

Lithium-ion batteries - towards a green future

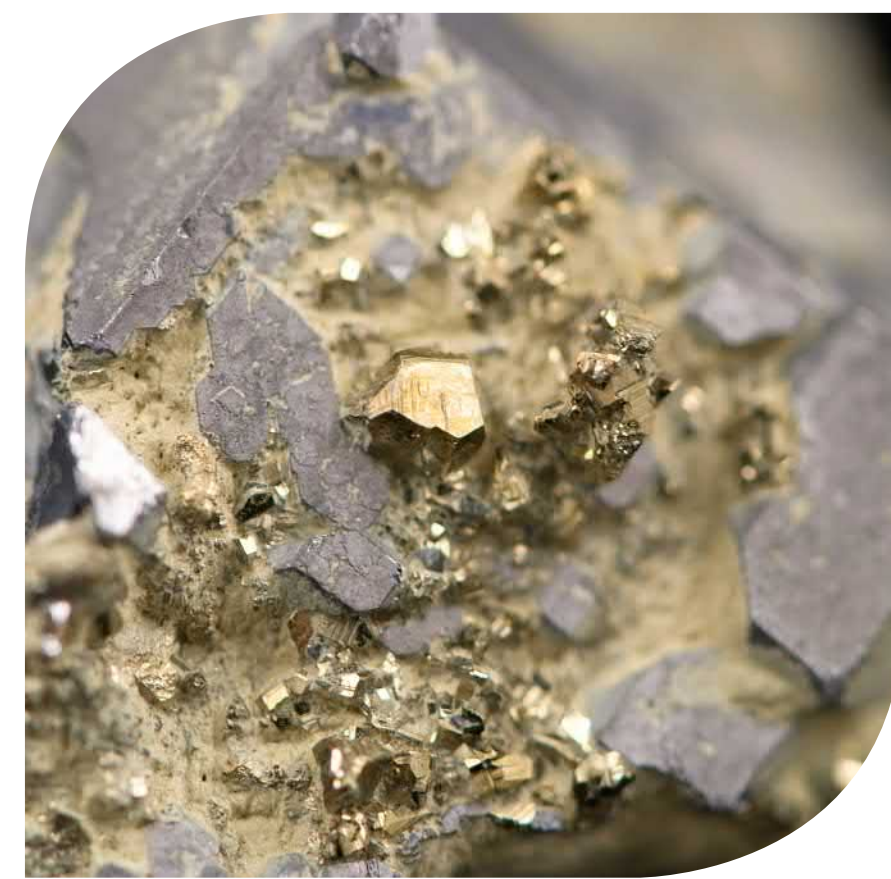
A steep rise in the number of clean energy powered vehicles on our roads is anticipated over the next decade. Our hydrogen peroxide will play an important role in the production of battery grade metals and in the recycling of lithium-ion batteries that will be used to power the electric cars, vans, buses and other vehicles.

An environmental initiative

The three drivers behind the automotive revolution are environmental awareness, fast-moving political policy changes and technological innovation. Air quality experts attribute between 15 and 25 percent of polluting emissions, such as nitrogen oxide, particulate matter, and carbon dioxide to emission from combustion engine powered vehicles. These pollutants are known to contribute to climate issues such as smog and human health problems.



Both the U.S. and the EU implemented an agreement with auto manufacturers to reduce carbon dioxide emissions and markets around the world have gradually been increasing their fuel efficiency targets.



Ambitious innovation

Nouryon is dedicated to developing new applications and products that deliver value for our customers and society and help solve the sustainability challenges we all face, today and in the future.



Did you know that:



By 2025, all new cars sold in Norway will be vehicles with low emissions or no emissions of greenhouse gases. By 2030, almost all new cars should be completely emission-free.



The EU has a specific *Battery Directive* in place (2006/66/EC) which also includes guidelines for lithium-ion battery recycling; the directive mandates a minimum recycling efficiency of 50% by weight.



Both the US and the EU implemented an agreement with auto manufacturers to reduce carbon dioxide emissions. Countries have translated this into local targets or even a ban on selling new petrol, diesel, or hybrid cars in their country after a specific time.



According to the World Economic Forum, there is a need to increase global battery production by a factor of 19 to be able to transition to a low-carbon economy.

The power of Hydrogen Peroxide

Hydrogen peroxide is an important additive to the process of recycling the valuable metals in used lithium ion batteries. It increases the recycling efficiency by functioning as a reducing agent when leaching black mass from spent batteries of different chemistries (Lithium Cobalt Oxide, Lithium Nickel Manganese Cobalt Oxide, Lithium Nickel Cobalt Aluminum Oxide etc.).

Hydrogen peroxide also plays an important role when producing battery grade metals and the cathode active material using various lithium, nickel, manganese and cobalt sources - used in virgin materials as well as materials recovered from spent lithium batteries.

Value-chain sustainability

Hydrogen peroxide is well known as an environmentally friendly product which decomposes into oxygen and water. Our hydrogen peroxide is produced in a sustainable and resource efficient process; we continuously evaluate our footprint and search for ways to enhance our circular economy. We combine world-class technology, application know-how, optimized supply chain and global logistics solutions with products that provides customers with significant advantages.



Nouryon