

FEATURE ▶ BATTERIES & CHARGERS

NICKEL DOESN'T HAVE TO BE COMPLEX

The latest nickel-cadmium batteries are a direct replacement for lead-acid, according to Alcad managing director, Peter Eriksson



A reliable industrial backup battery matters in the same way that a reliable fire exit matters: the average person might not want to think about it too much, but they do want to know that it's working as intended. Because when it isn't, safety, operational efficiency and profit are all compromised.

An unplanned outage can cause significant problems for any business, particularly in demanding industries such as oil and gas, utilities and in environments such as automated manufacturing facilities. If they can't deliver power when it's needed – for example, for safe plant shutdown, and to ensure continuity of mission-critical loads – then entire supply chains can be disrupted.

Nickel-cadmium battery technology is usually the backup of choice as it offers a long life, excellent levels of reliability and does not experience the 'sudden death' phenomenon that affects lead-acid batteries. But until now, it has not been straightforward to upgrade from lead-acid to nickel-cadmium technology. However, new Alcad advanced nickel-cadmium battery

technology is making it easier to replace lead acid.

Nickel-cadmium battery technology doesn't have to be complicated. In fact, batteries like Alcad's Vantex can be used as a direct replacement for lead-acid batteries. Without the need to upgrade chargers, businesses can benefit from a higher level of reliability and a higher level of chargeability. This facilitates a straightforward arrangement of battery chargers.

During charging, the voltage needs to increase as the state of charge (SOC) rises. In lead-acid, this voltage step is relatively modest, but standard nickel-cadmium batteries require a significant step in voltage.

This means chargers have to be adapted to bring the battery up to capacity, with a float charge and a boost charge voltage that enables a full recharge of the battery. Extra dropping diodes have to be built into charger units in order to deliver these necessary charging levels.

However, for the latest generation of its nickel-cadmium battery technology, Alcad has upgraded the active material

inside the cells. By changing the electrochemistry, it's possible for a Vantex to be charged with single level of charge voltage of 1.39 V/cell – enabling compatibility with most mainstream lead-acid battery charging systems.

All of this means that nickel pocket plate batteries can directly replace conventional lead-acid batteries. Enhanced chargeability and a narrow voltage window for charging mean that dropping diodes are not needed in the charger, allowing significant savings to be made from adopting low maintenance, long-life-service, high reliability nickel-cadmium battery technology.

In addition, when fast recharge is required, 95 per cent SOC can be achieved in eight hours. This ensures the batteries will be available again promptly after discharging.

Overall, using nickel-cadmium batteries as a drop-in replacement for lead-acid means a more reliable backup system and less engineering. The result is lower capex, lower opex, and optimal performance.

Nickel doesn't have to be complex.

Alcad

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Map pinpoints battery storage worldwide

A digital map detailing more than 120 lead battery-powered energy storage projects has been unveiled by the Consortium for Battery Innovation (CBI)



The map includes case studies demonstrating successful lead battery energy storage installations from the US, to Asia and Europe.

The feature is included on the CBI's website. Through a range of case studies, the map details how lead battery storage is supporting utility and renewable energy systems. This includes providing back-up for local power grids and supplying off-grid electricity to power remote communities.

CBI director, Dr Alistair Davidson, said: "We are seeing growing interest in lead battery energy storage for utility and renewables systems all over the world. The aim

of this initiative is to highlight some of these installations and encourage companies to share other examples we can highlight, demonstrating the variety of projects currently in place.

"Our analysis suggests demand for battery energy storage will increase significantly in the next five years. This new tool will allow us to demonstrate that the latest lead battery technology is supporting a wide range of installations with reliable, safe, sustainable and cost-effective energy storage."

CBI batteryinnovation.org

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