







MEGAPACK

POWERPACK

Industrial Lithium-Ion Battery Emergency Response Guide

For Tesla Industrial Energy Products including Megapack and Powerpack

Revision 2.8

PRODUCT SPECIFICATIONS

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at Tesla, we reserve the right to make product or documentation modifications at any time, with or without notice.

The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

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LATEST REVISIONS

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ERRORS OR OMISSIONS

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1 Introduction and Scope

This emergency response guide (ERG) serves as a resource for emergency responders and Authorities Having Jurisdiction (AHJs) with regard to safety surrounding Tesla Industrial Energy products. This guide should also be reviewed by customers, site managers, and operators to ensure a clear understanding of potential hazards and the procedures to follow in case of emergencies.

Tesla Industrial Energy products are defined as rechargeable lithium battery energy storage products designed, manufactured, and sold by Tesla, and include all versions of Megapack and Powerpack, collectively referred to in this guide as "Tesla Industrial Energy products," "Tesla Energy products," or "the product" unless otherwise noted. The information and recommendations set forth in this ERG are made in good faith and believed to be accurate as of the date of preparation.

NOTE: The guidance in this publication applies to Megapack and Powerpack only and may not extend to the entire site's structures or equipment. As each site differs, accordingly each site's requirements for first responders differ, and this guide does not replace a site-wide plan.

1.1 Available ERG Translations

The *Industrial Lithium-Ion Battery Emergency Response Guide* (ERG) is available in various languages as indicated below. As information in the ERG is periodically updated and translations are periodically added, always check the Tesla First Responders Information page at *https://www.tesla.com/firstresponders* for the latest revision of this guide, for ERGs for other Tesla products, and for the latest additional translated versions.

English	Deutsch	Español	Français
עִבְרִית	Italiano	日本語	한국어
Nederlands	简体中文	繁體中文	Português
Slovenščina			

2 Company, Contact, & Product Info

2.1 Identification of Company and Contact Information

Table 1. Company and Contact Information

Products	Tesla Industrial Energy products, designed for industrial, utility, or commercial energy applications, and modules and sub-assemblies that can be installed in such products. Descriptions and specific part numbers are listed in *Product Descriptions on page 6*.	
Locations	Headquarters (USA)	1 Tesla Road Austin, TX 78725 USA Tel. No. +1 512-516-8177 (do not use for emergencies; see below)
	Europe and Africa	Burgemeester Stramanweg 122 1101EN Amsterdam, The Netherlands Tel. No. +31 20 258 3916 (do not use for emergencies; see below)
	Australia and Asia	546 Gardeners Road Alexandria NSW 2015, Australia Tel. No. 1800 686 705 (do not use for emergencies; see below)
	Manufacturer (USA)	1 Tesla Road Austin, TX 78725 USA Tel. No. +1 512-516-8177 (do not use for emergencies; see below)
Emergency Contacts	CHEMTREC (Transportation)	For hazardous materials (or dangerous goods) incidents during transportation such as spill, leak, fire, exposure, or accident, call CHEMTREC, day or night. Contract Number: CCN204273 Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)
	Tesla Energy Technical Support Contacts	Hotline telephone numbers: • Asia (24x7): +1 571 573 9163 • Australia/New Zealand (24x7): +61 2 432 802 81 • Europe/Middle East/Africa: +31 2 08 88 53 32 • France: +33 173218702 • Japan: +0120 312-441 / (24x7) +1 571 573 9163 • North America (24x7): +1 650-681-6060

		• Slovenia: +38 617778699 • South Africa: +27 213004878 • Switzerland: +41 445155607 • The Netherlands: +31 208885332 • United Kingdom: +44 1628450645

2.2 SDS Information

Safety Data Sheets (SDS) are available for materials in Tesla Energy products. Contact Tesla for a copy of these documents.

Table 2. Thermal Contents

Materials with SDS	Approximate Quantity
Ethylene glycol 50/50 mixture with water	• Powerpack 1: 22 L of 50/50 mixture • Powerpack 2: 26 L of 50/50 mixture • Powerpack 1 or 2 Inverter: 11 L of 50/50 mixture • Powerpack 3: 37 L of 50/50 mixture • Powerpack 3 battery module: 20 L of 50/50 mixture • Megapack: 540 L of 50/50 mixture • Megapack battery module: 20 L of 50/50 mixture • Megapack 2: 360 L of 50/50 mixture • Megapack 2 battery module: 5 L of 50/50 mixture • Megapack 2 XL: Up to 380 L of 50/50 mixture • Megapack 2 XL battery module: 5 L of 50/50 mixture
R-134a: 1,1,1,2-Tetrafluoroethane refrigerant	• Powerpack 1 or 2: 400 g • Megapack: 7.6 kg • Megapack 2: 7.6 kg • Megapack 2 XL: Up to 3.0 kg
R-1234yf: 2,3,3,3-Tetrafluoroethane refrigerant	• Powerpack 3: Up to 650 g • Megapack 2 XL: Up to 5.2 kg

2.3 Lithium Cells

The products contain sealed lithium battery cells (cells). Cells each contain lithium electrodes, which can be composed of:

- Lithium Nickel Cobalt Aluminum Oxide (NCA material), LiNixCoyAlzO2
- Lithium Nickel, Manganese, Cobalt Oxide (NMC material) LiNixMnyCozO2
- Lithium Iron Phosphate (LFP material) LiFePO4
- Lithium Nickel, Manganese Oxide (NMO material), LiNixMnyO2
- Lithium Cobalt Oxide, LiCoO2

- or a mixture of these compounds

The cells and batteries do not contain metallic lithium. Individual cells have nominal voltages of up to approximately 3.6 V.

2.4 Product Descriptions

Individual lithium-ion cells are connected to form modules. Modules are battery sub-assemblies. These modules are installed into the products. Approximate product specifications are listed below.

2.4.1 Powerpack

Powerpack is Tesla's energy storage system for commercial and industrial use and for system augmentation.

NOTE: Images below are indicative representations designed to assist with product identification. Existing product models may vary.

Figure 1. Powerpack 1 or 2: Units and Inverter



1. Powerpack Units (include lithium-ion cells)
2. Powerpack Inverter

Figure 2. Example of a Powerpack 1 or 2 Site



Figure 3. Powerpack 3 Units (3)



Figure 4. Example of a Megapack Augmented with Powerpack 3 Units (3)



1. Megapack 2 XL
2. Powerpack 3 Units

Table 3. Approximate Powerpack Specifications

Part Number (Reman Number if available)	Description	Module Voltage – as shipped (V)	Max System DC Voltage	Max System AC Voltage	Weight	Height	Width	Depth
Powerpack 1 Versions								
1047404-x*y*-z*	POWERPACK (2hr continuous net discharge)	<30 (DC)	450 (DC)	480 (AC)	1680 kg (3700 lb)	219 cm (86 in)	97 cm (38 in)	132 cm (52 in)
1060119-x*y*-z*	POWERPACK (4hr continuous net discharge)	<30 (DC)	450 (DC)	480 (AC)	1665 kg (3670 lb)	219 cm (86 in)	97 cm (38 in)	132 cm (52 in)
1121229-x*y*-z*	POWERPACK (4hr continuous net discharge)	<30 (DC)	450 (DC)	480 (AC)	2160 kg (4765 lb)	219 cm (86 in)	97 cm (38 in)	132 cm (52 in)
** The 8th or 9th digit could be any number or letter and the 10th digit could be any letter.*								
Powerpack 1.5 Version								
1089288-x*y*-z*	POWERPACK 1.5 C/2 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	1622 kg (3575 lb)	219 cm (86 in)	131 cm (51 ½ in)	82 cm (32 ½ in)
** The 8th or 9th digit could be any number or letter and the 10th digit could be any letter.*								
Powerpack 2 / 2.5 Versions								
1083931-x*y*-z* (1130518-x*y*-z*)	POWERPACK 2,C/4 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 kg (4765 lb)	219 cm (86 in)	131 cm (51 ½ in)	82 cm (32 ½ in)
1083932-x*y*-z*	POWERPACK 2,C/2 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 kg	219 cm	131 cm	82 cm

Part Number (Reman Number if available)	Description	Module Voltage – as shipped (V)	Max System DC Voltage	Max System AC Voltage	Weight	Height	Width	Depth
					(4765 lb)	(86 in)	(51 ½ in)	(32 ½ in)
1490025-x*y*-z*	POWERPACK 2.5,C/4 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 kg (4765 lb)	219 cm (86 in)	131 cm (51 ½ in)	82 cm (32 ½ in)
1490026-x*y*-z*	POWERPACK 2.5,C/2 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 kg (4765 lb)	219 cm (86 in)	131 cm (51 ½ in)	82 cm (32 ½ in)
1490027-x*y*-z*	POWERPACK 2.5,C/2 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 kg (4765 lb)	219 cm (86 in)	131 cm (51 ½ in)	82 cm (32 ½ in)
** The 8th or 9th digit could be any number or letter and the 10th digit could be any letter.*								
Spare Parts - Powerpack 1-2								
N/A	POWERPACK POD MODULE	<30 (DC)	960 (DC)	N/A	98 kg (215 lb)	12 cm (5 in)	100 cm (39 ½ in)	75 cm (29 ½ in)
Powerpack 3 Version								
1930712-x*y*-z*	POWERPACK 3	480 (AC)	<1230 (DC)	480 (AC)	4760 kg (10,500 lb)	253 cm (99 ½ in)	110 cm (43 ¼ in)	180 cm (71 in)
** The 8th or 9th digit could be any number or letter and the 10th digit could be any letter.*								
Spare Parts - Powerpack 3								
N/A	POWERPACK 3 BATTERY MODULE	480 (AC)	<1230 (DC)	480 (AC)	1,250 kg (2,760 lb)	67 cm (26 ½ in)	81 cm (32 in)	149 cm (59 ½ in)

2.4.2 Megapack

Megapack is Tesla's all-in-one utility-scale energy storage system.

NOTE: Images below are indicative representations designed to assist with product identification. Existing product models may vary.

Figure 5. Megapack



Figure 6. Example of a Megapack Site

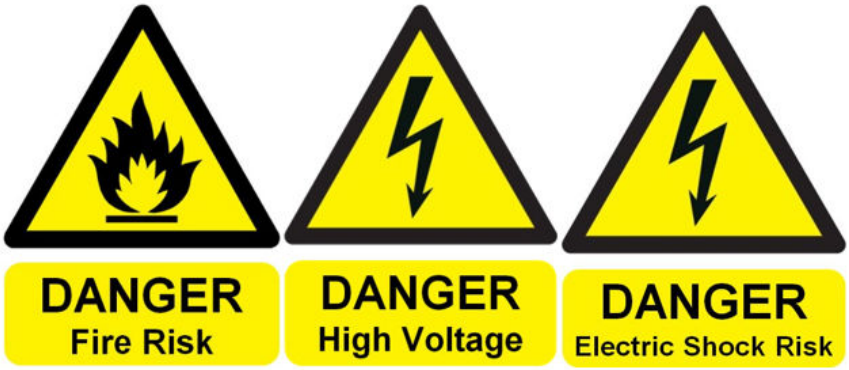


Table 4. Approximate Megapack Specifications

Part Number (Reman Number if available)	Description	Module Voltage – as shipped (V)	Max System DC Voltage	Max System AC Voltage	Weight	Height	Width	Depth
Megapack (all versions - dimensions as measured for enclosure envelope for 1462965-x*y*-z*)								
1462965-x*y*-z*	MEGAPACK	<450 (DC)	960 (DC)	518 (AC)	25,400 kg (56,000 lb) (max)	252.2 cm (99 ¼ in)	716.8 cm (282 ¼ in) (length)	165.9 cm (65 ¼ in)
1748844-x*y*-z*	MEGAPACK 2	480 (AC)	<1230 (DC)	480 (AC)	30,500 kg (67,250 lb) (max)	250.6 cm (98 ¾ in)	725.0 cm (285 ½ in) (length)	163.7 cm (64 ½ in)
1848844-x*y*-z*	MEGAPACK 2 XL	480 (AC)	<1230 (DC)	480 (AC)	38,100 kg (84,000 lb) (max)	278.5 cm (110 in)	880 cm (346 ½ in) (length)	165 cm (65 in)
** The 8th or 9th digit could be any number or letter and the 10th digit could be any letter.*								
Spare Parts								
N/A	MEGAPACK BATTERY MODULE	<450 (DC)	960 (DC)	N/A	1,085 kg (2,400 lb)	66 cm (26 in)	81 cm (32 in)	149 cm (59 ½ in)
N/A	MEGAPACK 2 BATTERY MODULE	480 (AC)	<1230 (DC)	480 (AC)	1,250 kg (2,760 lb)	67 cm (26 ½ in)	81 cm (32 in)	149 cm (59 ½ in)
N/A	MEGAPACK 2 XL BATTERY MODULE	480 (AC)	<1230 (DC)	480 (AC)	1,250 kg (2,760 lb)	67 cm (26 ½ in)	81 cm (32 in)	149 cm (59 ½ in)

3 Handling, Use, & Hazard Precautions

3.1 General Precautions



The products described by this document are dangerous if mishandled. Injury to property or person, including loss of life is possible if mishandled.

The products contain lithium batteries. A battery is a source of energy. Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the operating temperature range of the product as discussed in *Hazards Associated with Elevated Temperature Exposure on page 13*. An internal or external short circuit can cause significant overheating and provide an ignition source resulting in fire, including surrounding materials or materials within the cell or battery. Under normal conditions of use, the electrode materials and electrolyte they contain are not exposed, provided the battery integrity is maintained and seals remain intact. The risk of exposure may occur only in cases of abuse (mechanical, thermal, electrical).

3.2 High-Voltage Hazards

Under normal conditions of use, provided that the product enclosure remains closed, handling the product does not pose an electrical hazard. Numerous safeguards have been designed into the product to help ensure that the high voltage battery is kept safe and secure under a number of expected abuse conditions. All of the component battery cells are sealed within the product as sub-groups within enclosures (Pods or battery modules), cannot be accessed from the exterior, and are not accessible to non-Tesla personnel.

A high voltage and electrocution risk may present if the product's outer enclosure and/or safety circuits have been compromised or have been significantly damaged. A battery pack, even in a normally discharged condition, is likely to contain substantial electrical charge and can cause injury or death if mishandled. If the product has been significantly visibly damaged or its enclosure compromised, practice appropriate high-voltage preventative measures until the danger has been assessed (and dissipated if necessary).

WARNING: Never cut into a sealed product enclosure due to high voltage and electrocution risks.

For proper installation / removal instructions, contact Tesla (*Identification of Company and Contact Information on page 4*).

3.3 Hazards Associated with Elevated Temperature Exposure

This product is designed to withstand operating ambient temperatures up to 50°C (122°F), or as indicated in the product specification, with up to 100% operating humidity (condensing). This product is designed to withstand storage temperatures up to 60°C (140°F), or as indicated in the product specification, and <95% relative humidity (non-condensing) for up to 24 hours without affecting the health of the unit.

Prolonged exposure of the product to conditions beyond these limits may increase the potential of thermal runaway and result in a fire. Exposure of battery packs to localized heat sources such as flames may result in cell thermal runaway reactions and should be avoided.

3.4 Hazards Associated with Mechanical Damage

Mechanical damage to the product can result in a number of hazardous conditions (discussed below) including:

- Leaked battery pack coolant (see *Hazards Associated with Leaked Coolant on page 13*)
- Leaked refrigerant (see *Hazards Associated with Leaked Refrigerant on page 13*)
- Leaked cell electrolyte (see *Hazards Associated with Leaked Electrolyte on page 13*)
- Rapid heating of individual cells due to exothermic reaction of materials (cell thermal runaway), venting of cells, and propagation of self-heating and thermal runaway reactions to neighboring cells.
- Fire

To prevent mechanical damage to the product, these items should be properly stored when not in use or prior to being installed.

3.5 Hazards Associated with Leaked Coolant

Thermal management of the product is achieved via liquid cooling using coolant in quantities as indicated in *Thermal Contents on page 5*. Mechanical damage to a product that has been installed could result in leakage of the coolant. The fluid may be blue, green, or orange in color and does not emit a strong odor.

For information regarding the toxicological hazards associated with ethylene glycol, as well as ecological effects and disposal considerations, refer to the specific Safety Data Sheet (SDS) for battery coolant (see *SDS Information on page 5*).

Extended exposure of the product to leaked coolant could cause additional damage to the product such as corrosion and compromise of protection electronics.

3.6 Hazards Associated with Leaked Refrigerant

The product's thermal management systems include refrigerant in a sealed system in quantities as indicated in *Thermal Contents on page 5*. Mechanical damage to the product could result in a release of the refrigerant. Such a release would appear similar to the emission of smoke.

For information regarding the toxicological hazards associated with refrigerant, as well as ecological effects and disposal considerations, refer to the appropriate Safety Data Sheet (SDS) for refrigerant (see *SDS Information on page 5*).

3.7 Hazards Associated with Leaked Electrolyte

The possibility of an electrolyte spill from the product's cells is very remote for the following reasons:

- Liquid electrolyte is largely absorbed within the cell materials during the manufacturing process. The electrolyte also gets consumed during the normal operation of the batteries.
- The cells are hermetically sealed. Even if a single cell were damaged in a manner that could cause a leak, the volume would be of negligible concern.
- Cells are assembled into enclosed module compartments and inaccessible to personnel. The product architecture prevents any direct contact with the battery cells.

As such, the absence of free liquid electrolyte makes it impractical to report the volume of electrolyte within the product, and the cell and product design prevent the possibility for spills at the project site.

3.8 Hazards Associated with Vented Electrolyte

Lithium cells are sealed units, and thus under normal usage conditions, venting of electrolyte should not occur. If subjected to abnormal heating or other abuse conditions, electrolyte and electrolyte decomposition products can vaporize and be vented from cells. Vented gases are a common early indicator of a thermal runaway reaction – an abnormal and hazardous condition.

Regulatory testing has shown that the products of combustion of lithium batteries can include flammable and nonflammable gases. Based on this testing, the flammable gases are found to be below their lower flammable limit (LFL) and do not pose a deflagration or explosion risk to first responders or the general public. The nonflammable gases were found to be comparable to smoke encountered in a Class A structure fire and do not produce any unique, or atypical, gases beyond what you would find in the combustion of modern combustible materials.

In close proximity, vented gases may irritate the eyes, skin, and throat. Cell vent gases are typically hot; upon exit from a cell, vent gas temperatures can exceed 600°C (1,110°F). Vented electrolyte is flammable and may ignite on contact with a competent ignition source such as an open flame, spark, or a sufficiently heated surface. Vented electrolyte may also ignite on contact with cells undergoing a thermal runaway reaction.

4 In Case of Emergency

WARNING: In case of emergency, severe physical impact, or transportation accident, do not approach the product or open any of its doors.

WARNING: In case of severe physical impact or transportation accident, it may take time before any visible indication of an abnormal and hazardous condition (e.g., smoke or fire) can be observed. Contact Tesla for guidance (*Identification of Company and Contact Information on page 4*).

CAUTION: Response should only be performed by trained professionals.

4.1 During Storage or Operation

During storage or operation, emergencies include but are not limited to:

- Suspicious odor observed near the product
- Smoke or fire emanating from the product
- Severe physical impact on the product

In case of emergency, isolate, deny entry, and perform the following:

1. If possible, and if trained and properly equipped, shut off the unit/system (see *Shutting Down in an Emergency on page 18*).
2. Evacuate the area.
3. If not already present, notify appropriately trained first responders, the local fire department, and any appointed subject matter expert (SME) if available.
4. Contact Tesla for guidance (*Identification of Company and Contact Information on page 4*).

4.2 During Transportation

During transportation, emergencies include but are not limited to:

- Suspicious odor observed near the product
- Smoke or fire emanating from the product
- Transportation accident causing a severe physical impact on the product
- Transportation accident leading to tipping over of the product

In case of emergency, perform the following:

1. If possible, move the unit/system to an open area and away from exposures (such as buildings, flammable material, or people).
2. Evacuate the area.
3. Notify appropriately trained first responders, the local fire department, and any appointed subject matter expert (SME) if available.
4. Contact Tesla for guidance (*Identification of Company and Contact Information on page 4*).

5 Firefighting Measures

5.1 Firefighter PPE

Firefighters should wear self-contained breathing apparatuses (SCBAs) and structural firefighting gear. Industry testing has shown that standard structural firefighting gear provides adequate protection.

5.2 Responding to a Venting Product

WARNING: Do not approach the unit and attempt to open any doors.

Smoke or suspicious odor emanating from a Tesla Energy product can be an indication of an abnormal and hazardous condition. Battery thermal runaway fires (also known as thermal events) are preceded by a period of smoke. If fire, smoke, or suspicious odor is observed emanating from the product at any time, assume a thermal event is occurring and perform the following:

1. If possible, shut down the system (see *Shutting Down in an Emergency on page 18*).
2. Evacuate the area of all non-emergency personnel.

   WARNING: When responding to a fire event, do not approach the unit and attempt to open any doors. The doors are designed to remain shut.

3. If not already done, contact Tesla Energy Technical Support for assistance (*Identification of Company and Contact Information on page 4*).
4. While maintaining a safe distance from the unit:
   - Complete area size-up and identify water supply.
   - If needed, pre-position hose lines to protect adjacent exposures.
   - Monitor for evidence of continued smoke venting or fire.
5. If a fire develops:
   - Allow the affected unit to consume itself as it is designed to do. Applying water to the burning unit will have minimal effect and will only slow its eventual combustion.
   - At the discretion of first responders, apply water to the exposures. Tesla recommends using a fog pattern, if possible, to maximize cooling of the exposure.

     NOTE: Water has been deemed appropriate for use on Tesla Energy products, thus will not create a hazard while protecting exposures.

6. Allow the unit to cool down while maintaining contact with Tesla for guidance (this process may take 12-48 hours or longer) and continuing to maintain a safe distance.
7. Contact Tesla Energy Technical Support for next steps (*Identification of Company and Contact Information on page 4*).

6 Shutting Down in an Emergency

WARNING: Shutting off power to the product does not de-energize the battery, and a shock hazard may still be present.

WARNING: If smoke or fire is visible, do not approach the product or open any of its doors.

WARNING: In case of flooding, stay out of the water if any part of the product or its wiring is submerged.

To shut the product down in an emergency, perform the appropriate steps below and then contact Tesla (*Identification of Company and Contact Information on page 4*):

6.1 Powerpack System

1. If an external emergency stop (E-Stop) button or remote shutdown contact to the Powerpack is present, engage it.
2. If the Powerpack is serviced upstream by an external AC breaker or disconnect, open the breaker or disconnect.

6.2 Megapack System

1. If an external emergency stop (E-Stop) button or remote shutdown contact to the Megapack is present, engage it.
2. If the Megapack is serviced upstream by an external AC breaker or disconnect, open the breaker or disconnect.

7 First Aid Measures

7.1 Electric Shock / Electrocution

Seek immediate medical assistance if an electrical shock or electrocution has occurred (or is suspected).

7.2 Contact with Leaked Electrolyte

Battery cells are sealed. Contents of an open (broken) battery cell can cause skin irritation and/or chemical burns. If materials from a ruptured or otherwise damaged cell or battery contact skin, flush immediately with water, remove all clothing around affected area, and wash affected area with soap and water. If a chemical burn occurs or if irritation persists, seek medical assistance.

For eye contact, flush with significant amounts of water for 15 minutes without rubbing and see a physician at once.

7.3 Inhalation of Electrolyte Vapors

If inhalation of electrolyte vapors occurs, move person into fresh air. If throat irritation is present, seek immediate medical assistance.

7.4 Vent Gas Inhalation

Battery cells are sealed and venting of cells should not occur during normal use. If inhalation of vent gases occurs, move person into fresh air. If signs of respiratory distress are present, seek immediate medical assistance.

8 Damaged Product Handling

This section describes the handling, storage, and transportation of damaged products.

If the event of damage to a product, contact Tesla immediately (*Identification of Company and Contact Information on page 4*).

If a product has been damaged (for example, its battery enclosure has been dented or compromised), it is possible that heating is occurring that may eventually lead to a fire. Damaged or opened cells/batteries can result in rapid heating (due to exothermic reaction of constituent materials), the release of flammable vapors, and propagation of self-heating and thermal runaway reactions to neighboring cells.

Before handling or transporting a damaged product, wait at least 24 hours. Smoke may be an indication that a thermal reaction is in progress. If no smoke, flame, sign of coolant leakage, or signs of heat has been observed for 24 hours, the product may be disconnected and moved to a safe location. Contact Tesla (*Identification of Company and Contact Information on page 4*) to obtain specific instructions for evaluating, disconnecting, and preparing a damaged product for transport.

A damaged product should be monitored during storage for evidence of smoke, flame, sign of coolant leakage, or signs of heat. If full-time monitoring of the product is not possible (for example during extended storage), the product should be moved to a safe storage location.

A safe storage location for a damaged battery will be free of flammable materials, accessible only by trained professionals, and 50 feet (15 m) downwind of occupied structures. For example, a fenced, open yard may be an appropriate safe location. Do not store damaged products adjacent to undamaged products. It is possible that a damaged product may sustain further damage during transportation and may lead to a fire. To further reduce this risk, handle the damaged product with extreme caution.

9 Disposal Procedures

For disposal after a fire or thermal event, contact Tesla for guidance (*Identification of Company and Contact Information on page 4*).

In most cases, the product can be recycled. Contact Tesla to return the product to a Tesla facility for disassembly and further processing. If disposing of the product without returning it to Tesla, consult with local, state and/or federal authorities on the appropriate methods for disposal and recycling of lithium batteries. Note that the products do not contain heavy metals such as lead, cadmium, or mercury.

10 Maintenance or Repair

Tesla requests all maintenance, service, and repairs of the product be performed by Tesla-approved service personnel or Tesla-authorized repair facilities. This includes all proactive and corrective maintenance over the lifetime of the product. Improper service or repair by personnel not approved nor authorized by Tesla could void the product's Limited Warranty, lead to failure of the product, and potentially result in development of an unsafe condition and unexpected electrical events.

11 Transportation

Lithium batteries are regulated as Class 9 Miscellaneous dangerous goods (also known as "hazardous materials") pursuant to the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air, International Air Transport Association (IATA) Dangerous Goods Regulations, the International Maritime Dangerous Goods (IMDG) Code, European Agreements concerning the International Carriage of Dangerous Goods by Rail (RID) and Road (ADR), and applicable national regulations such as the USA's hazardous materials regulations (see 49 CFR 173.185). These regulations contain very specific packaging, labeling, marking, and documentation requirements. The regulations also require that individuals involved in the preparation of dangerous goods for transport be trained in how to properly package, label, mark and prepare shipping documents.

NOTE: Transportation regulations vary by region. To ensure compliant transportation, always refer to local regulations as applicable.

UN Number, Proper Shipping Name	**Powerpack 1 or 2:** 3480, lithium ion batteries **Megapack, Powerpack 3:** 3480, lithium ion batteries OR 3536, lithium batteries installed in cargo transport unit
Hazard Classification	Class 9 Miscellaneous
Packing Group	N/A

Revision History

Revision	Date	Description
2.8	April 10, 2026	• Removed storage precaution guidance • Provided additional refrigerant information for Megapack 2 XL (*SDS Information on page 5*) • Updated UN Part Numbers for Megapack and Powerpack 3 (*Transportation on page 23*)
2.7	February 16, 2024	• Improved firefighting guidance (*Firefighting Measures on page 17*) • Modified Asia-specific hotline numbers (*Identification of Company and Contact Information on page 4*) • Modified UN Number and Proper Shipping Name information (*Transportation on page 23*) • Updated (decreased) Megapack 2 and Megapack 2 XL coolant volume (*SDS Information on page 5*) • Added Powerpack 3
2.6	November 11, 2022	• Decoupled Powerwall information, now focusing on Industrial Energy products (including Megapack and Powerpack). Visit *https://tesla.com/firstresponders* for all versions. • Deleted trademarked brand name from *Firefighting Measures on page 17* • Improved language in *Hazards Associated with Vented Electrolyte on page 14* • Improved language in *Hazards Associated with Elevated Temperature Exposure on page 13* • Simplified language in *Hazards Associated with Leaked Electrolyte on page 13* • Simplified language in *Disposal Procedures on page 21* • Improved overall hazard and firefighting recommendations (*Firefighting Measures on page 17*) • Improved first aid recommendations (*First Aid Measures on page 19*) • Updated Tesla headquarters address (*Identification of Company and Contact Information on page 4*) • Modified SDS language to reflect latest guidance (*SDS Information on page 5*) • Clarified refrigerant volume (*Hazards Associated with Leaked Refrigerant on page 13*)
2.5	May 23, 2022	• Added Megapack 2 XL (*SDS Information on page 5*, *Product Descriptions on page 6*)
2.4	February 16, 2022	• Enhanced firefighting guidance regarding neighboring battery enclosures (*Firefighting Measures on page 17*) • Clarified products of combustion (*Firefighter PPE on page 17*) • Added Powerwall+ and Megapack 2 information.

Revision	Date	Description
		• Provided reference to safety data sheet specific to Australia/New Zealand (*SDS Information on page 5*) • Amended that coolant color can be blue, green, or orange (*Hazards Associated with Leaked Coolant on page 13*) • Added links and QR codes to download this guide in additional languages (*Introduction and Scope on page 2*) • Updated contact information (*Identification of Company and Contact Information on page 4*), including: Tesla headquarters, Powerwall North America hotline, Megapack and Powerpack Japan technical support
2.3	July 28, 2021	• Added coolant volume for separately shipped Megapack battery modules (*SDS Information on page 5*) • Clarified firefighting guidance (*Firefighting Measures on page 17*) • Enhanced product identification information (*Product Descriptions on page 6*) • Simplified emergency shut-down procedures for Megapack and Powerpack (*Shutting Down in an Emergency on page 18*)
2.2	June 23, 2021	• Updated contact information in *Identification of Company and Contact Information on page 4* • Updated specs according to updated products in *SDS Information on page 5* • Added Powerwall part numbers to *SDS Information on page 5* • Enhanced firefighting guidance: *Firefighting Measures on page 17* • Added guidance in case of emergency: *In Case of Emergency on page 15* • Added additional early signs of thermal runaway: *Hazards Associated with Vented Electrolyte on page 14* • Updated Powerwall instructions in *Shutting Down in an Emergency on page 18*
2.1	August 28, 2020	Added spare parts specifications: • Megapack battery module • Powerpack Pod module
2.0	July 8, 2020	• Updated formatting • Updated product specs • Updated contact info • Corrected elevated temperature topic to include Megapack • Corrected name of Tesla Inverter to Powerpack Inverter • Separated information on shutting down into its own topic for visibility • Reorganized the Firefighting section for clarity • Updated language on re-ignition risks
1.8	March 11, 2020	Fixed footer; fixed styles.
07	17-Dec-2019	Updates to contact information (Tesla contact), product specs section, leaked electrolyte section, and inclusion of Megapack throughout the document.

Revision	Date	Description
06	27-Feb-2019	Updated storage conditions and firefighting measures section to provide further context on response tactics to Tesla Energy Product fires. Adjusted formatting, included graphics for warnings and notices.
05	22-Oct 2018	Reformatted for ease of use and translation; removed Confidential status; corrected phone number for CHEMTREC
04	30-June-2017	Added fire ground operations response for Powerpack 2, including approach; exhaust gases; and safety. Updated general product information and contacts, as well as part numbers and reman numbers
03	3-Oct-2016	Added part numbers, minor edits
02	3-Sept-2015	Added part numbers, updated weights, voltages, and temperatures, clarified hazards associated with spilled electrolyte, updated storage requirements, updated warning label icons, updated packing group.
01	14-July-2015	ERG for Tesla Powerpack systems, Powerwalls, and Sub-assemblies

