

Division Smart Materials

Introduction

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President Smart Materials



Next Generation Evonik: Embarking on the next phase of our transformation

Sustainability fully integrated into all three strategic levers

Three major strategic levers...

... with sustainability fully integrated ...

... delivering on ambitious targets

Next Generation Portfolio

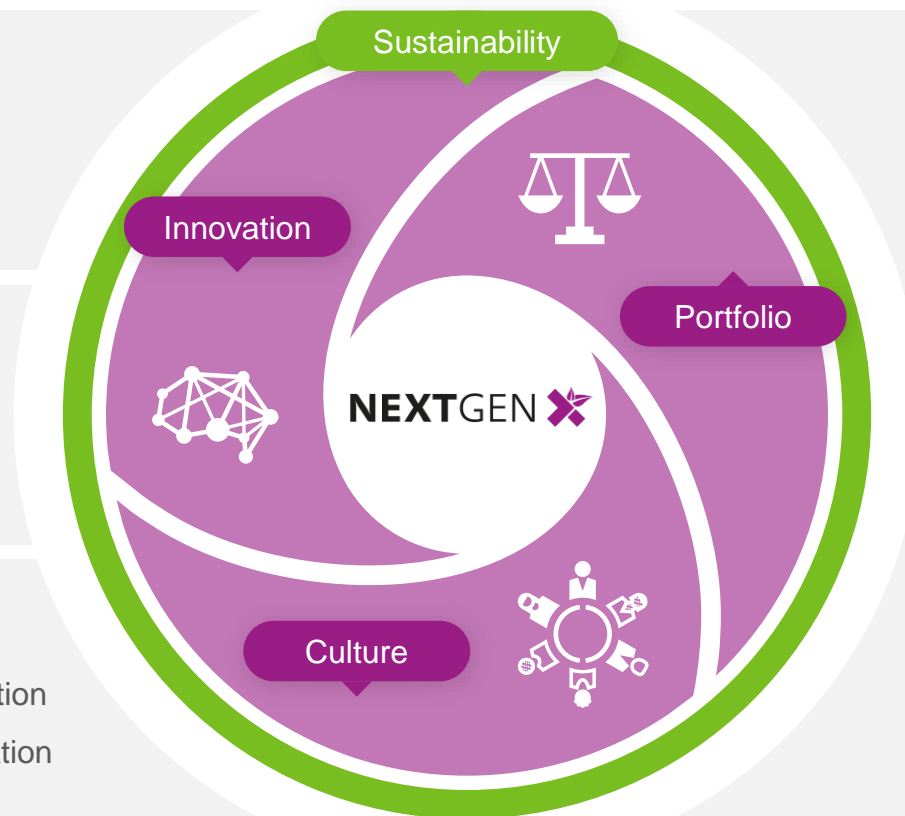
- + Exit Performance Materials
- + Full focus on three attractive growth divisions

Next Generation Innovation

- + €1 bn new sales well on track
- + Growth areas beyond 2025 already launched

Next Generation Culture

- + Diversity as key to successful strategy execution
- + ESG targets integrated into mgmt. compensation



ESG Targets

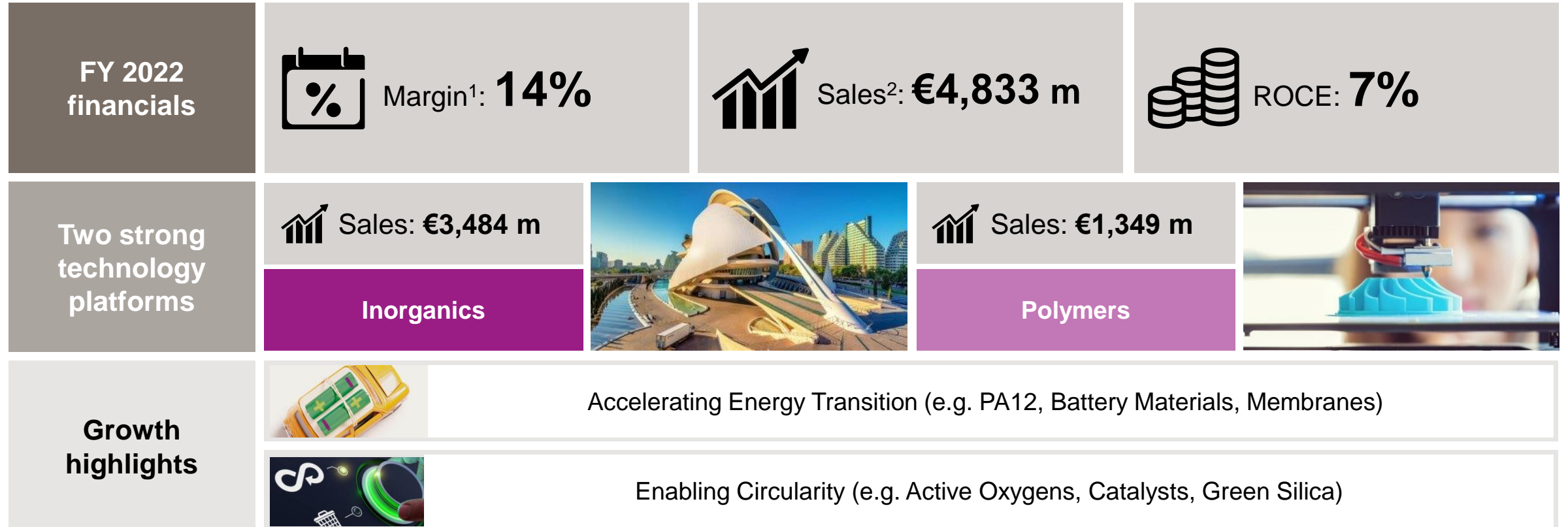
- + >50% sales share of **NEXTGEN Solutions** ✦
- + -25% CO₂ emission reduction, e.g. via **NEXTGEN Technologies** ✦

Financial Targets

- + Organic growth >4%
- + EBITDA margin 18-20%
- + ROCE ~11%
- + FCF Conversion >40%

Smart Materials overview

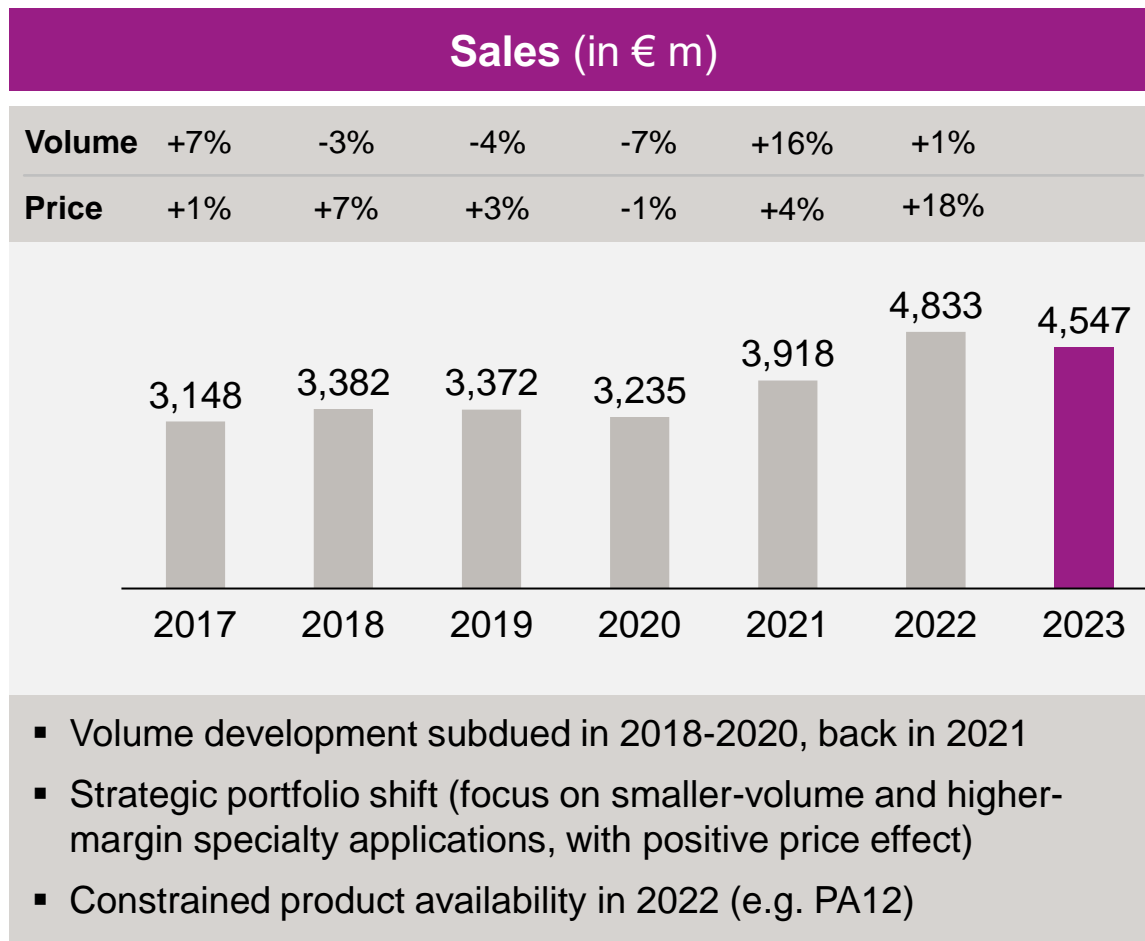
We find solutions for the needs of today and tomorrow.



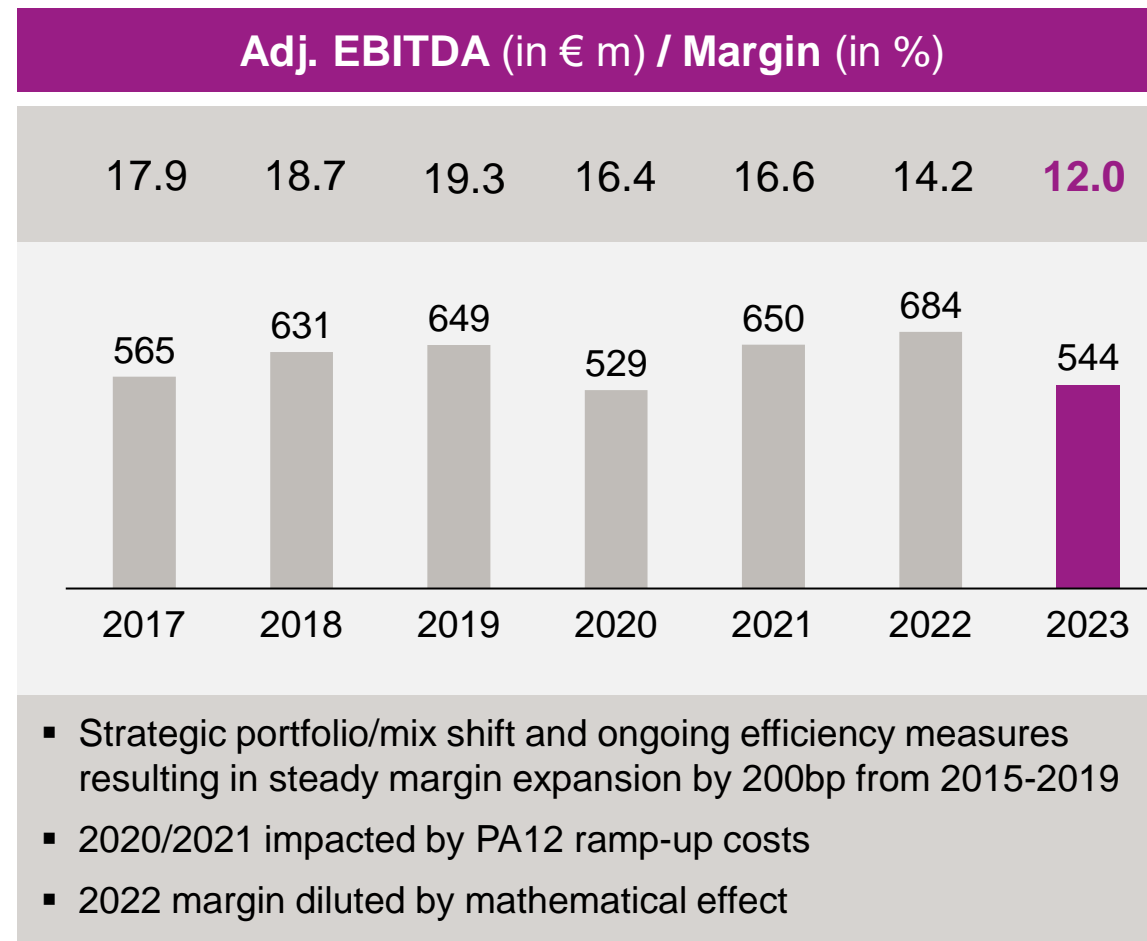
1. Adjusted EBITDA margin
2. Prior to restatement for Alcoxides as of 1st Jan, 2023

Our financial track record

Strong contributor to the Group



2023: Vara consensus as of Nov 24, 2023



Smart Materials enables the transformation towards a greener future

Energy transition



Mobility

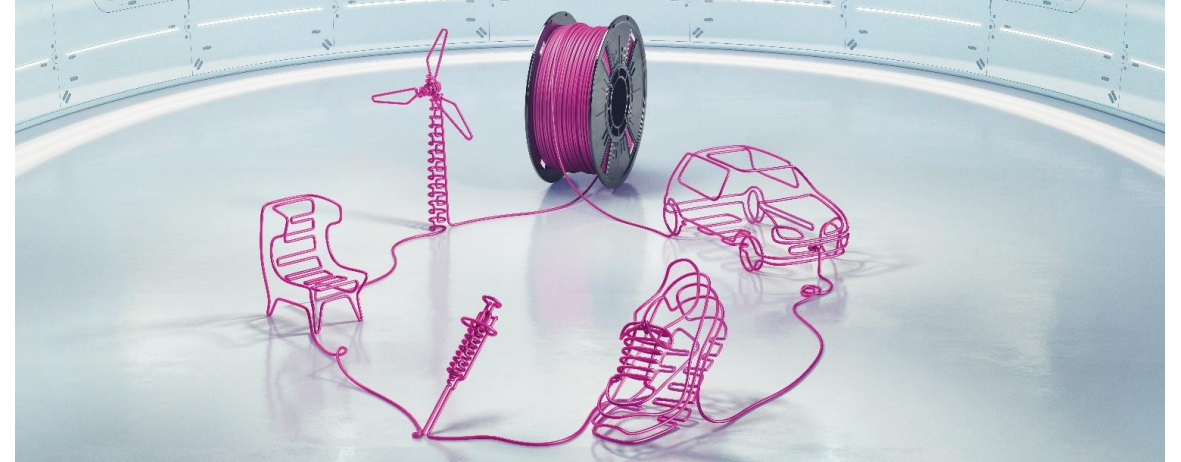
- Silica/polymers for battery materials
- Polymers for lightweight composites



Environment & Utilities

- Biogas/Hydrogen membranes
- Recyclable catalysts
- Carbon capture and usage

Circularity



Process industries

- Next generation process catalysts
- H₂O₂ for HPPO, HPPG



Consumer Goods


- H₂O₂ for electronics and food
- PA12 recycling

Above-average growth of existing “Next Generation Solutions”


Growth fields addressing our four Sustainability Focus Areas

Future Mobility solutions


- Lightweight applications: PA12 portfolio
- Batteries: additives for electrodes / separators
- “Green tire” technology



Excel® technology for catalysts




- Rejuvenation of catalysts avoids waste and reduces CO2 by >50%
- Excel® technology to reduce the CO2 footprint of hydro-processing in refineries




Active Oxygens for food safety

- Environmentally friendly oxidizer for food sanitation meeting stricter governmental regulations
- Hydrogen peroxide purified and diluted to various concentrations

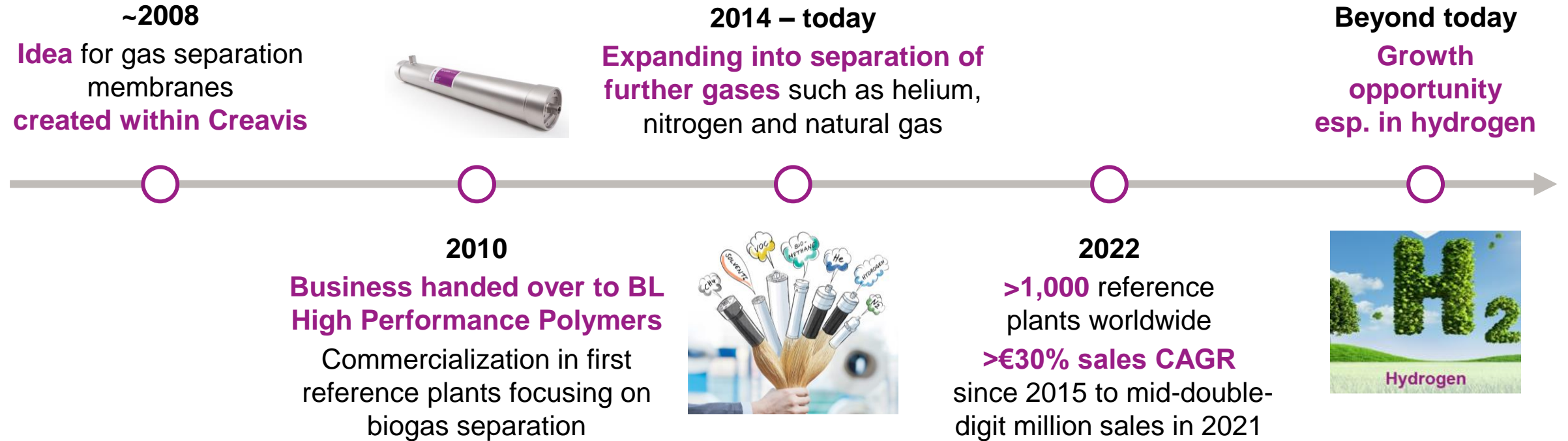


Biogas membrane

- Superior biogas upgrading with hollow-fiber membranes
- Superior methane efficiency and low methane slip



Innovation Growth Field “Membranes” as blueprint for future innovation

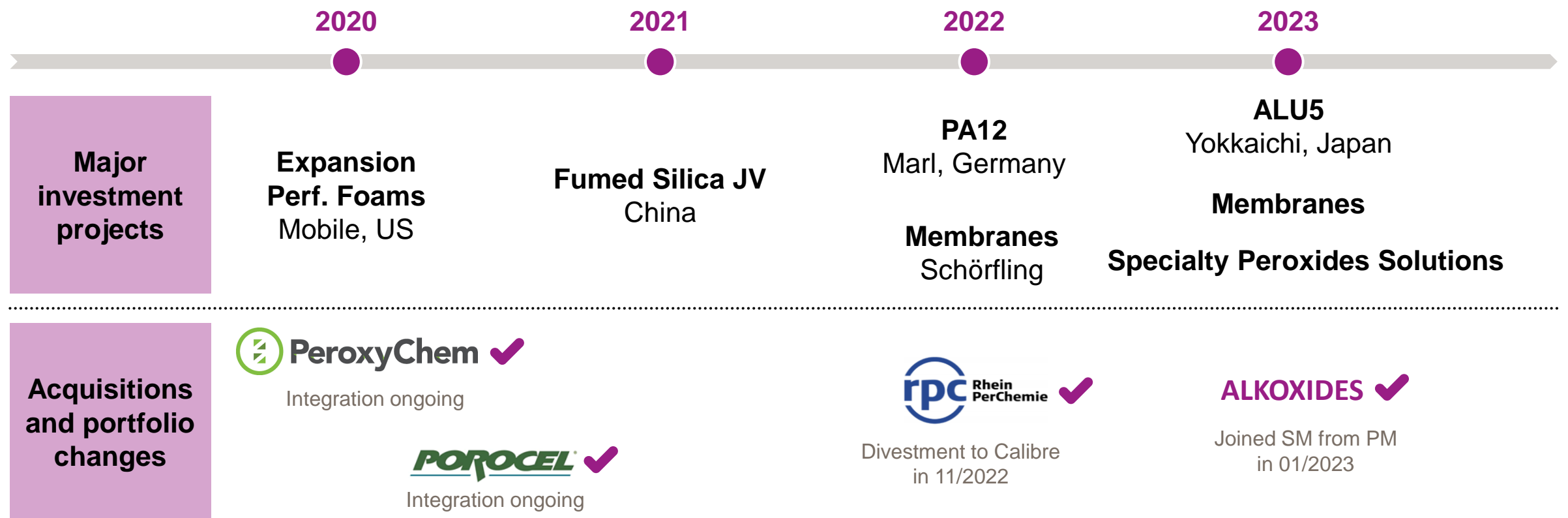


Continuous RD&I efforts to improve product characteristics and scope of application

Capital allocation into our green transformation

Priority on growth investments and targeted portfolio changes

Milestones / Major strategic measures in Smart Materials



We are “smart(er)” since...

... we develop innovative solutions

Rohacell

PMI¹-based structural foam at the core of lightweight high-performance fiber composites for demanding aerospace applications



Anion Exchange Membrane (AEM)

Ion-conducting membranes for water electrolysis in alkaline conditions – the more efficient way to green hydrogen



... we tailor our solutions to the customers' needs



>100 individual Silica grades to solve our customers' challenges



High performance polymers: **~500** customer/application-specific products



Specialized polymer powders for 3D printing process allowing for series production of complex and individualized products

... we help our customers with individual know-how and services

840 employees in product, application and process development

Service teams for equipment, installation and full start-up support (e.g. to ensure dosing accuracy for Peracetic Acid in poultry anti-microbial interventions)

80 years of catalysts development expertise

External partners contributing in close cooperation to technology development





1. Polymethacrylimide.



EVONIK

Leading Beyond Chemistry

Smart Materials enables sustainable system solutions as a preferred B4B partner in industry transformations towards a greener future

Transforming end-markets served		System solution	Enabling
Energy transition	 Mobility	<ul style="list-style-type: none"> ▪ Silica/polymers for battery materials ▪ Polymers for lightweight composites 	<ul style="list-style-type: none"> ▪ Making batteries last longer ▪ Making mobility and wind power more productive
	 Environment & Utilities	<ul style="list-style-type: none"> ▪ Biogas/Hydrogen membranes ▪ Recyclable catalysts ▪ Carbon capture and usage 	<ul style="list-style-type: none"> ▪ Making processes greener through more circular processes, alternative intermediates and next generation chemicals
Circularity	 Process industries	<ul style="list-style-type: none"> ▪ Next generation process catalysts ▪ H₂O₂ for HPPO, HPPG 	
	 Consumer Goods	<ul style="list-style-type: none"> ▪ H₂O₂ for electronics and food ▪ PA12 recycling 	<ul style="list-style-type: none"> ▪ Making chips more energy efficient ▪ Making food last longer ▪ Making consumer goods greener

“We develop system solutions which enable customers to meet their sustainability commitments”

Smart Materials – Two strong technology platforms

Inorganic Materials and Hightech Polymers

Inorganic Materials

ACTIVE OXYGENS



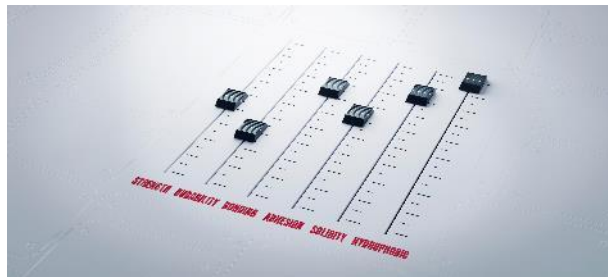
CATALYSTS



SILICA



SILANES



Hightech Polymers

COATING & ADHESIVE RESINS



HIGH PERFORMANCE POLYMERS

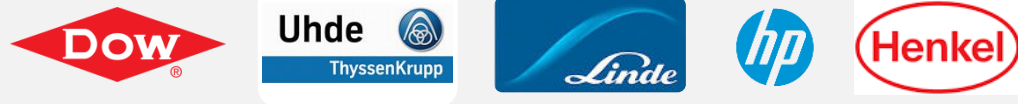


Innovation: R&D as key growth driver

Cooperation, focus and global setup

Innovation approach

1. Solutions developed with key customers in close partnerships, e.g.



2. Two strong technology platforms

Inorganics

Polymers

3. Further strengthen our presence in Asia

4. Two innovation growth fields at the core



Additive Manufacturing



Membranes

Key facts

R&D budget
~4% of sales

13 R&D sites

3 in NAFTA
6 in Europe
4 in Asia

840 employees
in product, application
and process
development

How Smart Materials is shaping the future car

Solutions in today's car

Conventional car today

High-performance fuel lines

Low rolling resistance tires

Battery additives

Polymer - Lightweight composites

Advanced adhesives & sealants solutions

Smart Materials' solutions
in a car today represent a value of

~€30



Note: Estimation based on BLs' survey.

How Smart Materials is shaping the future car

Solutions in hybrid and full battery car

Electric/Electronic Components

e.g. power busbar insulation

Thermal Management

e.g. battery cooling lines

Tires

Reduced rolling resistance for extended range
Higher abrasion resistance for EV acceleration

Battery

Electrode materials & additives for separators

Hybrid Car

In a hybrid car,
Smart Materials' existing solutions
with a value potential of

~€45



Full Battery Car

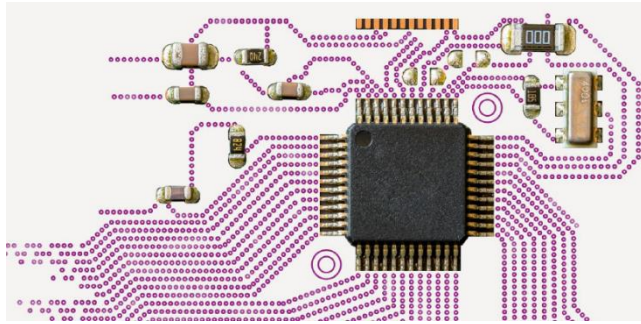
In a full battery car,
Smart Materials' existing solutions
with a value potential of

~€70

Hydrogen Peroxide and Peracetic Acid Specialties

Diverse markets addressed with strong momentum

Ultra-high purity for wafer-cleaning



PAA for waste-water disinfection



PAA / H₂O₂ for food safety



Success factors

- Portfolio extension with PeroxyChem into dedicated ultra pure electronic-grade H₂O₂
- Forward integration moving closer to the end customers
- Global footprint ensuring reliable supply

- Leading PAA supplier in the municipal water treatment industry
- Improved market access as integrated solution provider for water treatment

- Solution provider for safe and effective food disinfectant processing & packaging
- Global capabilities to partner with the leading equipment providers of aseptic packaging solutions

Demand drivers






- Trend towards smaller electronic device geometries
- Increasing number of process steps require ultra-high purity agents

- Increasing demand for wastewater treatment solutions due to demographics and climate
- Tightening regulations require non-toxic, environmentally friendly solutions

- Growing population boosts demand for proteins & trend towards packaged food
- Increased focus on sustainable and effective solutions

Membranes: Overview of different gas separation markets

Portfolio built on strong technology platforms, innovation, global partner network

Membranes					
	Biogas	Process Gases	OBIGGS	Natural Gas	OSN/VOC
Market segment					
	Heat & Power – Transportation	Oil & Gas – Petrochemicals – Food & Beverage	Aircraft	Oil & Gas	Oil & Gas – Natural oils – Petrochemicals – Bio-Diesel
Evonik brands	SEPURAN® Green	SEPURAN® Noble	SEPURAN® N ₂	SEPURAN® NG	PuraMem® PuraMem® VOC

- **Attractive markets with global access:** Growth driven by increasing needs for sustainable energy supply
- **Strong technology platforms:** Backward integration, high-performance polymer expertise
- **Partnerships:** Global partner network to jointly shape further market needs with highly innovative separation technologies

Our Membranes Vision: Smart enabler to the sustainable gas economy

Contributing to the transition with superior membrane technology



With our **membrane technology**, we significantly contribute to the transition to a sustainable gas economy:

1 SEPURAN® Green

- Raw biogas from organic waste is converted into **sustainable biomethane** and "green" CO₂

2 SEPURAN® Noble

- Our **hydrogen extraction membranes** enable to **use existing natural gas pipelines** to transport and extract green hydrogen
- In the **production of synthetic biomethane** from CO₂ and green hydrogen, we ensure efficient product separation

3 Anion Exchange Membrane

- With our ion-conducting AEM membranes, we contribute to the **breakthrough of electrolytic production of green hydrogen** in the future

Smart Materials: Sales split & product examples

