



# LANXESS – Energizing Chemistry

Klimastrategie

# LANXESS – Ein global agierender Spezialchemie-Konzern



## Spezialchemie- Konzern



- Spin-off von Bayer 2004
- Spezialchemieportfolio: Chemische Zwischenprodukte, Additive, Spezialchemikalien und Kunststoffe

## Globale Erfolgs- geschichte



- Rund 13.100 Mitarbeiter in 33 Ländern
- Globaler Umsatz von 8,1 Milliarden Euro in 2022

## Strategie der Effizienz und Exzellenz



- Stärkung der führenden Position in mittelgroßen Märkten
- Festigung in Europa, Expansion in den USA und Asien

# Our strategic focus

## Consumer Protection



- Flavors & Fragrances
- Liquid Purification Technologies
- Material Protection Products
- Saltigo
  - Additives, Tolling of Electrolyte

## Specialty Additives



- Lubricant Additives
- Polymer Additives
  - P-derivatives, Flame Retard. (FR)
- Rhein Chemie

## Advanced Intermediates



- Advanced Industrial Intermediates
  - Hydrofluoric Acid
- Inorganic Pigments
  - FeO, LFP precursor

**More resilient**  
**Strong cash generation**  
**Solid platform for growth**

# Advanced Industrial Intermediates

Aromatic Network



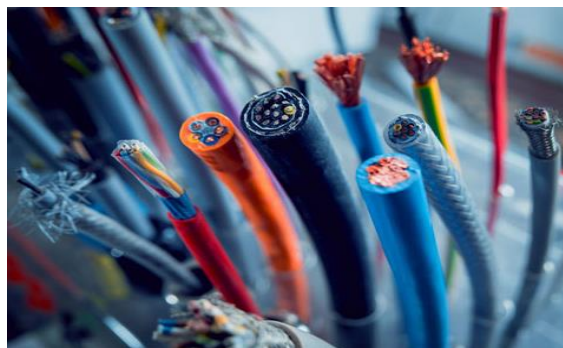
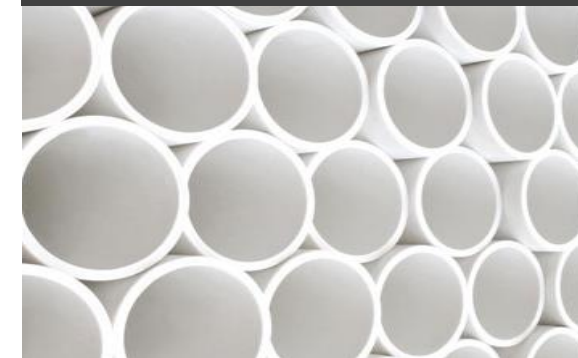
Inorganic Acids



Polyols & Oxidation Products



Organometallics

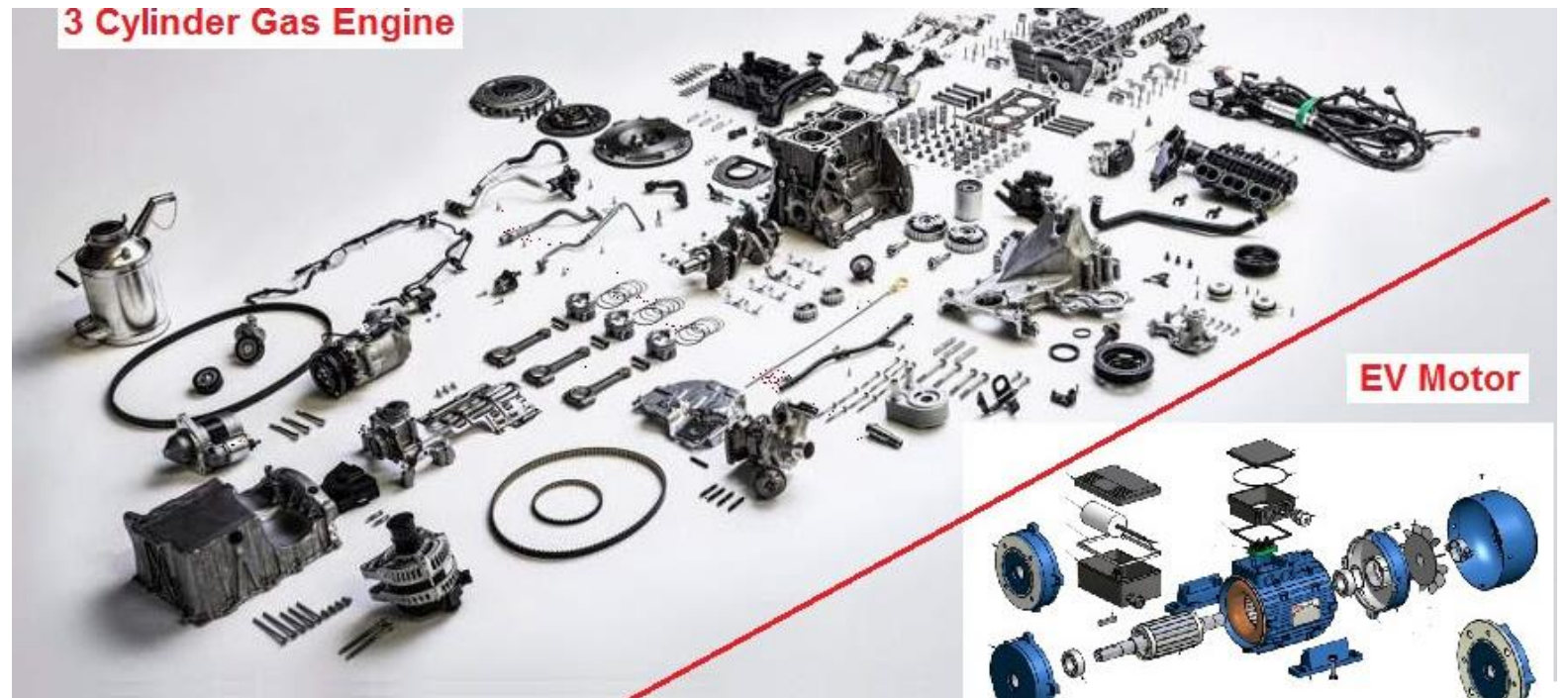


Providing a basis for industry

## Complexity and Performance

### Key Criteria

- ICE: A lot of critical and moving parts
- ICE: Many options for improvement
- ICE: Plenty of parts
- ICE: Maintenance!
  
- EE: Only rotor is moving, two bearings



**Car/ fuel performance through engine improvements in ICE, but EE?**

# LANXESS' unique base for LiPF<sub>6</sub> production in LEV

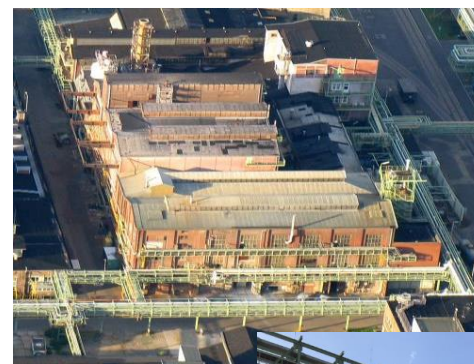
Raw materials

LiPF<sub>6</sub>

Electrolyte

## LANXESS – a leading producer of raw materials for LiPF<sub>6</sub>

- Major **Hydrofluoric Acid (HF)** manufacturer in EU
- Leading producer of **Phosphorous Chemicals**
- **Lean & safe supply** of raw materials (on-site)
- Experience in **permit processes** to build chemical production



LANXESS has distinctive value proposition to set up local LiPF<sub>6</sub> production in LEV

# LANXESS LEV for local supply in EU



**LANXESS enters electrolyte production**

**Potential for integrated electrolyte value chain in LEV**



LANXESS enters battery chemistry business: electrolyte production for lithium-ion batteries in Leverkusen, Germany

**LANXESS achieves major milestone to contribute to integrated electrolyte value chain in EU**

# Cathode Material LFP



According to P3:

Battery pack containing ~ 130kg LFP



In FeO:

- Approx. 65 kg

**Tesla Model 3:  
MIC, 52.5 kWh  
(Model 3 SR+  
55kWh)**



**Assumption I\*:**  
Demand for eMobility  
in EU (2030): ~1171 GWh

**Assumption II\*:**  
Share of LFP within EU-  
market: 25% (= 234 GWh)

**Assumption III:**  
Fe-source will be 100%  
FeO

- Number of EVs/a:  
**4.0 Mio EVs (LFP)**
- Demand of LFP (2030):  
**~520 kt**
- In FeO:  
  - **> 250 kt**

\*Source: [https://vdivde-it.de/sites/default/files/document/Studie\\_Nachhaltigkeit\\_der\\_Batteriezellfertigung\\_in\\_Europa.pdf](https://vdivde-it.de/sites/default/files/document/Studie_Nachhaltigkeit_der_Batteriezellfertigung_in_Europa.pdf)



CLIMATE  
NEUTRAL \2040



# Projects / Support AADC

Raphael Schmitz

05.12.2023

# Lithium extraction from LANXESS tail brine with low environmental footprint

## Hard rock minerals (Spodumene)

- Energy and capital intensive
- Large environmental footprint
- Li concentrate roasted, acid-leached and converted to LiOH

## Salars (brine, evaporation ponds)

- Evaporation process for brine concentration is slow
- Large environmental footprint (e.g. water scarcity)

## LANXESS tail brine (Standard Lithium)

- Lithium recovery via **direct extraction & crystallization** technology from LXS tail brine (El Dorado | Arkansas)
- Smackover Formation: **3,000 kt** of **LCE** resource
- **Pilot plant** operation
- Several **kt/a** planned production capacity

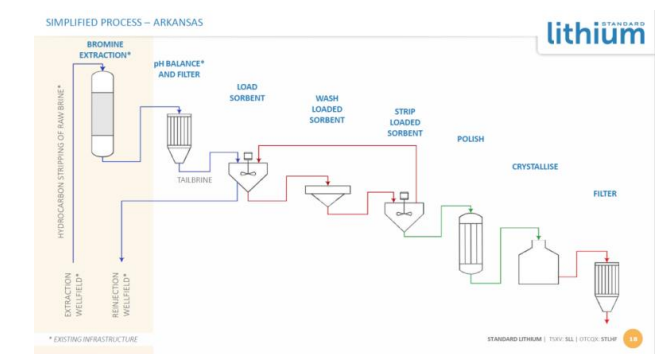
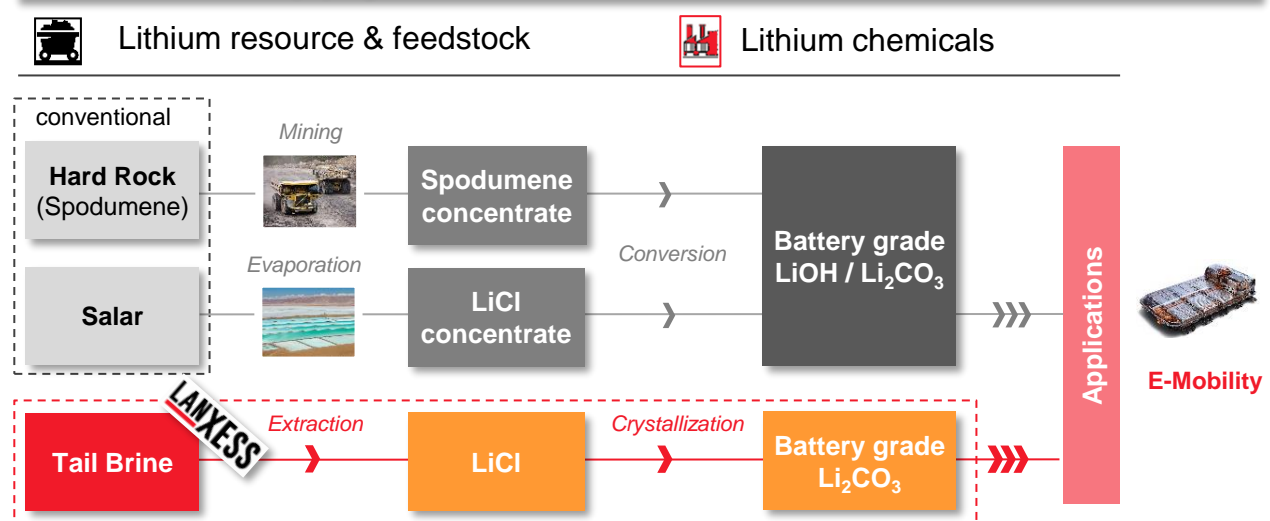
**Fast processing and small environmental footprint**

Subject to proof of concept and final investment decision

Conventional operations

LXS operation

## Lithium Supply Chain & Processes



# Overall Energy savings possible – current process



# LXS will showcase at Battery Show 2023 in Europe & North America



## Battery Show Europe (23 – 25<sup>th</sup> May, Stuttgart)

- LXS will jointly showcase at the **Battery Show 2023 in Europe and North America**
- Focus on **materials for Li-Ion batteries & battery systems**
- **7 BUs represented in 2023**
- **Organized by eMC Initiative & COM**
- **Industry networking** across the value chain (OEMs, cell manufacturer etc.)

→ **Strengthen LXS perception as active player in battery value chain**



THE **BATTERY** SHOW  
EUROPE

THE **BATTERY** SHOW  
NORTH AMERICA

## LANXESS at Battery Show 2022

- Products and solutions for the entire value chain for lithium-ion batteries
- High-tech thermoplastics for a large high-voltage battery enclosure
- Upcoming start of electrolyte production in Leverkusen
- Ion-exchange resins also for battery recycling

COLOGNE - June 02, 2022



LANXESS will once again be appearing at the Battery Show in Stuttgart. This is Europe's biggest trade show featuring cutting-edge technologies and production processes for batteries in electric and hybrid vehicles and covers the entire battery supply chain. "We are presenting ourselves as a sustainable and reliable supplier of materials for European battery producers. Among our focuses are concepts for establishing circular material flows in the recycling of batteries in order to further reduce the ecological footprint of electric vehicles," says Dr. Martin Saewe, who heads LANXESS' initiative for electromobility and circular economy. The specialty chemicals company offers numerous key raw materials along the entire value chain for lithium-ion batteries. These include raw materials for cathode materials and electrolytes, ion exchange resins for extracting and for recycling ultra-pure metal compounds for cathode materials, flame retardants and coolants, as well as polyurethane (PU) potting solutions for protecting electronic battery components. High-performance thermoplastics for components of batteries, electric powertrains, and the charging infrastructure are another important product area.

**LANXESS**

Energizing Chemistry