

Solar Batteries, the Various Types and Manufacturers on the Market

Solar Refrigerator Company takes a deep dive into the Deep Cycle VRLA Solar Batteries Industry, exploring the various types and best choices for end consumers.

ORO VALLEY, ARIZONA, USA, February 22, 2023 /EINPresswire.com/ -- [Solar Refrigerator Company](#) is a full-service solar equipment supplier providing quality products at great prices. The company supplies [solar batteries](#), solar panels, solar fridges, solar freezers, inverters, and charge controllers. Currently, it offers the [SRCR450DW stainless steel 15.9 cu ft. DC refrigerator](#), reduced in price from \$2,195 to \$2,055 and is shipping for free to US customers for a limited time.



Solar Refrigerator Company is committed to educating customers to help them make better buying choices for their solar needs. There are four (4) main types of solar batteries, including Flooded batteries, AGM batteries (also known as the golf cart batteries), Gel batteries, and Lithium-ion solar batteries.

WHAT IS A FLOODED BATTERY

Historically, the most common type of battery. These batteries are widely used in cars, stationary (large) uninterrupted power supplies, and of course, stand-alone energy systems. They contain a combination of liquid electrolyte, which must be carefully measured and maintained in order for the battery to perform properly. They use a liquid electrolyte-containing medium to trigger a chemical reaction. When the battery is connected, the battery acid bonds to the lead plates, which causes a reaction that sends an electric current through the attached circuit.

PROS

These batteries are typically the better choice for backup power applications, utility, and grid energy storage. They are less expensive compared to AGM batteries.

CONS

They require a lot of maintenance due to periodic inspection and liquid top-up.

More easily damaged in forceful movement.

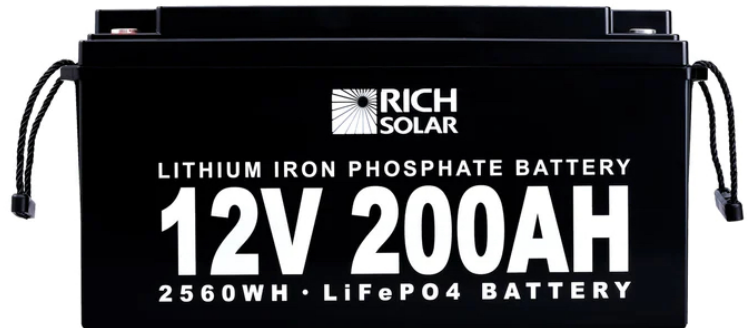
Extreme climates can have a greater effect on the battery life due to the electrolyte solution inside the battery having the ability to evaporate or freeze.

WHAT IS AN AGM BATTERY

AGM stands for Absorbed glass mat. AGM batteries are a maintenance free alternative to traditional flooded lead-acid batteries. They are designed to provide powerful bursts of starting amps and run electronics for a longer period of time.

An AGM (absorbed glass mat) battery contains a special glass mat separator that wicks the electrolyte solution between the battery plates. This material's design enables the fiberglass to be saturated with electrolyte – and to store the electrolyte in a “dry” or suspended state rather than in free liquid form. As the battery works, electrolyte is transferred from the glass mat to battery plates as required. The mat contains enough electrolyte for the battery to deliver its full capacity and – should the battery case become damaged or the battery is tipped on its side – its electrolyte will not spill.

PROS



Maintenance free

Do not require watering.

Perform better than flooded batteries due to no liquid and gassing.

CONS

Over and under charging can affect life and performance of this type of battery.

AGM batteries perform most reliably when their use is limited to the discharge of no more than 50% of battery capacity.

WHAT IS A GEL BATTERY

A gel battery is a valve regulated, lead acid battery in which a predetermined quantity of an electrolyte, together with sulphuric acid is combined with silica fumes. This chemical reaction results in an immobile, gel-like mass.

PROS

Extremely robust and versatile.

Safe for install in poorly ventilated environments.

Excellent suited for Deep cycle applications because their life span is generally between 500 to 5000 cycles.

Maintenance free.

Spill proof

Experience minimal corrosion, hence, compatible with sensitive electronic equipment.

Rugged and vibration-resistant.

Less risk of sulphuric acid burns.

Low cost-per-month.

CONS

Higher initial cost compared to AGM and flooded batteries.

If overcharged, water cannot be refilled.

They require special chargers and regulators.

Hot temperatures can affect adversely acid can turn the gel hard and may shrink away from plates

WHAT IS A LITHIUM ION SOLAR BATTERY

A lithium-ion or Li-ion battery is a type of rechargeable battery which uses the reversible reduction of lithium ions to store energy. The anode (negative electrode) of a conventional lithium-ion cell is typically graphite made from carbon. The cathode (positive electrode) is

typically a metal oxide. The electrolyte is typically a lithium salt in an organic solvent. Lithium ion solar batteries are a rechargeable energy storage solution that can be paired with a solar energy system to store excess solar power.

PROS

- Low upkeep effort.
- High energy density compared to other batteries.
- Currently the most durable batteries.
- Extremely easy & rapid charging.
- Safest to facilitate.
- Extremely high performance.
- Minimal environmental impact.
- Greatest depth of discharge (DoD) compared to all other batteries.

CONS

- Higher cost than any of the other solar batteries

Solar Refrigerator Company recommends brands of solar battery products like Rich Solar, which offers 12-volt AGM, Gel & Lithium-ion solar batteries ranging in size from 100 to 200Ah; Renogy offering 12-volt AGM, Gel & Lithium-ion solar batteries ranging in size from 100 to 200Ah; EcoSol Batteries offering 12-volt Gel Batteries which come with 3 years warranty ranging in size from 100 to 200Ah; and Dakota Lithium with 12, 24 & 48-volt Lithium-ion solar batteries which come with 11 years warranty ranging in size from 60 to 200Ah.

For more information about the solar batteries/ VRLA Deep Cycle batteries featured in this article, please visit <https://solarrefrigerator.us/>

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