General Information

- Can you send me spec sheets of the following batteries?
- Can you send me MSDS's for each of the batteries we buy from you?

We have the same MSDS (Material Safety Data Sheet) covering our complete range of PS, PSH, PSG and PG series batteries, they are not model specific. We also have MSDS's for our Powersport, NiCd and NiMH batteries.

- How are your batteries rated?

Our PS, PSH and PSG-Series batteries are rated at their 20 hour rate. Our PG-Series long life batteries, in accordance with industry convention, are rated at their 10 hour rate.

- How do we read the date code on your batteries?

PS, PSH, PSG and PG Series Product Date Codes- The first five numeric characters represent the month, day and year of manufacture (MM/DD/Y)

• The first two numbers identify the month, from 1 to 12. For example, March is 03 and November is 11.

• The second two numbers specify the day of the month, from 01 to 31.

• The fifth digit identifies the year from 0 to 9. This digit is repeated every 10 years. For example, 1 = 2001, 4 = 2004 etc. For example: 09016 would be broken down to September 1st, 2006 There may be additional alpha-numeric characters at the end of the date code. These are internal lot numbers or injection mold numbers and they have no bearing on the date of manufacture.

Powersport Battery Date Codes- The first three letter/numeric characters represent the year and month of manufacture (Y/MM)

• The first letter identifies the year of manufacture. For example, the letter "N" represents 2014.
• The second two numbers specify the month of manufacture. For example, the numbers "01" would represent the month of January.

• The remaining sequence of numbers represents the factory code and line which the battery was manufactured on.

Date Code Breakdown:

L= 2012

M= 2013

N= 2014

O= 2015

P= 2016

Q= 2017

R= 2018

01= January

02= February

03= March

04= April

05= May

06= June

07= July

08= August

09= September

10= October

11= November

12= December

- Do your batteries have National Stock Numbers (NSN)?

Many of our batteries have NSN numbers.

- How can I find out what is the internal resistance of my battery?

Power-Sonic publishes the internal resistance of all of our sealed lead acid batteries on page one of the individual battery specification sheets.

- I am trying to send some of your batteries by air but the freight forwarder won't take them because they say they are hazardous goods. What do I do?

Our sealed lead acid batteries can be shipped safely by air.

- What are the lowest and highest temperatures that your sealed lead acid batteries can operate in?

Power-Sonic PS, PSH, PSG and PG batteries can be discharged at temperatures from -40°C to 60°C (-40°F to 140°F) and charged at temperatures from -20°C to 50°C (-4°F to 122°F).

- Will I get the same battery life from all of your PS-Series batteries?

The life of a battery will depend upon a number of factors including application, operating temperature and the charging method.

- What are the differences between AGM sealed lead batteries and Gel sealed lead batteries?

Both kinds of batteries are sealed, valve regulated types allowing them to be used in any position. The difference lies in the way the electrolyte is immobilized. In case of an absorbed electrolyte type (AGM), the electrolyte is absorbed by the glass fiber separator who acts like a sponge. In a gel-type battery the liquid electrolyte turns into a gel right after the battery is filled. Gel batteries use a different type of separators which are not absorbent. The internal design is otherwise similar.

- What is the difference between cycle use and standby use?

When a battery is being used as a power source on a regular basis and it is being discharged and subsequently recharged, the battery is said to be in cyclic use. The determining factor in the life of this battery is the number of charge/discharge cycles that can be completed. In cyclical applications up to 1,000 charge/discharge cycles can be expected depending on the average depth of discharge.

Standby batteries are meant to act as an emergency power source where the main power source has failed for some reason. Consequently standby batteries are kept fully charged so that they can "kick in" immediately. The batteries remain connected to a trickle charger that will keep the battery fully charged and ready for use. In standby use the batteries have a design life of up to five years. Please consult our **Technical Manual** and **product specifications** to become aware of the many factors that effect product life.

- What is battery cycle life?

The number of charge/discharge cycles that can be achieved before a battery reaches the end of its' useful life. The number of cycles depends on the capacity taken from the battery (a function of discharge rate and depth of discharge), operating temperature and charging method.

- What is battery float life?

The life expectancy of a battery under continuous charge. This depends on the frequency and depth of discharge, the float voltage and the ambient temperature.

- How safe are your batteries?

Power-Sonic batteries are extremely safe providing sensible handling, installation and charging practices are followed.

The MSDS contains important information relative to safe handling, materials used and precautions to be taken. You should read this important information prior to use.

- What is the battery case made from?

Our AGM battery cases and lids are made from ABS plastic that complies with a specific UL rating. Depending on the application, some cases are manufactured from ABS that has a higher resistance to flame than the standard model.

Our High Performance and Conventional Powersport battery cases and lids are made from polypropylene, which allows for reserve electrolyte capacity for a cooler operating temperature, as well as greater resistance to gas, oil and impact.

- Does Power-Sonic sell lead-calcium batteries?

All our sealed lead acid batteries utilize a lead-calcium alloy free of antimony. The small amount of calcium (and tin) in the grid alloy imparts strength to the plate and guarantees durability even in excessive cycle service. The heavy duty lead calcium alloy grids provide an extra margin of performance and life in both cyclical and float applications and give unparalleled recovery from deep discharge.

- What is the difference between SLA, VRLA and AGM batteries?

SLA and VRLA are different acronyms for the same battery, Sealed Lead Acid or Valve Regulated Lead Acid. This battery type has the following characteristics: Maintenance-free, leak-proof, position insensitive. Batteries of this kind have a safety vent to release gas in case of excessive internal pressure build up. AGM, Absorbed Glass Mat refers to a specific type of SLA/VRLA where the electrolyte is absorbed into separators between the plates consisting of sponge like fine glass fiber mats.

- How do I add acid to the battery?

You should never seek to add acid to our sealed batteries. Our VRLA batteries are a closed system that works on a recombination principle. To produce a truly maintenance free battery it is necessary that the gasses generated during overcharge are recombined in a so called “oxygen cycle”. The theory is explained on page 4 of our Technical Manual.

- Are your SLA batteries recombinant?

Yes, detailed information can be found in our Technical Manual on page 4.

- What is the country of origin for your batteries?

Most of our batteries come from China. Due to the need for special sizes etc., some of our batteries are sourced from Taiwan or Vietnam.

- In which direction does current flow in a battery?

The conventional direction is from positive terminal (anode) to negative terminal (cathode). This is the direction of the electric field within the wire.

- Do your sealed lead acid batteries develop a “memory”?

Due to the nature of the materials used, this type of battery does not develop any memory.

- What is the price of lead?

Our batteries are manufactured from lead purchased on the Shanghai Metals Exchange (SME).

Charging

- I have purchased one of your batteries. Where can I purchase a suitable charger?

Power-Sonic offers a wide range of chargers suitable for batteries up to 100AH. These chargers can most likely be purchased from the same source that sold you the battery. If your battery source does not offer chargers, our customer service department will be able to direct you to a suitable distributor.

- How can I determine how many hours will it take me to fully charge one of your batteries?

Charging times can vary substantially depending upon so many variable factors including:

• Depth of discharge
• Charging temperature
• Size and efficiency of the charging equipment

- Does overcharging damage batteries?

As a result of too high a charge voltage excessive current will flow into the battery, after the battery has reached full charge. This will cause decomposition of the water in the electrolyte and premature aging. At high rates of overcharge a battery will progressively heat up. As it gets hotter it will accept more current, heating up even further. This is called thermal runaway and it can destroy a battery in as little as a few hours.

- Can I charge Power-Sonic sealed lead acid batteries with an auto charger?

The electrolytes in an auto battery and a sealed lead acid battery have different specific gravities. Different chargers are required for each type. Using an auto charger could result in heat being generated inside a Power-Sonic battery; this in turn would shorten the battery life. Please contact our technical department if you need help in determining a suitable charger.

- What is thermal runaway?

As a result of too high a charge voltage excessive current will flow into the battery, after reaching full charge, causing decomposition of water in the electrolyte and premature aging. At high rates of overcharge a battery will progressively heat up. As the battery gets hotter it will accept more current heating up even further. This is called thermal runaway and it can destroy a battery in as little as a few hours.

- I have purchased a 4 volt battery from you, how can I charge it?

Power-Sonic only offers 6 and 12 volt chargers and as such we do not have a suitable charger available for charging a single battery.

For assistance in locating a suitable charger please contact our Technical Department.

- Can I open the charger case to make modifications?

Chargers do not contain any customer serviceable components and should not be opened under any circumstances. Doing so would void the warranty and could lead to **damage to property and/or result in personal injury.**

Installation

- Can we install a battery in a sealed enclosure?

Batteries must never be charged or discharged in a sealed environment. Batteries generate a mixture of gasses internally. Given the right set of circumstances, such as extreme overcharging or

shorting of the battery, these gasses might vent into the enclosure and create the potential for an explosion when ignited by a spark. Generally, ventilation inherent in most enclosures is sufficient to avoid problems.

- We have just purchased some of your batteries from a supplier and they are not performing as well as the older Power-Sonic batteries that they replaced. Any ideas why?

The most likely reason is that they have not come up to full capacity yet. A brand new battery will have a capacity (AH) 5-10% lower than the rated capacity. The full amp hour will be reached when the battery has been cycled 10 -30 times.

- Can your batteries be laid on their side?

Our sealed batteries can be operated in virtually any orientation without loss of capacity or electrolyte leakage. However, upside down operation is not recommended. Before undertaking installation please ensure that you are familiar with our Technical Manual, particularly with the Important To Dos and the do nots detailed on pages 20 and 21.

- Can I bend the terminals of the battery in the opposite direction?

The terminals of any sealed lead acid battery should not be bent. They are bonded in place with epoxy and bending the terminals may crack the epoxy and allow electrolyte to leak out and air to take its place. This will shorten the life of the battery, may cause damage due to the electrolyte spillage and will void the warranty.

- How do I connect your batteries in parallel? (Increases capacity)

When charging batteries in parallel (positive terminals are connected to the positive terminal and negative terminals to the negative), all batteries in the string will receive the same charge voltage but the charge current each battery receives will vary until equalization is reached.

- I want to use your batteries in series, what are the considerations?

In connecting batteries in series (increases voltage) the positive terminal of the first battery is connected to the negative terminal of the second battery and so on down the string. The interconnecting cables must be of equal length and resistance to insure equalization of the load. All batteries in the string will receive the same amount of charge current, though individual battery voltages may vary. High voltage strings of batteries in series should be limited to twenty 6 volt or ten 12 volt batteries when a single constant voltage charger is connected across the entire string. Differences in capacity can cause some batteries to overcharge while others remain undercharged thus causing premature aging of batteries. It is, therefore, not advisable to mix batteries of different capacities, make, or age in a series string.

- What is the AH supposed to be right out of the box?

A brand new battery will have a capacity (AH) 5-10% lower than the rated capacity. The full amp hour will be reached when the battery has been cycled 10 -30 times.

- As you do not make 24 volt batteries can we use 12 volt instead. If so, how do we hook them up?

Yes you can use two 12 volt batteries by connecting them in series. Positive is connected to negative and negative is connected to positive. It is important that you access our Technical Manual page 17 for further information.

Rules and Regulations

- Are your batteries CE compliant?

CE certification of electrical/electronic devices relates to electromagnetic compatibility (EMC). The certifications and tests related to this are designed to ensure that electromagnetic radiation (which are really radio waves) from components do not interfere with other devices such as TV, radio, computers, medical equipment and mobile phones.

Types of devices that do not radiate electromagnetic radiation, such as batteries, ***are not required to undergo the tests.***

- Are your batteries in compliance with EU Directive 2006/66/EC?

Power-Sonic Corporation Sealed Lead Acid Batteries do not contain any of the substances contained in article 4 of the directive: (a) All batteries or accumulators, whether or not incorporated into appliances, that contain more than 0.0005% of mercury by weight; and (b) Portable batteries or accumulators, including those incorporated into appliances, which contain more than 0.002% of cadmium by weight.

Page one of the document lists all the materials that are contained in our sealed lead acid batteries. It will be noted that the EU directive clearly states ’ lead ban ’ It is certified therefore, that our sealed lead acid batteries are in full compliance with this directive. There is a requirement for our sealed lead acid batteries to be labeled with the WEEE symbol (a crossed-out wheelie bin and the appropriate chemical symbol). This is designed to inform the end user to separate batteries from other waste. Our batteries do carry this label. Our NiCd batteries are not compliant with the EU directive and should not be exported. Our U.K. subsidiary, Power-Sonic Europe, do carry NiCd batteries that are compliant

- Are your batteries RoHS compliant?

The ROHS directive (Restriction of Hazardous Substances in Qxlectrical Qxquipment) covers the same scope as the WQxQxQx directive . Therefore, our appropriate response is to declare that our range of products is outside the scope of each of these directives.

- Do your batteries contain any of the substances that the EU has listed as Substances of Very High Concern (SVHC)?

Power-Sonic batteries do not contain any substances that fall within the EU directive.

Safety

- Can you please send me MSDS for each of the batteries we buy from you?

We have the same MSDS (Material Safety Data Sheet) covering our complete range of PS, PSH, PSG and PG series batteries, they are not model specific.

- I have dropped one of your batteries and it has split open. What should I do about cleaning it up?

Please refer to our **Material Safety Data Sheet** (MSDS) Sections 6, 7 and 8 for full information. Please follow these instructions and always ensure that you are wearing acid-resistant clothing, boots, gloves, and face shield.

- Does overcharging damage batteries?

As a result of too high a charge voltage excessive current will flow into the battery, after the battery has reached full charge. This will cause decomposition of the water in the electrolyte and premature aging. At high rates of overcharge a battery will progressively heat up. As it gets hotter it will accept more current, heating up even further. This is called thermal runaway and it can destroy a battery in as little as a few hours.