

Welcome to the zeus power podcast, where we will be discussing ZEUS lithium iron phosphate (LFP) batteries, explain their application space, show common features and their advantages over other similar battery chemistries and how they can easily replace traditional lead acid sla (sealed lead acid) batteries.

Let's start with some history. sealed lead acid batteries (SLA) have been in use for over 150 years. SLA batteries have served to grow industries and provide society with power but technology has accelerated at an amazing pace and there are now much safer and more efficient battery chemistries. Zeus lithium iron phosphate batteries are an excellent replacement for sealed lead acid (SLA) batteries in every vertical market. Some of the more popular applications for Zeus LFP batteries are for medical equipment, power backup systems, security & fire alarm systems, portable power solutions and AGV / AMR's for the robotics industry.

Let us discuss some electrical, mechanical and environmental features that are built into every Zeus lithium iron phosphate battery. Zeus' standard line of LFP batteries are environmentally friendly, containing no heavy metals. They have a very low self-discharge rate (as low as 2% per month) while maintaining a wide operating temperature range between -20°C to 60°C (or -4°F to 140°F). The battery management system (or bms) in Zeus LFP batteries controls overcharge, over-discharge, over-current, short circuit, cell balancing and temperature to create a high charge and discharge efficiency and excellent "effective capacity". Lithium iron phosphate batteries can provide more than 2000 discharge/charge cycles.

Let's take a moment and talk about the differences between Zeus's lithium iron phosphate battery cells and lithium-ion battery cells. Lithium-ion batteries have taken the world by storm over the last 40 years, becoming the popular choice for countless devices due to their energy content and high-power capability, without extra weight or size, when compared to other chemistry types. However, because of the high energy density and flammable electrolytes inside of lithium-ion batteries, there is always some chance of thermal runaway. Such an event can be non-violent, where only out-gassing occurs from pressure built inside the battery. But if damaged or incorrectly charged, violent thermal runaways can lead to explosions and fires, as seen with cell phones, electric scooters and laptops. It is highly recommended for design engineers to select cells that are UL listed to avoid or prevent safety concerns at the cell level.

Zeus' lithium iron phosphate cells are a safer alternative to lithium-ion batteries and have a smaller chance of thermal runaway. Although the upfront cost of lithium iron phosphate cells might be greater than other chemistry types, the long term benefits almost always outweigh the cost. Aside from the decreased chance of thermal runaway, Zeus lithium iron phosphate batteries can have discharge rates of up to 20°C and the ability to withstand abusive conditions such as high load current. They can also operate in a wider temperature range, increasing cycle and shelf life compared to traditional SLA batteries. Approximately 1/2 of the weight to SLA batteries, Zeus LFP batteries are much lighter. For those concerned about applications where cell size is a priority, research and development is being performed currently to help develop prismatic-type lithium iron phosphate battery cells that may be suitable for portable applications.

Battery selection for user applications varies depending on important factors such as capacity parameters, weight, dimensions, temperature, maintenance/service objectives and cost.

What are the key takeaways on today's episode of Zeus power podcast? We learned about the advantages of the lithium iron phosphate battery over other battery chemistries. Zeus's LFP batteries are excellent replacements for traditional lead acid SLA batteries in every vertical market. Zeus lithium iron phosphate batteries are environmentally friendly, compared with traditional SLA batteries, they have higher energy density, longer cycle life, high rate capability, faster charge, lower self discharge and lower weight.

Zeus' line up of standard lithium iron phosphate batteries are the obvious choice for your reliable power needs. Please visit [zeusbatteryproducts.com](http://zeusbatteryproducts.com) for more information on how to power your world. Thank you for listening and please join us next time on the ZEUS Power podcast! "subscribe" or follow.