

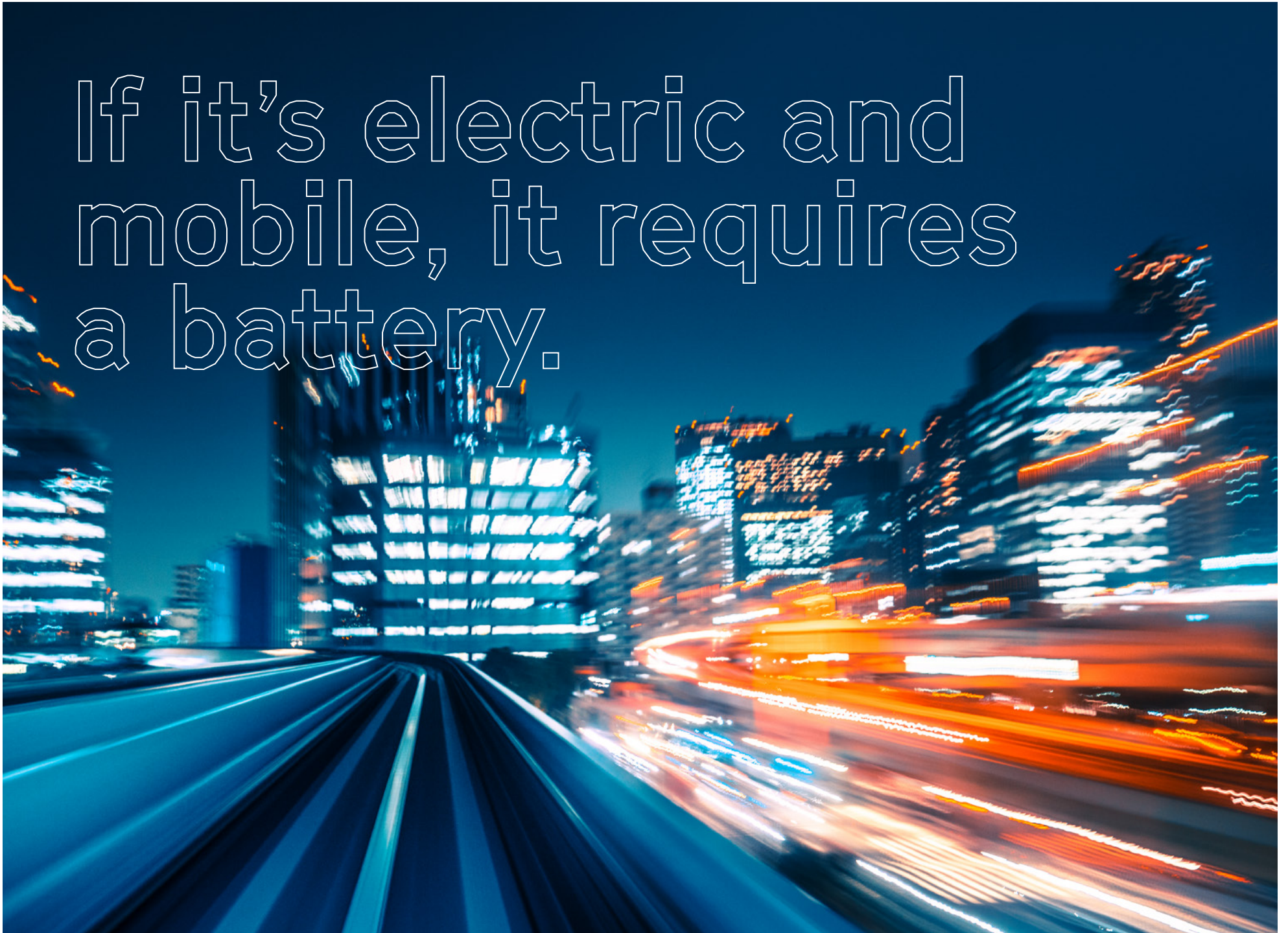
# Metso

Metso in Battery Minerals

## Enabling a responsible energy transition



If it's electric and  
mobile, it requires  
a battery.



# Giving a green light for tomorrow's energy

We are driving the energy transition from fossil fuels towards sustainable battery-powered alternatives with a unique offering for a more responsible value chain from start to finish and beyond.

Metso has a holistic insight into the battery minerals segment, stemming from a comprehensive technological coverage of the entire value chain. We use our unique position to efficiently address many of the challenges facing our sustainability-minded society.

As society continues to embrace batteries as the more responsible alternative for burning fossil fuels, we need to accept that we can't just concentrate on the sustainability of individual end user commodities such as EVs. To determine and improve sustainable performance,

we need to take a holistic approach and lead the way towards a more responsible overall business ecosystem.

To succeed in this green transition, it is not enough that the batteries continue to develop and improve. It is equally important, if not even more so, that the stakeholders across the entire value chain continue to develop at the same pace and commit to doing better. Tomorrow's battery mineral processes not only need to be more sustainable, but also more transparent, safe and reliable.

## Key segment challenges



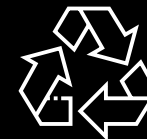
Meeting exponentially growing demand requires new investments



High usage of both water and land



Environmental impact of mining processes (ESG)



Growing need for efficient recycling



Geopolitical considerations

# Responsibility is an opportunity

We are in the business of converting the modern world from fossil fuels to electric power. And while that requires for a lot more mining to take place, it is nothing compared to the amount required to meet today's demand for oil and coal.

Ultimately electrification will reduce the overall need for mining and drive the creation of new, sustainable processes. But for now, one factor that is slowing down electrification is the limited availability of raw materials.

Our most important objectives in serving the battery minerals segment are to enable the industry to strive towards meeting the exponentially growing demand, and providing solutions that help customers do it sustainably and responsibly.

Part of being responsible is also about continuing to innovate solutions for efficient black mass recycling processes that will make sense in the long run, both in terms of business and the environment.

Estimates say that by 2040 demand for Lithium may grow by over

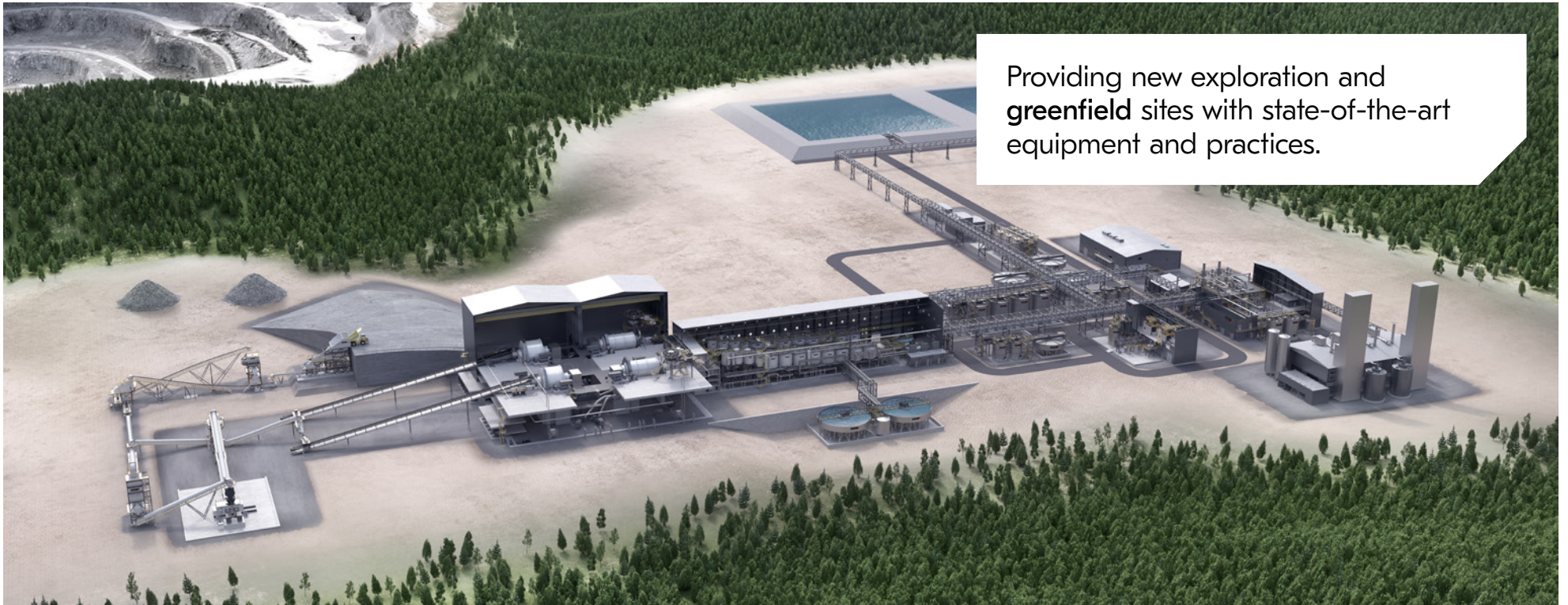
# 1,500%

Source: International Energy Agency



## Multiple minerals and processes

Being responsible means more to us than just designing and offering sustainable technologies for the hard rock mining and brine extraction of battery minerals such as **Lithium, Cobalt, Nickel, Copper, Graphite or Manganese.**



Providing new exploration and **greenfield** sites with state-of-the-art equipment and practices.

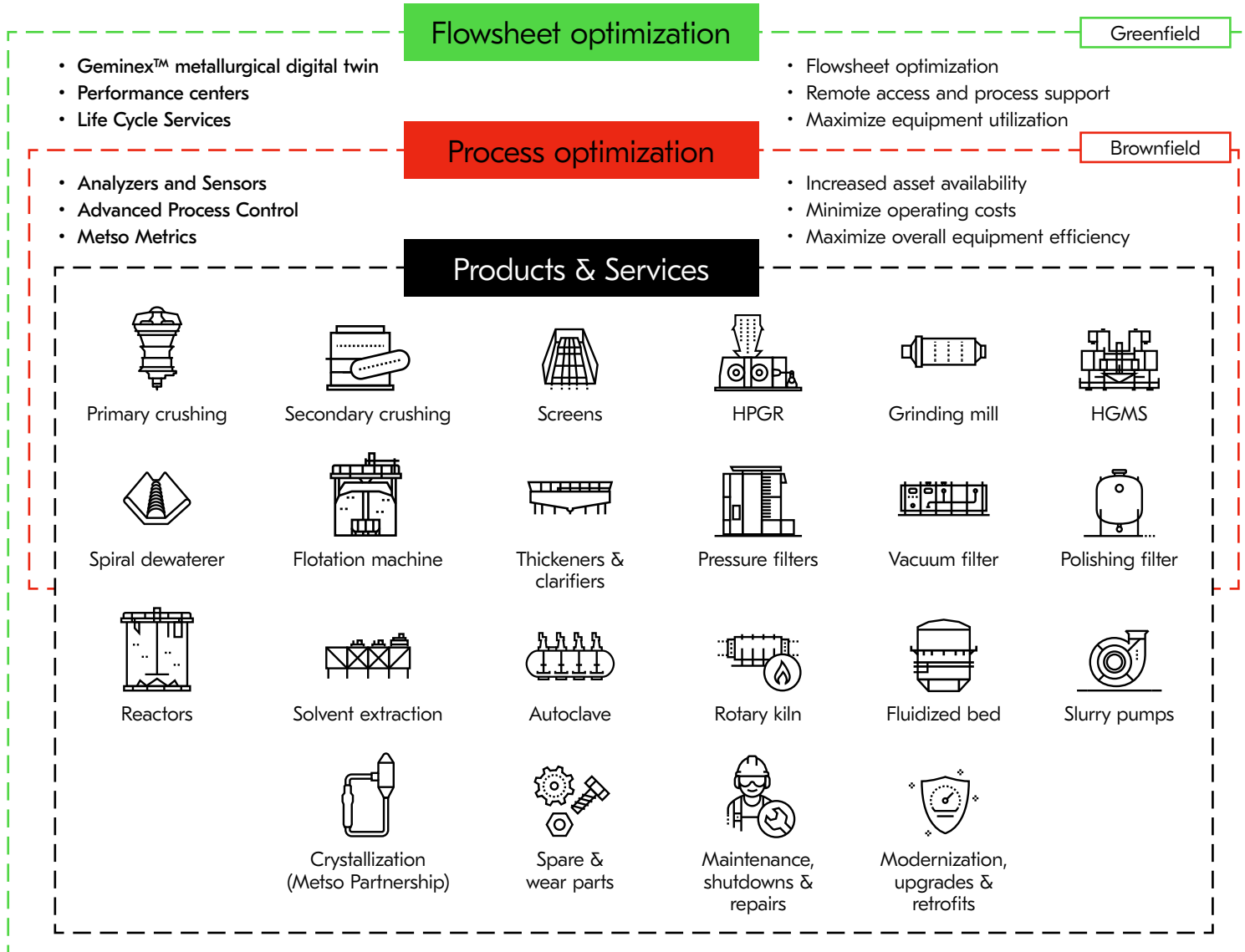


Helping improve the efficiency of existing **brownfield** mining and extraction sites, plants and processes.



Developing efficient and responsible processes for **recycling** minerals from decommissioned batteries.

# End-to-end solutions for Battery Minerals

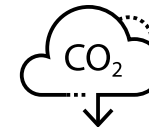


Our offering for the battery minerals segment consist of technologies meeting our Planet Positive criteria.

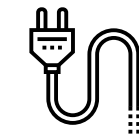
Things we can help with:



Efficiency / yield



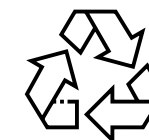
CO<sub>2</sub> emissions



Energy consumption



Fresh water consumption



Capture of reusable battery raw materials (recycling)

Metso's leading product brands:

- Superior™ MKIII
- Nordberg® C Series™
- Nordberg® MP Series™
- TankCell®
- Concorde Cell™
- MHC™
- Larox®
- OKTOP®
- VSF® X
- PSI®
- Courier®
- HRC™
- Premier™
- Select™
- Orion Series

# Unique position in the industry

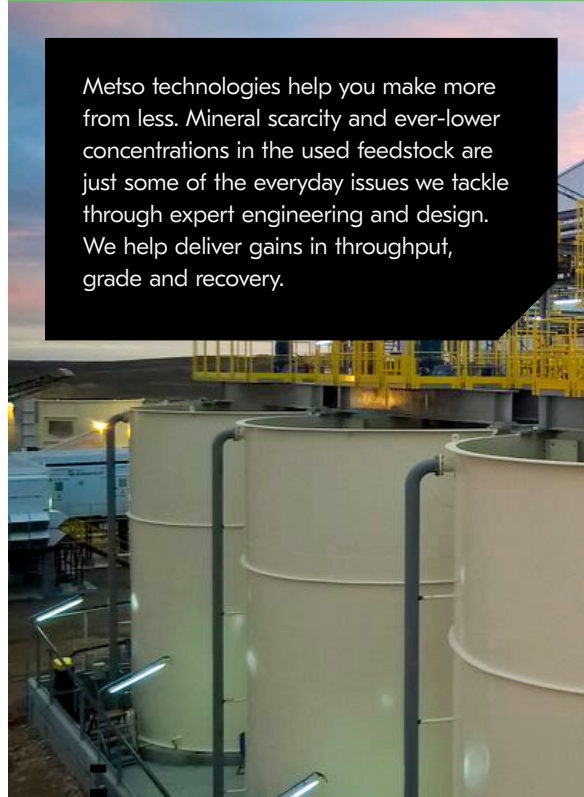
## Mining & concentrates

Metso has industry leading comminution and beneficiation equipment focused on delivering raw material, energy and water usage efficiency. We deliver optimized performance and high capacities to help you meet growing demand responsibly.



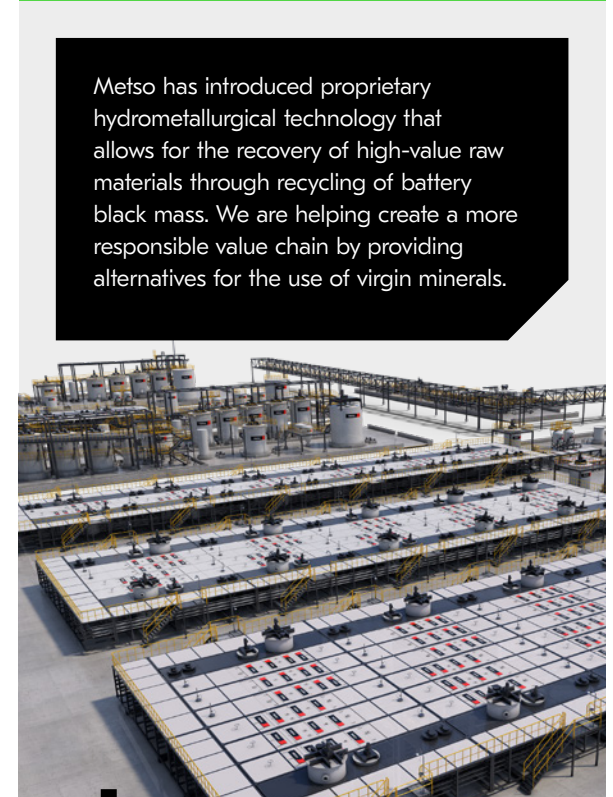
## Chemical production & metallurgy

Metso technologies help you make more from less. Mineral scarcity and ever-lower concentrations in the used feedstock are just some of the everyday issues we tackle through expert engineering and design. We help deliver gains in throughput, grade and recovery.



## Battery recycling

Metso has introduced proprietary hydrometallurgical technology that allows for the recovery of high-value raw materials through recycling of battery black mass. We are helping create a more responsible value chain by providing alternatives for the use of virgin minerals.



Mining & concentrates



Chemical production & metallurgy

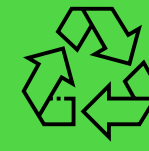
Battery precursor manufacturing



Battery production



EVs

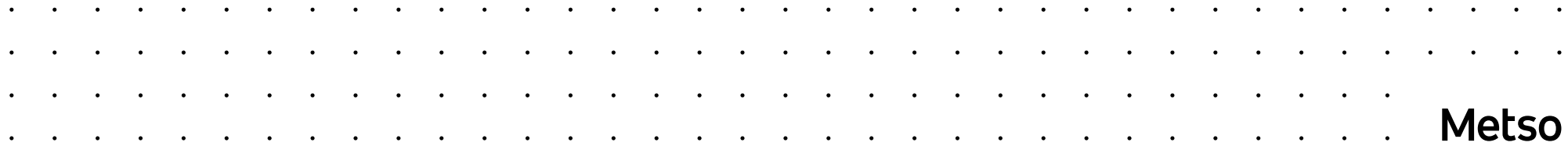


Battery recycling

We offer full coverage of the battery minerals extraction, refinement and recycling processes.

Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change**.

[metso.com](https://metso.com)



**Metso**