RECKELBERG
ENVIRONMENTAL TECHNOLOGIES

RET Reckelberg Environmental Technologies
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REVOLUTION IN BATTERY RECYCLING

As a machine and plant manufacturer, we have valuable expertise and innovative technologies at our disposal. These enable our customers to professionally recover valuable raw materials from batteries - and thus close the cycle.

THE BATTERY CHALLENGE

Thinking about tomorrow today!

We are well aware of the challenges that the coming years will bring. The production and marketing of LIBs is constantly increasing. The area of electromobility alone is growing exponentially. Added to this are all consumer batteries that can be found in smartphones and other electronic devices, for example. That is why we want to make a significant contribution to establishing a circular economy for LIBs by providing our technologies, thereby conserving our planet's limited resources.

OUR PERFORMANCE

- 98% black mass recovery
- 95% recycling rate
- 99% purity of black mass
- eco-efficient recycling

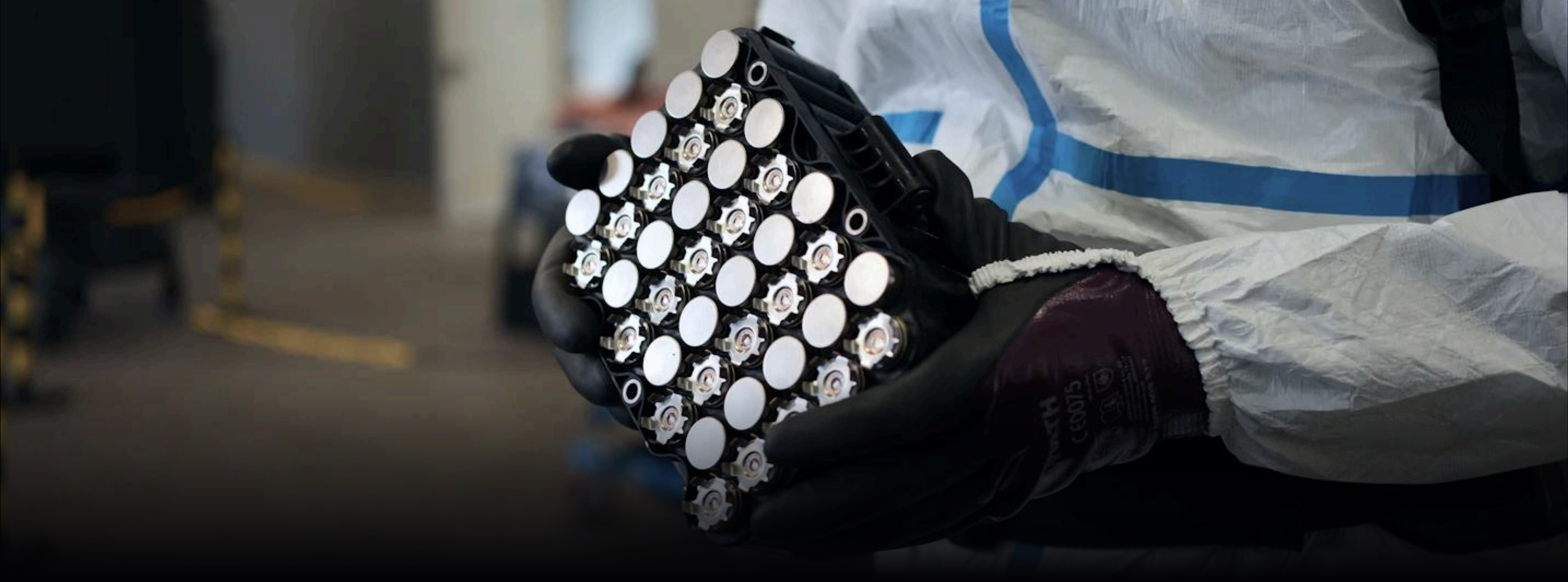
DISCHARGE - EFFICIENT, CLEAN AND SAFE

To ensure maximum process and work safety, the batteries are deep discharged to 0 V. It does not matter whether the batteries are entire storage units, modules or individual cells.

The targeted discharge of the residual electrical energy still stored in the cells reduces the risk potential for the subsequent recycling process on the one hand and improves the energy balance of the process on the other, as both a return to the drying treatment and an alternating direction for feeding back into the grid can take place.

HIGHLIGHTS

- For batteries from electric vehicles and stationary applications
- Safe due to deep discharge down to 0 volts
- Efficient energy recovery thanks to bidirectional design
- Freely selectable discharge depth of up to 1,000 V



DRYING – INNOVATIVE, PRECISE AND CUSTOMIZABLE

Depending on the size of the system, the batteries are then either inert or safely decomposed in a vacuum. The electrolyte is separated and recovered in a highly effective dryer specially developed for this application.

The discharged lithium-ion batteries are shred in an inert atmosphere and thus broken down. The battery components are then fed into our vacuum drying process, in which the volatile electrolytes evaporate by generating negative pressure in combination with heat. These are then condensed out and bottled in liquid form. Only the dried cell components then enter the mechanical separation process.

HIGHLIGHTS

- safe and low-emission recovery of volatile organic electrolytes
- low temperatures in the vacuum dryer ensure high-quality black mass
- the drying process drastically reduces the risk of fire in the process
- efficient processing and material recovery, e.g. through parallel redundant drying

SEPARATION - HIGH-QUALITY, EFFECTIVE AND POWERFUL

Only one unit is required for the delamination of the electrode foils, the spheronization of metals and the separation of the black mass: The RET Impact Reactor.

By using the Impact Reactor, we guarantee a high yield and yet very clean black mass, even with previously untreated, dry production waste and scrap. The dry cell components are fed into the Impact Reactor. A special rotor ensures that the coatings are detached from the carrier films and the released black mass is discharged using an air flow and patented deflector wheel technology. At the same time, the housing parts and metal foils are sphericalized and then separated from each other using suitable separation units and filled according to type.

HIGHLIGHTS

- highest purity and quality of the recovered black mass
- highest yield and recovery of valuable metal fractions
- integrated separation of hazardous substances in powder form and robust design
- particularly insensitive to impurities due to the geometry of the Impact Reactor

DO YOU HAVE ANY QUESTIONS OR WOULD YOU LIKE TO KNOW MORE?

MORE DETAILS & INFORMATION
ABOUT DISCHARGE

MORE DETAILS & INFORMATION
ABOUT DRYING

MORE DETAILS & INFORMATION
ABOUT SEPARATION

CONTACT

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