

network partners

POEN Co., Ltd. (POSITIVE ENERGY)



POEN deals with the following topics in the context of lithium ion batteries:

- remanufacturing battery pack from waste EV battery
- lease EV battery pack from waste EV battery
- residual value solution for electric vehicle
- electric vehicle battery sharing economy business

www.poen.kr

Stöbich technology GmbH



Stöbich has been developing and marketing innovative products in the field of "fire protection and safety in handling lithium ion batteries" since 2013.

- storage/transport solutions for safe storage
- equipment of stationary large storage tanks with special materials and fire protection systems

www.stoebich-technology.de

SungEel HiTech Co., Ltd.



SungEel recycles lithium ion batteries: 8,000ton/year (2018) and 24,000 ton/year (2020)

- recover Li, Co, Ni, Mn, Cu from wasted lithium secondary battery by hydrometallurgy
- recovery rate 95% ↑ (based on black mass)

www.sungeelht.com

TU Bergakademie Freiberg



The research at the Institute of Electrical Engineering concentrates on electrical energy converters. Here, the design and calculation of electrical machines as well as the optimization of electrical drives play an essential role.

- analytical design numerical optimization
- energy balancing, control of electrical traction drives

<https://tu-freiberg.de/fakult4/et>

Witt Solutions GmbH

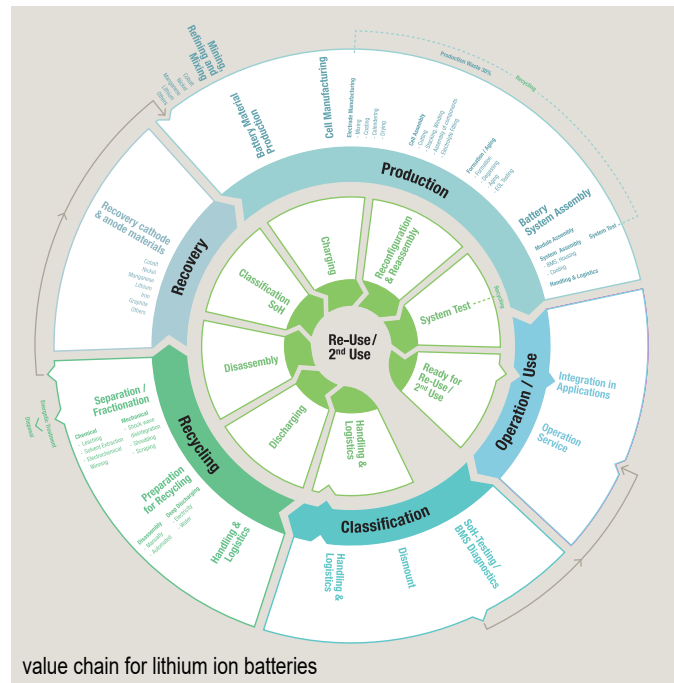


Witt develops measuring and testing equipment for medium voltage up to 50kVDC / 20kAh.

- manufacture and sale of measuring and testing equipment for DC power supply
- battery formatting systems and performance testing
- high performance BMS

www.witt-solutions.de

Network ReLioS



value chain for lithium ion batteries



"Reuse and Recycling of lithium ion battery systems"

Korean German Network



What we do

ReLioS is an international network focusing on the reuse and recycling of lithium ion battery systems. The network members (SMEs, research institutes, large corporations) complement each other with their competencies along the value chain.

The network serves:

- as an international communication platform
- as a think tank providing expertise
- as source for (R & D) projects
- to develop business models

Together with our partners we work on the establishment of a closed economic cycle and on standards for the battery industry.

www.relios.org
info@relios.org

Supported by:



on the basis of a decision by the German Bundestag

network partners

Bexel Co., Ltd.

Bexel is the leading energy innovation company in Korea.

- primary, secondary and special batteries
- applications (E-Scooter, E-Board)
- portable energy solution (portable battery, EV charger, ESS, etc.)

www.bexel.co.kr



BTU Cottbus-Senftenberg

Their department physical chemistry is expert in recycling of lithium ion batteries.

- recovery of anode and cathode materials from dismantled battery cells
- chemical analysis of battery materials and microscopic and spectroscopic materials analysis

www.b-tu.de/fg-physikalische-chemie



Constin GmbH

Constin is a development service provider and manufacturer of products where good design is an important success factor.

- design of battery packs, battery and cluster management systems (BMS & CMS)
- design-in of batteries in vehicles and ESS

www.constin.de



CORN Co., Ltd.

CORN concentrated on secondary battery solution. Specially, we try to do best not only lithium ion battery for environment energy business, pack system manufacturing business also reuse and recycle as well.

- battery business
- technology transfer and equipment

www.mycorn.co.kr



Daegu mechatronics & materials institute

Aim of DMI is to develop and support advanced technologies (ai, IoT, big data, ...) according to the business objectives and circumstances of local businesses so as to help them secure the sustainable competitiveness.

- testing and performance evaluation
- technology transfer and consultation

www.dmi.re.kr



network partners

Diemer Consulting 4.0

Consulting in the field of digital transformation is one of the main tasks of Diemer Consulting as well as the development of concepts for (digital) eco systems for

www.dc40.de



EcoPro CnG Co., Ltd. (EcoPro Clean & Green)

EcoPro CnG is a company specializing in battery recycling for valuable metal recovery such as lithium, cobalt and nickel from waste lithium ion battery.

- dismantling process for separation of electrode materials (black powder)
- hydrometallurgical process for extraction of valuable metals

www.ecopro.com



Festo

Festo offers products, systems and services surrounding pneumatic and electrical control and drive technology for:

- factory automation: gripping, moving and positioning parts, modules or complete products
- process automation: transport, handling, treatment, purification, filling and waste disposal of fluids

www.festo.com



ImpulsTec GmbH

The ImpulsTec process enables a material selective separation of lithium ion batteries and production waste using shock wave fragmentation technology.

- recovery of high quality battery materials
- construction & marketing of plants & machinery installation for recycling batteries & industrial composites

www.impulstec.com



InnoPOWER - Haug+Luithle GmbH

InnoPOWER offers turnkey solutions for advanced electric mobility applications and energy storage systems.

- planning, construction
- battery testing
- consulting
- sales, assembling

www.innopower.de



network partners

Korea electrotechnology research institute

KERI has a central role in the advancement of scientific technology and industrial development in Korea by leading R&Ds and testing in the electric power, electricity and electric utility fields.

- development of power IT, new and renewable energy system technology
- testing & certification services on electrical devices

www.keri.re.kr



Kyungpook National University

Organic Nanoelectronics (ONE) Lab in KNU is focusing on new materials/devices and recycling of secondary battery materials:

- synthesis of new energy materials, recycling of used materials, in-depth characterizations, etc.
- fabrication and evaluation of Li-based secondary batteries using recycled materials (lab-scale)

www.knu.ac.kr



Maschinenbau Kitz GmbH

mk is one of the leading suppliers of profile technology, conveyor technology and system solutions for factory automation.

- In battery production we are specialist for interlinking, modul and pack assembly.
- We have the process know how for reuse and recycling, special safe dismantling.

www.mk-group.com



MISUM systech Co., Ltd.

We specialize in developing and producing the battery pack and BMS which control life time, protecting and monitoring of rechargeable batteries.

- battery pack for LEV, eMobility and Scooters
- battery system for UPS, ESS for renewable energy
- battery management system (R&D / produce)

www.misum.co.kr



Phoenix Controls

Phoenix Controls develops and mass-produces

- charger/discharger for secondary battery production and development
- EOL testers for battery modules/packs
- simulators for inverter/motor of EV and various power supply / E-Loaders, targeting battery and EV/ESS manufacturers

www.phoenixon.com

