



/ K-UTEC AG Salt Technologies | Sondershausen | Germany

# DEMONSTRATION PLANT FOR PRODUCTION OF LITHIUM COMPOUNDS

August 2022 | ACHEMA 2022

**K-UTEC**  
SALT TECHNOLOGIES



# K-UTEC AG SALT TECHNOLOGIES



## Competence in Salt

**Foundation of Potash Research Institute of GDR**

1951

**Foundation of K-UTEC GmbH**

1992

**Spin-off of K-UTEC AG Salt Technologies**

2008

**Management Board**

Dr Heiner Marx  
Dr Markus Pfänder  
Dr Sebastian Lüning

**Employees**

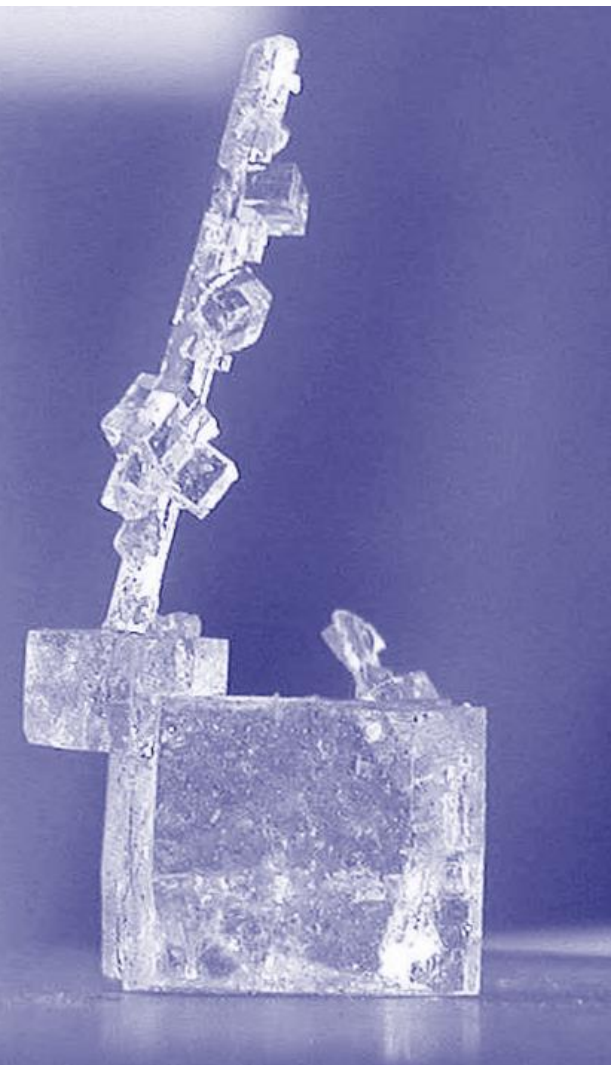
approx. 100





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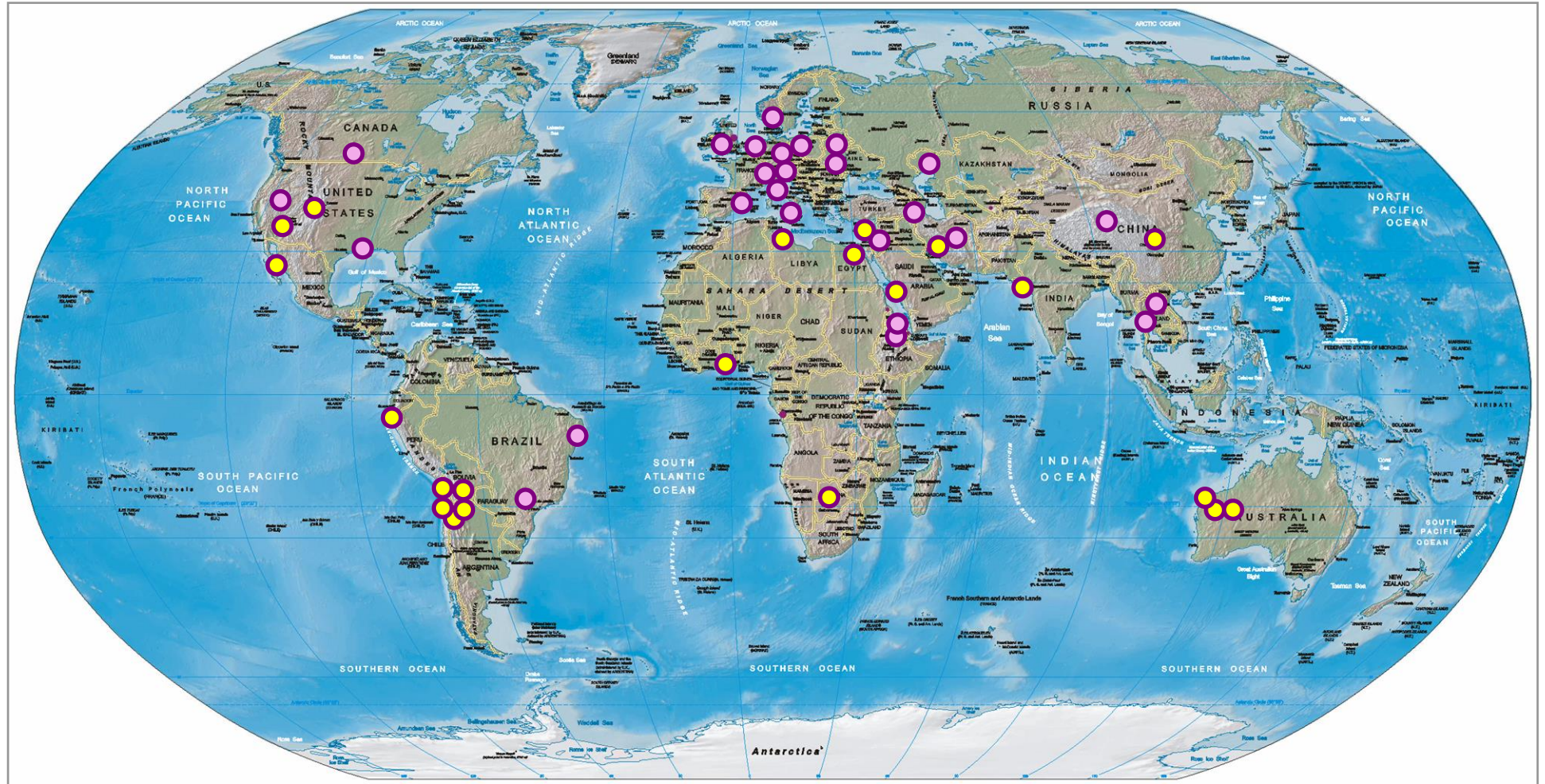
7 Decades Experience in Mineral Salt Industry





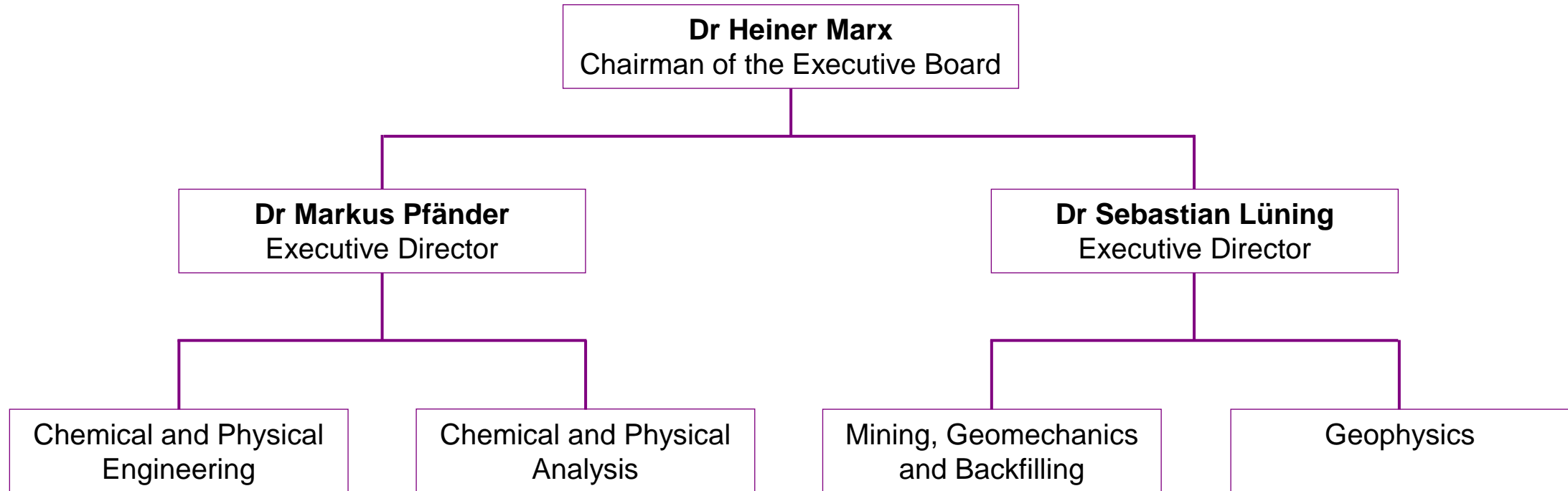
## Projects Worldwide

- Australia
- Argentina
- Austria
- Belarus
- Bolivia
- Botswana
- Brazil
- Chile
- China
- Egypt
- Eritrea
- Ethiopia
- France
- Ghana
- Hungary
- India
- Iran
- Laos
- Mexico
- Peru
- Russia
- Saudi Arabia
- Spain
- Thailand
- Tunisia
- United Kingdom
- USA



● Brine deposits    ● Solid deposits

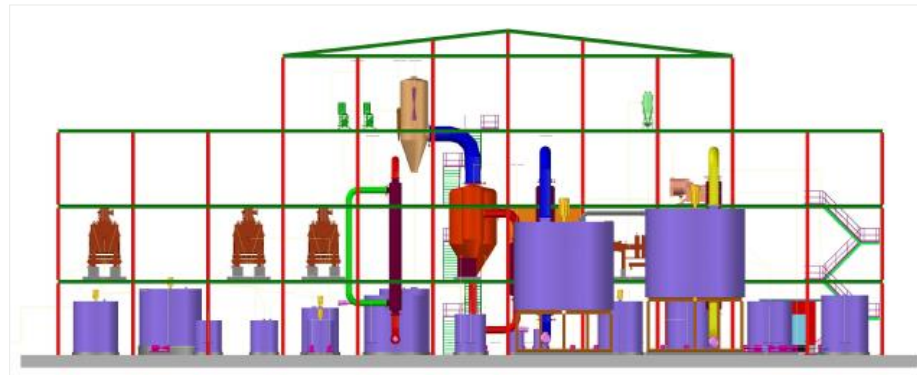
## Company Structure







- Test work in laboratory and pilot scale
- Development of process routes
- Feasibility studies and economic project evaluation
- Supply of key equipment
- Basic engineering
- Support in plant installation, commissioning and training of staff





# K-UTEC AG SALT TECHNOLOGIES

Department of Chemical and Physical Engineering | Demonstration Facilities





# DEMONSTRATION PLANT

## Overview



Total view lithium pilot plant (Li-Pia) with evaporator and crystalliser

Designation: Li-Pia

Construction year: 2014

Project site: K-UTEC, Sondershausen

Throughput: 3 kg/h LCE



# DEMONSTRATION PLANT

## Leaching of Lithium Containing Clay



Side view dissolver



Top view dissolver and belt filter



# DEMONSTRATION PLANT

## Leach Brine Concentration and Fractional Crystallisation



Steam generator (left) and evaporator (right)





# DEMONSTRATION PLANT

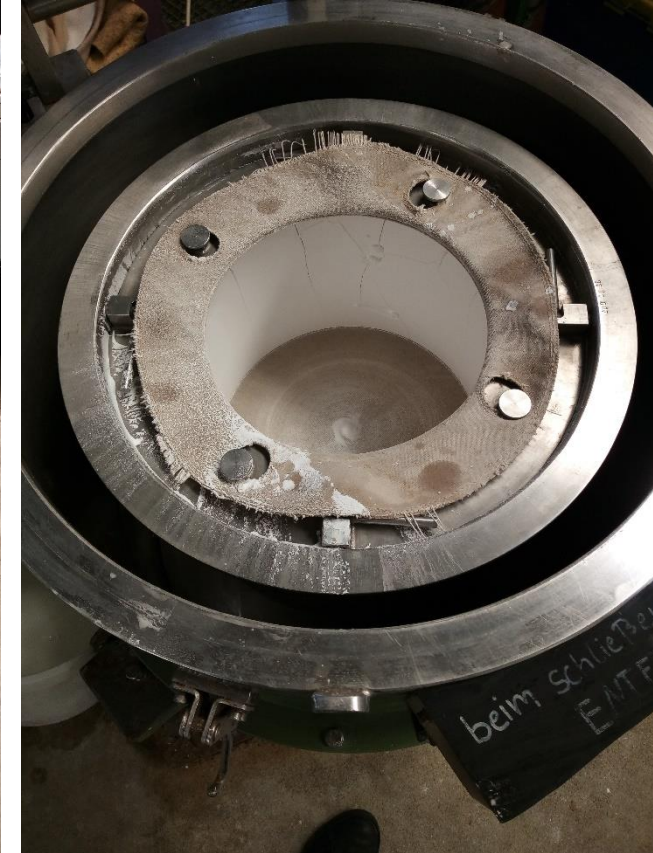
## Li<sub>2</sub>CO<sub>3</sub> Crystallisation



Loop reactor



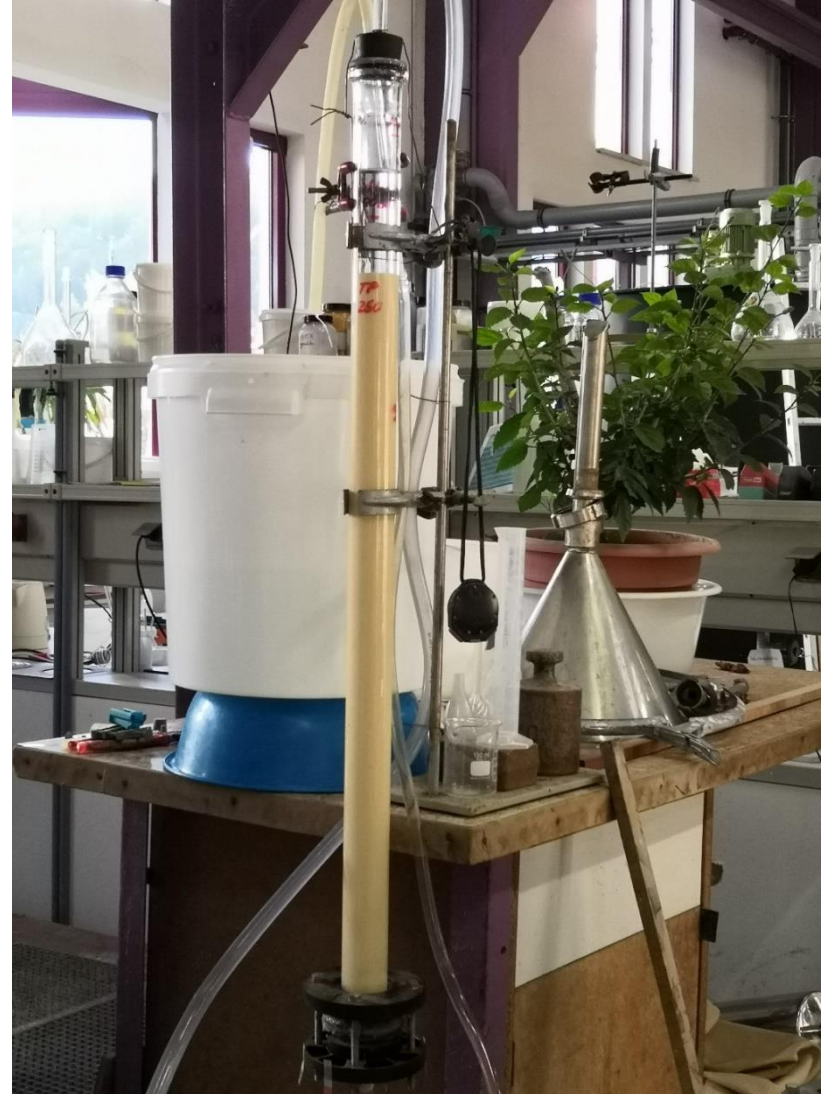
Centrifuge





# DEMONSTRATION PLANT

## Brine Purification and Concentration



NF and RO plant (left) and IEx column (right)



# DEMONSTRATION PLANT

## Electrochemical Production of LiOH



Electrodialysis plant



## DEMONSTRATION PLANT

### LiOH·H<sub>2</sub>O (LMH) Crystallisation and Mineral Salts Crystallisation



Evaporation crystalliser (left) and salt crystallising unit (right)



## REFERENCES

### Selected Lithium Projects

Project	Client / Location	Size	Year	Remarks
Production of lithium hydroxide monohydrate based on Li bearing ore	LITHIUM IBERIA S.L., Spain / Cáceres, Spain	35 kt/a LHM 50 kt/a SOP	2021	Scoping study
Production of lithium hydroxide based on calcined Zinnwaldite;	Deutsche Lithium GmbH (Joint Venture SolarWorld AG i. L.& Zinnwald Lithium Plc) / Zinnwald-Georgenfeld/Altenberg, Germany	8.5 kt/a LHM 40 kt/a SOP	2018 - 2021	Pilot tests, process design and extended process design including test work (lab and pilot tests) and cost estimation
Recovery process of valuable elements contained in residual brine resulting from YLB's solar operations	ACI Systems Alemania GmbH / Salar de Uyuni, Bolivia	39 - 46 kt/a LHM 340 - 345 kt/a Mg(OH) <sub>2</sub>	2018	Scoping study
Framework contract for optimization of Lithium production processes	Ongoing service for a global player		2016 - ongoing	Process evaluation, piloting, design and engineering services
Production of lithium and other valuable components based on from Lithium bearing clay	Khukh Del Lithium Deposit, Mongolia / Kazzinc LTD, Kazakhstan	22.8 kt/a LCE 160 kt/a SOP	2018	Scoping study
Production of lithium carbonate based on mixed salt obtained after solar evaporation	COMIBOL-GNRE, Bolivia / Salar de Uyuni, Bolivia	30 kt/a LCE	2015 - 2017	Basic and detailed engineering including test work and cost estimation
Manufacture of lithium carbonate from a Hectorite containing ore	Western Lithium Corp., Canada / Kings Valley, Nevada, USA	13 kt/a Li <sub>2</sub> CO <sub>3</sub> 46 kt/a K <sub>2</sub> SO <sub>4</sub> 72 kt/a Na <sub>2</sub> SO <sub>4</sub>	2011 - 2016	Process design, basic engineering and continuous operation of a demonstration plant



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**THANK YOU**

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