammable liquids, Category 2	H225
Acute toxicity (oral), Category 4	H302
Skin corrosion/irritation, Category 1A	H314
Serious eye damage/eye irritation, Category 1	H318
Specific target organ toxicity – Repeated exposure, Category 1	H372

2.2. GHS Label elements, including precautionary statements

Hazard pictograms (GHS AU) :

Flame | Corrosion | Exclamation mark | Health hazard

Signal word (GHS AU) : Danger
Contains : Phosphate(1-), hexafluoro-, lithium (5 – 15 %); 1,3-Dioxolan-2-one (0 – 15 %)
Hazard statements (GHS AU) : H225 - Highly flammable liquid and vapour
H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary statements (GHS AU) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof equipment.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
P363 - Wash contaminated clothing before reuse.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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.
P403+P235 - Store in a well-ventilated place. Keep cool.
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 which do not result in classification

No additional information available

SECTION 3: Composition and information on ingredients

Name	CAS-No.	%
Phosphate(1-), hexafluoro-, lithium	21324-40-3	5 – 15
1,3-Dioxolan-2-one	96-49-1	0 – 15
Diethyl carbonate	105-58-8	0 – 15
Carbonate, methyl ethyl	623-53-0	0 – 15
Non-hazardous or chemicals not contributing to final classification	Proprietary	To 100%

Comments : The concentrations listed represent actual ranges that result from batch variability.

SECTION 4: First aid measures

4.1. Description of necessary first-aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER/doctor.

First-aid measures after skin contact : If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash clothing before re-using. Immediately call a POISON CENTER or doctor.

First-aid measures after eye contact : 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/doctor.

First-aid measures after ingestion : IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER or doctor.

4.2. Symptoms caused by exposure

Symptoms/effects after inhalation : Causes burns to the respiratory system.

Symptoms/effects after skin contact : Causes severe skin burns. Symptoms may include redness, pain, blisters.

Symptoms/effects after eye contact	:	Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. May cause burns.
Symptoms/effects after ingestion	:	Harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.
Chronic symptoms	:	Causes damage to organs through prolonged or repeated exposure.

4.3. Medical attention and special treatment

Other medical advice or treatment	:	Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Carbon dioxide, dry chemical, foam, water spray, fog.
Unsuitable extinguishing media	:	Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard	:	Products of combustion may include, and are not limited to: oxides of carbon. Highly flammable liquid and vapour. Corrosive vapours.
Explosion hazard	:	May form flammable/explosive vapour-air mixture.
General measures	:	Remove all sources of ignition. Use special care to avoid static electric charges. Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	:	Move containers away from the fire area if this can be done without risk. Cool closed containers exposed to fire with water spray.
Protection during firefighting	:	Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).
Hazchem Code	:	2Y

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Remove all sources of ignition. Use special care to avoid static electric charges. Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.1.1. For non-emergency personnel

Emergency procedures	:	Do not touch or walk on the spilled product.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and materials for containment and cleaning up

For containment	:	Stop leak if safe to do so. Remove ignition sources. Absorb and/or contain spill with inert material (sand, vermiculite or other appropriate material), then place in suitable container. Do not flush into surface water or sewer system. Wear recommended personal protective equipment.
Methods for cleaning up	:	Sweep or shovel spills into appropriate container for disposal. Provide ventilation.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.
Hygiene measures : Take off immediately all contaminated clothing and wash it before reuse. Wash hands, forearms and face thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed.
Storage conditions : Keep out of the reach of children. Keep container tightly closed. Store locked up. Store in a dry, cool and well-ventilated place.
Incompatible materials : Refer to Section 10 on Incompatible Materials.

SECTION 8: Exposure controls and personal protection

8.1. Control parameters - exposure standards

Phosphate(1-), hexafluoro-, lithium (21324-40-3)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	2.5 mg/m³ (as Fluorides, RR-02792-9)

8.2. Biological Monitoring

No additional information available

8.3. Engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Provide readily accessible eye wash stations and safety showers.

8.4. Individual protection measures, such as personal protective equipment (PPE)

Hand protection : Wear suitable gloves resistant to chemical penetration. Consult glove manufacturer's product information on material suitability and material thickness.
Eye protection : Wear eye/face protection
Skin and body protection : Wear suitable protective clothing
Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.
Environmental exposure controls : Avoid release to the environment.
Other information : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

Physical state : Solid (Powerwall shell), Liquid (Electrolyte)
Appearance : No data available
Colour : No data available
Odour : Odourless.
Odour threshold : No data available
pH : No data available
pH solution : No data available

Relative evaporation rate (butylacetate=1)	:	No data available
Melting point / Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Flammability	:	Highly flammable liquid and vapour. (Electrolyte)
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	No data available
Solubility	:	Water: Insoluble
Partition coefficient n-octanol/water	:	No data available
Explosive properties	:	No data available
Explosive limits	:	No data available
Minimum ignition energy	:	No data available
Fat solubility	:	No data available

SECTION 10: Stability and reactivity

Reactivity	:	When a battery is exposed to high temperatures, crushes, deformation, and external short circuit may result in venting harmful gases and volatile organics. In the event of rupture, hydrogen fluoride gas is produced in reaction with water.
Chemical stability	:	Stable under normal conditions. May form flammable/explosive vapour-air mixture.
Possibility of hazardous reactions	:	No dangerous reactions known under normal conditions of use.
Conditions to avoid	:	Heat. Incompatible materials. Sources of ignition. Direct sunlight. Mechanical shock.
Incompatible materials	:	Water.
Hazardous decomposition products	:	May include, and are not limited to: oxides of carbon. May release flammable gases. Corrosive vapours.

SECTION 11: Toxicological information

Acute toxicity (oral)	:	Harmful if swallowed.
Acute toxicity (dermal)	:	Not classified.
Acute toxicity (inhalation)	:	Not classified.

ATE AU (oral)	303.03 mg/kg bodyweight

Phosphate(1-), hexafluoro-, lithium (21324-40-3)	
LD50 oral rat	50 – 300 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Guideline: EU Method B.1 tris (Acute Oral Toxicity - Acute Toxic Class Method), Guideline: EPA OPPTS 870.1100 (Acute Oral Toxicity)

1,3-Dioxolan-2-one (96-49-1)	
LD50 oral rat	10 g/kg (Source: NLM_CIP)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))
LD50 dermal rabbit	> 26420 mg/kg (Source: ECHA_API)
LC50 inhalation rat	> 730 mg/m³ (Exposure time: 8 h Source: ECHA)

Diethyl carbonate (105-58-8)	
LD50 oral rat	> 15000 mg/kg (Source: ECHA)
LC50 inhalation rat	> 1268 mg/m³ (Exposure time: 7 h Source: ECHA)

Carbonate, methyl ethyl (623-53-0)	
LD50 oral rat	> 15000 mg/kg (Source: EFSA)
LC50 inhalation rat	> 17.6 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns.

Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitisation : Not classified.
Germ cell mutagenicity : Not classified.
Carcinogenicity : Not classified.
Reproductive toxicity : Not classified.

Phosphate(1-), hexafluoro-, lithium (21324-40-3)	
NOAEL (animal/male, F0/P)	500 mg/kg bodyweight Animal: rat, Animal sex: male

STOT-single exposure : Not classified.
STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Phosphate(1-), hexafluoro-, lithium (21324-40-3)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

1,3-Dioxolan-2-one (96-49-1)	
LOAEL (oral, rat, 90 days)	554 mg/kg bodyweight Animal: rat, Animal sex: female
NOAEL (oral, rat, 90 days)	150 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 452 (Chronic Toxicity Studies)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Diethyl carbonate (105-58-8)	
NOAEC (inhalation, rat, vapour, 90 days)	18.995 mg/l air Animal: rat

Carbonate, methyl ethyl (623-53-0)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents), Guideline: EU Method B.7 (Repeated Dose (28 Days) Toxicity (Oral))

Aspiration hazard : Not classified.

Phosphate(1-), hexafluoro-, lithium (21324-40-3)	
Animal studies and expert judgment for classification	False

1,3-Dioxolan-2-one (96-49-1)	
Animal studies and expert judgment for classification	False

Diethyl carbonate (105-58-8)	
Animal studies and expert judgment for classification	False

Carbonate, methyl ethyl (623-53-0)	
Animal studies and expert judgment for classification	False

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye

SECTION 12: Ecological information

According to the National Code of Practice for the Preparation of Material Safety Data Sheets, Environmental classification information is not mandatory. Information relevant for GHS classification is available on request

12.1. Ecotoxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.
Hazardous to the aquatic environment, short–term (acute) : Not classified.
Hazardous to the aquatic environment, long–term (chronic) : Not classified.
Other information : No other effects known.

Phosphate(1-), hexafluoro-, lithium (21324-40-3)	
NOEC chronic fish	4 mg/l Test organisms (species): Duration: '21 d'

1,3-Dioxolan-2-one (96-49-1)	
LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss Source: ECHA)
Partition coefficient n-octanol/water	0.11 (at 20 °C (at pH >5.33-<5.79)

Diethyl carbonate (105-58-8)	
LC50 - Fish [1]	45.1 – 419.4 mg/l Test organisms (species): other:
EC50 - Crustacea [1]	> 74.16 mg/l Test organisms (species): Daphnia magna
Partition coefficient n-octanol/water	1.33 (at 25 °C)

Carbonate, methyl ethyl (623-53-0)	
LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static] Source: ECHA)
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
Partition coefficient n-octanol/water	0.972 (at 40 °C (at pH 6.8)

12.2. Persistence and degradability

Powerwall 3	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Powerwall 3	
Bioaccumulative potential	Not established.

1,3-Dioxolan-2-one (96-49-1)	
Partition coefficient n-octanol/water	0.11 (at 20 °C (at pH >5.33-<5.79)

Diethyl carbonate (105-58-8)	
Partition coefficient n-octanol/water	1.33 (at 25 °C)

Carbonate, methyl ethyl (623-53-0)	
Partition coefficient n-octanol/water	0.972 (at 40 °C (at pH 6.8)

12.4. Mobility in soil

1,3-Dioxolan-2-one (96-49-1)	
Partition coefficient n-octanol/water	0.11 (at 20 °C (at pH >5.33-<5.79)

Diethyl carbonate (105-58-8)	
Partition coefficient n-octanol/water	1.33 (at 25 °C)

Carbonate, methyl ethyl (623-53-0)	
Partition coefficient n-octanol/water	0.972 (at 40 °C (at pH 6.8)

12.5. Other adverse effects

Ozone : Not classified.
Other adverse effects : No additional information available

Powerwall 3	
Fluorinated greenhouse gases	False

Phosphate(1-), hexafluoro-, lithium (21324-40-3)	
Fluorinated greenhouse gases	False

1,3-Dioxolan-2-one (96-49-1)	
Fluorinated greenhouse gases	False

Diethyl carbonate (105-58-8)	
Fluorinated greenhouse gases	False

Carbonate, methyl ethyl (623-53-0)	
Fluorinated greenhouse gases	False

SECTION 13: Disposal considerations

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Additional information : Handle empty containers with care because residual vapours are flammable.

SECTION 14: Transport information

14.1. UN number

UN-No. (ADG) : UN 3480
UN-No. (IMDG) : UN 3480
UN-No. (IATA) : UN 3480

14.2. UN Proper Shipping Name

Proper Shipping Name (ADG) : LITHIUM ION BATTERIES
Proper Shipping Name (IMDG) : LITHIUM ION BATTERIES
Proper Shipping Name (IATA) : Lithium ion batteries

14.3. Transport hazard class(es)

ADG
Transport hazard class(es) (ADG) : 9
Danger labels (ADG) : 9A
:

IMDG
Transport hazard class(es) (IMDG) : 9
Danger labels (IMDG) : 9A
:

IATA
Transport hazard class(es) (IATA) : 9
Danger labels (IATA) : 9A
:

14.4. Packing group

Packing group (ADG) : Not applicable
Packing group (IMDG) : Not applicable

Packing group (IATA) : Not applicable

14.5. Environmental hazards

Marine pollutant : No
Dangerous for the environment : No
Other information : No supplementary information available.

14.6. Special precautions for user

Specific storage requirement : No data available
Shock sensitivity : No data available

14.7. Additional information

Other information : No supplementary information available.
Special transport precautions : Do not handle until all safety precautions have been read and understood.

Transport by road and rail
UN-No. (ADG) : 3480
Special provision (ADG) : 188, 230, 310, 348, 376, 377, 384, 387, 390
Limited quantities (ADG) : 0
Excepted quantities (ADG) : E0
Packing instructions (ADG) : P903, P908, P909, P910, P911, LP903, LP904, LP905, LP906

Transport by sea
UN-No. (IMDG) : 3480

Air transport
UN-No. (IATA) : 3480

14.8. Hazchem or Emergency Action Code

Hazchem Code : 2Y

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

No additional information available

15.2. International agreements

No additional information available

SECTION 16: Other information

Revision date : 15/04/2024
Expiry date : 15/04/2029
Other information : None.
Prepared by : Nexreg Compliance Inc.
www.Nexreg.com

Classification	
Flam. Liq. 2	H225
Acute Tox. 4 (Oral)	H302
Skin Corr. 1A	H314
Eye Dam. 1	H318
STOT RE 1	H372

Full text of H-statements	
Acute Tox. 2 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 2
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 3 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
H225	Highly flammable liquid and vapour
H226	Flammable liquid and vapour
H301	Toxic if swallowed
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H332	Harmful if inhaled
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure