

## The TRANSTECH Project - Transformative technologies for enhancing hydrometallurgical recovery rates of Li, Co and Ag

In cooperation with **IME Process Metallurgy and Metal Recycling** from RWTH Aachen and **MiMi Tech GmbH**, Germany, **MEAB Chemie Technik GmbH** participates in the **TRANSTECH**-Project, a "**r4-Innovative Technologies for Resource Efficiency**" support program, funded by the Federal Ministry of Education and Research of Germany.

The research assumptions in the **TRANSTECH** Project are to achieve high recovery rates of critical metals such as Li, Co and Ag from leaching industrial wastes and residues with simultaneous reduction of the consumption of necessary chemicals. Applying "*Transformative technologies*", in the form of microwave energy, plasma technology or ultrasound for the "activation" of leach liquids, would result in enhanced kinetics and improved leaching results.

To demonstrate the usefulness of the transformative technologies, leaching of three kinds of slags, containing strategic metal have been performed: Li-Co-battery slag, Ag- and Cu-slag. The battery slag originates from the smelter process and contains approximately 11 wt. % Co and 30 wt. % Li, together with impurities such as Fe, Ca, Al, Si and Mn. Our primary results indicate that when the selected slags were used a conventional leaching is not economical feasible. Moreover, the current processes are time-consuming and cost-intensive and thus inefficient. Applying the new transformative technologies, however, improved the metal recoveries, and in addition the processing time is reduced.

Due to this proven positive effects when using the transformative technology we will use it to perform the final investigations regarding an optimization of the recovery of lithium and cobalt from battery slags.

*The main role of MEAB is the purification of the pregnant leach solution through precipitation and solvent extraction for cobalt separation and finally, recovering of marketable Li and Co products.*