

# HOW BATTERIES ARE TRANSFORMING THE CLEANING WORLD

By Johan le Roux, Specialised Cleaning Technical Manager

## The breakthrough!

For many years, batteries were part of our daily existence. A lot of development has since been put into the production of batteries, causing them to have a prolonged lifespan. This has especially been true for cell phone battery development. The biggest breakthrough came with the introduction of lithium-ion batteries that suddenly allowed us to use our mobile phones for longer time frames. Cell phones can now be charged more often, and the charging times are less.

The above-mentioned breakthroughs formed the basis of the development of a variety of cleaning equipment that can now be operated with battery power. Examples include compact floor scrubbers as well as back-pack vacuum cleaners.



## May the best battery type win

**So, what are the benefits of lithium-ion batteries compared to the traditional lead acid and gel batteries?**

As businesses look to use more sustainable working methods through the use of electrified equipment, understanding the different types of batteries and what they offer is key for understanding overall user costs. For instance, more traditional lead acid and gel batteries are often cheaper to buy at the onset. However, their long-term capacity diminishes at a much faster rate when compared to lithium-ion batteries. This often results in the former needing to be replaced after short intervals, which leads to higher costs for the user.

A lead acid battery has a rate of up to 900 cycles in its lifespan. It is rechargeable and is relatively inexpensive. The battery loses a cycle each time it is charged and also produces hydrogen gas that reduces its charging efficiency. This results in the battery achieving only 80 per cent operational efficiency. Another disadvantage is that the batteries are heavy.

A lithium-ion battery, on the other hand, has a lifespan of up to 3800 cycles. It is also lighter than lead acid batteries and can therefore be used in a wider range of equipment. It also has a very low self-discharge rate, which enables users to achieve a near 100 per cent operating capacity, ensuring it will last longer compared to its lead acid battery counterparts.

## The cleaning industry and batteries

In the cleaning industry, it is crucial to have batteries that can be charged quickly and efficiently to reduce equipment downtime. When using a fast charger, certain lithium-ion batteries can be charged in as little as two hours. Over a 24-hour period, the user would be able to spend up to 14 hours cleaning and ten hours charging. This helps to increase productivity and avoid equipment down time. Another advantage of lithium-ion batteries is that they require zero maintenance from the user as they contain no gel or liquid substances. Additionally, they contain a battery management system (BMS) that operates as the brains of the battery. From charging to discharge, the BMS oversees all battery activity.

When it comes to selecting battery powered equipment, knowing the differences between lead acid and lithium-ion batteries will help users make an informed decision based on what works best for their needs. Although more expensive in the beginning, lithium-ion batteries can be more economical over an extended period. The other big advantage is their ability for opportunistic charging, especially in an environment where load shedding is an almost daily occurrence.