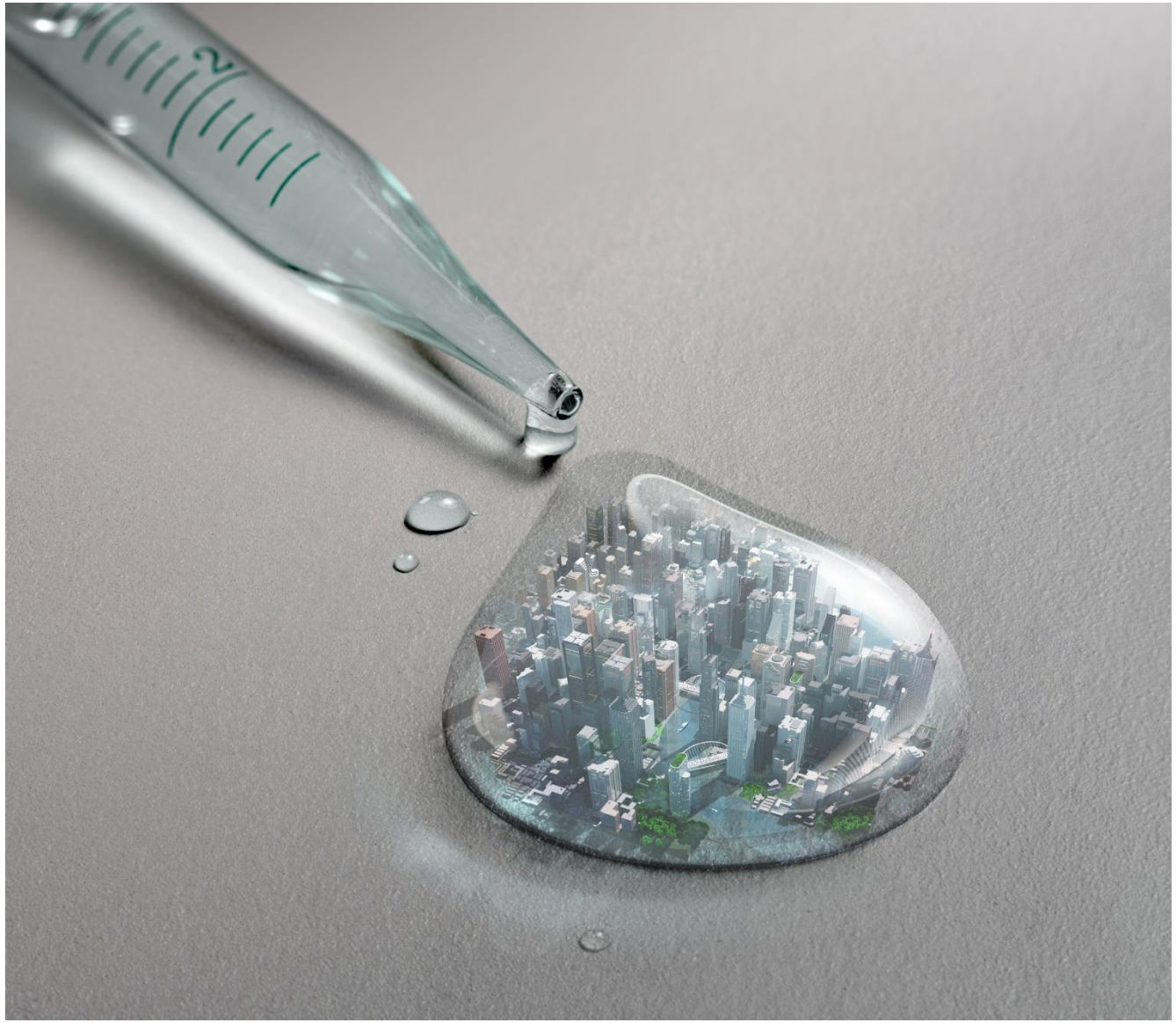
SMALL AMOUNT. BIG EFFECT.

Specialty Additives
Division Spotlight Series 2021

July 1, 2021



EVONIK
Leading Beyond Chemistry

Division Spotlight Series – Specialty Additives
Speakers of today’s event

Lauren Kjeldsen

President of
Specialty Additives

Gaetano Blanda

Head of
Coating Additives

Ralph Marquardt

Head of
Comfort & Insulation

Stefan Plass

Head of
Interface & Performance

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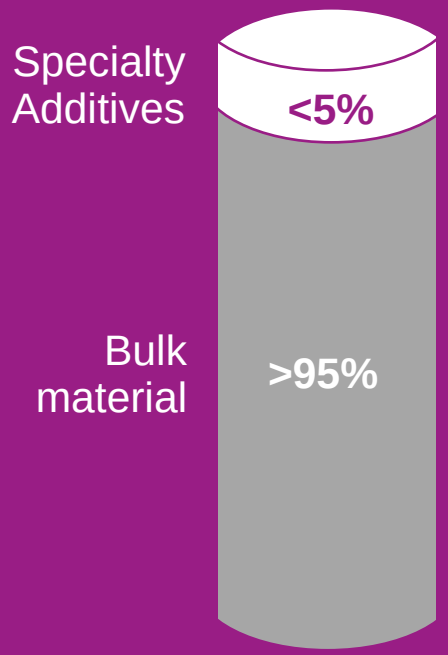
SMALL AMOUNT.



Minor share of costs in end product

BIG EFFECT.

Less maintenance

Less energy

More protection

More durability

Improved product characteristics

Improved sustainability profile

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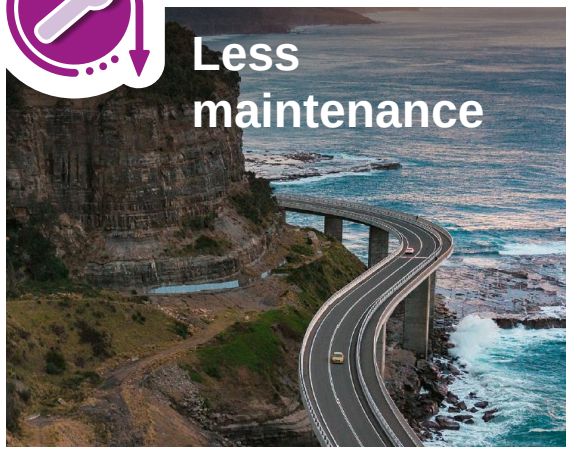


Rust does not stand a chance

Crosslinkers for composite-reinforced bars with outstanding mechanical and chemical properties

15 – 35%

reduction potential in corrosion costs (~US$2.5 tn)

Colder food & drinks for less money

PU foam additives create performance advantages to make appliances and buildings more energy efficient

29cent

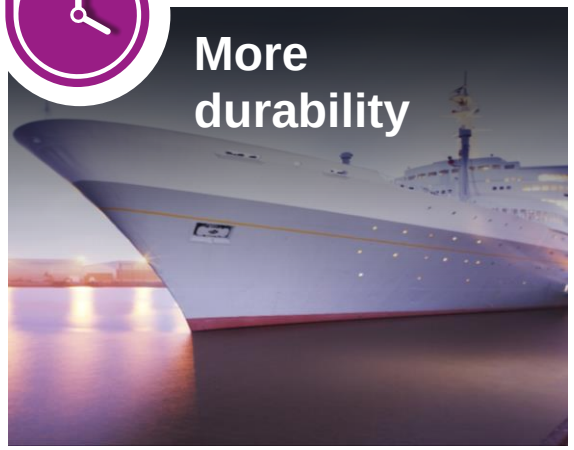
costs per kilowatt hour in Germany that can be avoided

The paint stays put

Additives for paint systems creating a lasting barrier against chemical cleaning agents

>€30k

avoided repainting costs for rail car surfaces



Solutions against biofouling

Hydrophilic AEROSIL® improves anti-fouling coatings for ship hulls

up to 30%

decreasing fuel consumption

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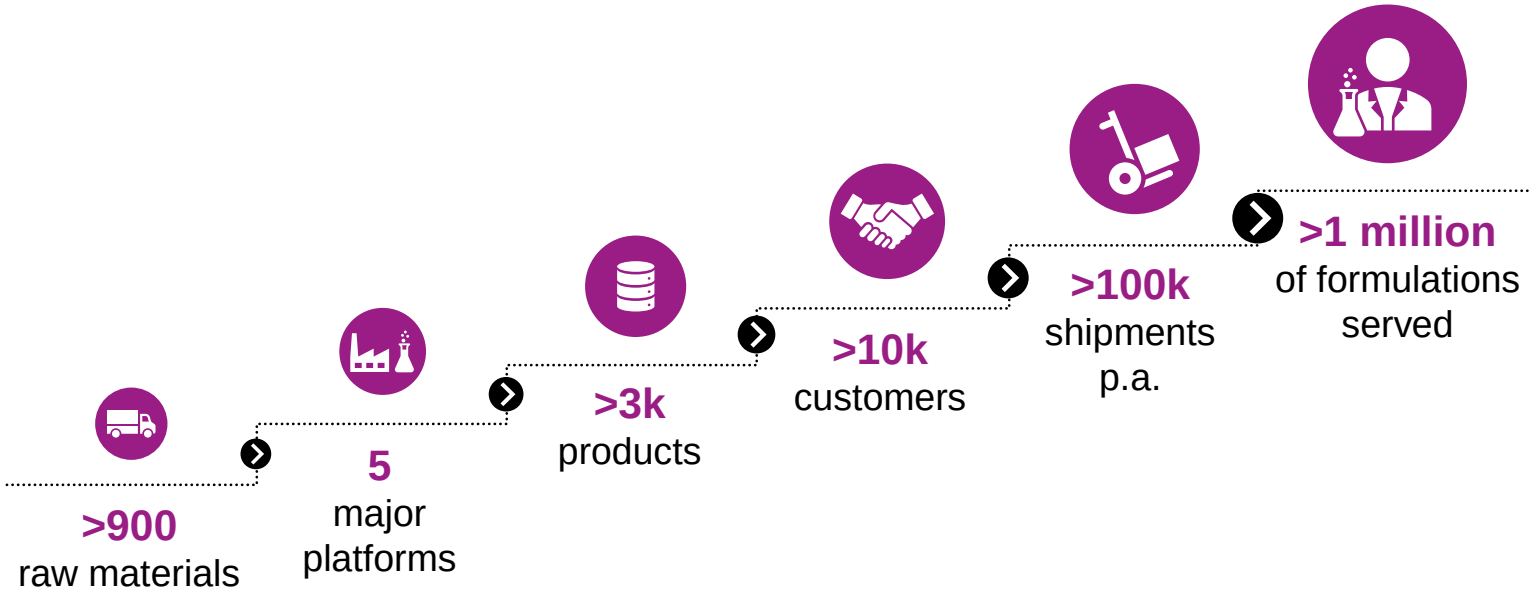

High barriers to entry

Resilient financial performance

Strong market & customer position

Mastering complexity

How?

1. Experienced management team
2. Digitalization & automation
3. Culture & collaboration
4. Supply chain excellence

Tangible benefits

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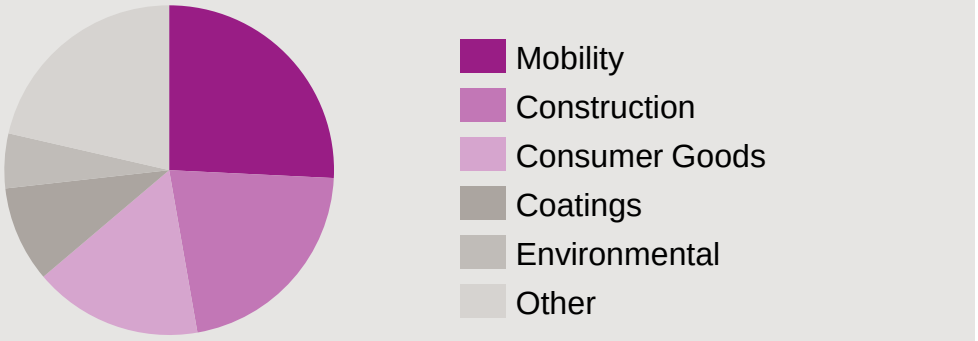
2020

16%
ROCE

27%
EBITDA MARGIN

>3,500
EMPLOYEES

48
NATIONALITIES



Additives for coatings and inks

Additives for polyurethane foam

Specialty defoamers and wetting agents

Epoxy hardeners for crosslinkers

Lubricant additives

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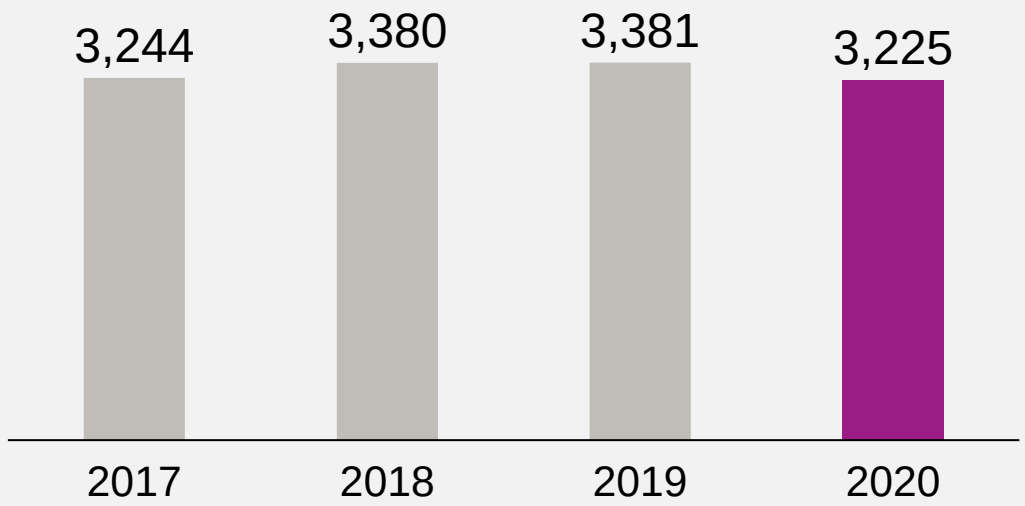
Specialty Additives business model is highly resilient
Demonstrated by financial performance over the years

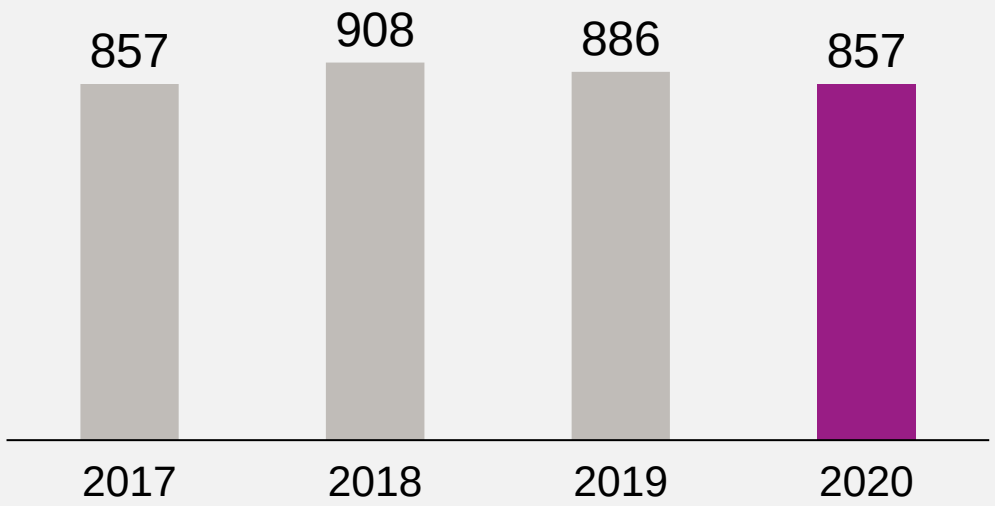
Sales (in € m)

Volume	+4%	+3%	-1%	-3%
Price	+2%	+3%	+1%	+/-0%



Adj. EBITDA (in € m) / Margin (in %)

26.4	26.9	26.2	26.6



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Specialty Additives enables their customers to benefit from fundamental end market trends

Mobility		Increasing mobility paired with electrification Performance and circularity in materials	PU foam additives for battery protection Emerging solutions for recycling
Construction		Continued urbanization and construction efficiency Highly insulated energy efficient buildings	Concrete additives Additives for PU spray foam insulation
Consumer goods		Increasing comfort and individualization Low footprint clothes and appliances	Bedding & seating foam additives Additives for artificial leather
Coatings		Durability and protection with reduced footprint Functionalizing coatings	Additives to prolong life of paints Marine coatings to protect ship hulls
Environmental		Accelerating wind and solar power production Increasing farming efficiency & reducing fertilization	Crosslinkers for durable wind turbine blades Wetting agents for crop & seed protection

Growth opportunities driven by sustainability and digitalization

Deep dives today

Key growth driver: Sustainability

Enabler: Digitalization

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Specialty Additives Play

Sitting at the table

Building #1 position in customer relevance to be decisive part of their innovation agenda and product offering

Ability to assess

Understanding our customers' value chains and markets to create the ideal solution

Rapid tailored innovation

Delivering continuously new solutions for markets and customers

Mastering complexity

Broad spectrum of **tailored product** for numerous customers

MAKING THE DIFFERENCE

Specialty Additives
Division Spotlight Series 2021

Stefan Plass, Head of Interface & Performance
Gaetano Blanda, Head of Coating Additives

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ADDITIVE SOLUTIONS FOR MAXIMUM PERFORMANCE

Our products & solutions make the difference with …

… improved product performance

… an improved sustainability profile

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Our products enhance lifetime and enable recycling of construction materials to mitigate resource limitations and regulatory pressure

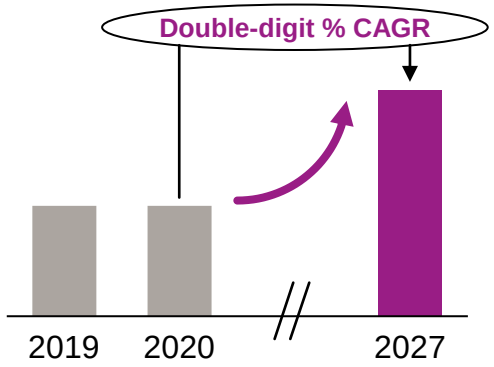
Challenge

- Urbanization drives construction growth and rise in material use
- Modern architecture drives demand for high-performance materials
- **Environmental impact from resource limitations and regulatory pressure**

Solution

- Additives and formulation know-how e.g. for **dispersing agents that enable**
  - durability by improving resistance of cementitious building materials
  - more environmentally friendly formulations
  - better workability of materials

Sales potential (in € m)



- Relevant market of ~€800 m in valuable niches
- Growth opportunities from new solutions like “self-healing” concrete

EVONIK Leading Beyond Chemistry

Our products enhance performance of conventional and biological plant protection to serve a growing global population

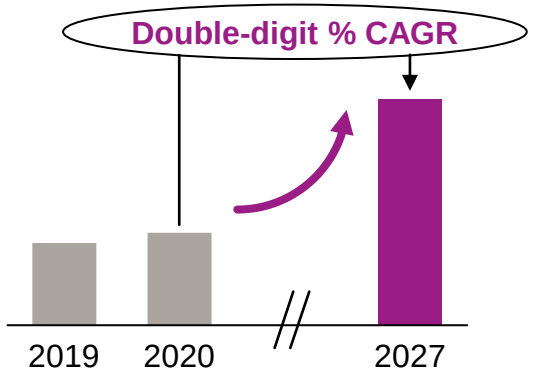
Challenge

- Growing population drives rising demand for healthy food
- **Limited arable land**

Solution

- Additives like **wetting agents** deliver interfacial science to enable targeted crop protection application
- Expanded portfolio to extend shelf life for bio-solutions and seed treatment

Sales potential (in € m)



- Relevant market of ~€400 m in highly attractive niches
- **Growth acceleration through increased focus on innovation (esp. bio-solutions) and geographic expansion**

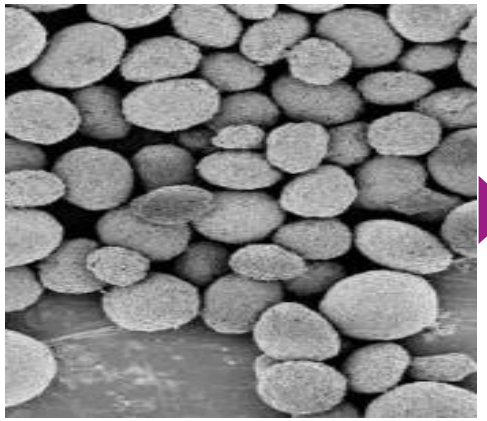
EVONIK Leading Beyond Chemistry

Our specialty fillers significantly increase burnish resistance and prolong life of medium- to low-gloss paints

Challenge

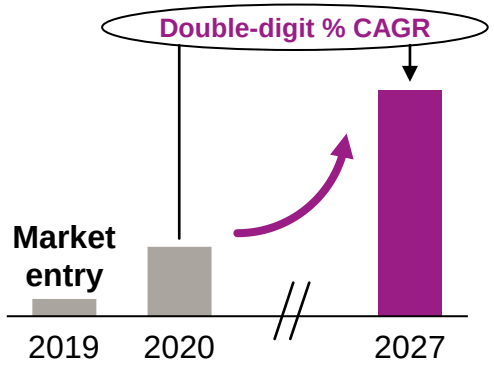
- Colored wall paints with medium- to low-gloss levels are susceptible for burnishing (through abrasive forces or polishing of the surface)
- **Damaged surfaces have uneven gloss levels and look unappealing**

Solution



- SPHERILEX® specialty fillers (silica spheres) with a unique shape and narrow particle size distribution
  - Superior burnish & wet scrub resistance
  - Easy-to-formulate, low impact on binder demand

Sales potential (in € m)



- Global market for silica spheres and competing technologies is >€1 bn per year
- **Clear USP and capacity expansion projects drive future sales growth**

EVONIK Leading Beyond Chemistry

Our coating additive technologies enable effective and safe microbial control

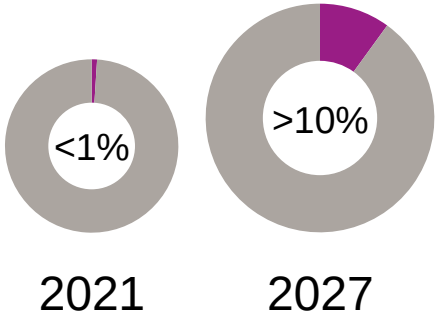
Challenge

- Effective control of microorganism on surfaces takes centerstage during the corona virus pandemic
- **But: Current solutions often cause side effects and regulations are increasing**

Solution

- **Coating additives that converts visible light into UV-C light which destroys microbes**
- Pure physical mechanism – no harmful and mobile substances
- Long-lasting destruction of microbes on surfaces

Market potential (in € m)



- Existing market with silver or organic biocides is heavily regulated
- **Future growth and replacement expected to happen by innovative solutions with no regulatory restrictions**

EVONIK Leading Beyond Chemistry

ENABLING CIRCULAR ECONOMY

Specialty Additives
Division Spotlight Series 2021

Ralph Marquardt, Head of Comfort & Insulation
Stefan Plass, Head of Interface & Performance

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DECOUPLING GROWTH FROM RESOURCE CONSUMPTION

Our products & solutions enable …

… reduced emissions and material consumption

… mechanical and chemical recycling

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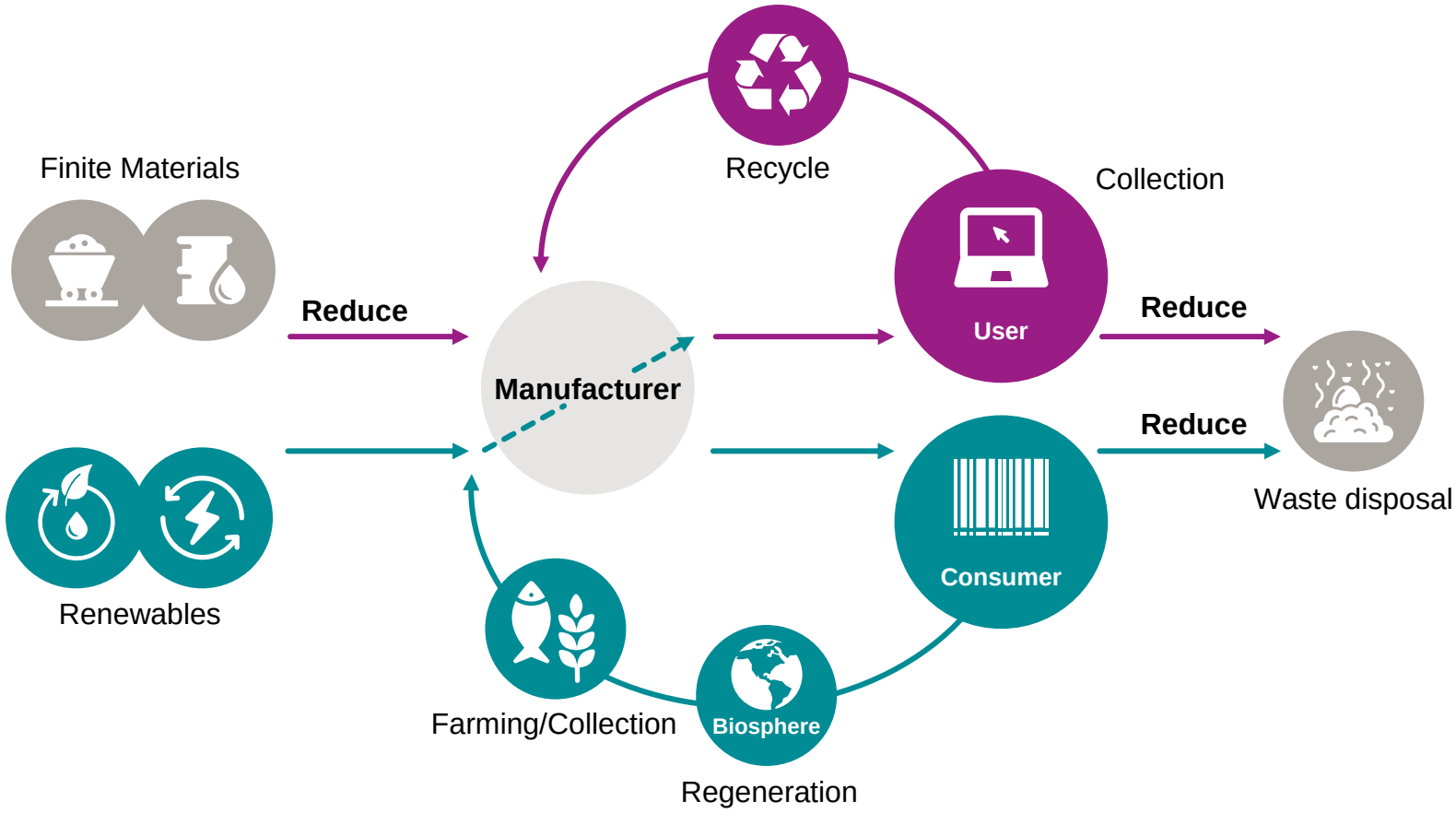
Circular Economy – Important governmental and international initiatives target reduction of waste and use of renewable raw materials



EU Green Deal drives the Circular Economy Action Plan

China 14th 5-year plan key technologies/industrial: … Circular economy & recycling management ...

PACE
Platform for Accelerating the Circular Economy
WORLD ECONOMIC FORUM

Community of leaders (CEOs and ministers): Committed to creating a circular economy

President Biden's Leaders Summit on Climate: … advancing the circular carbon economy approach …

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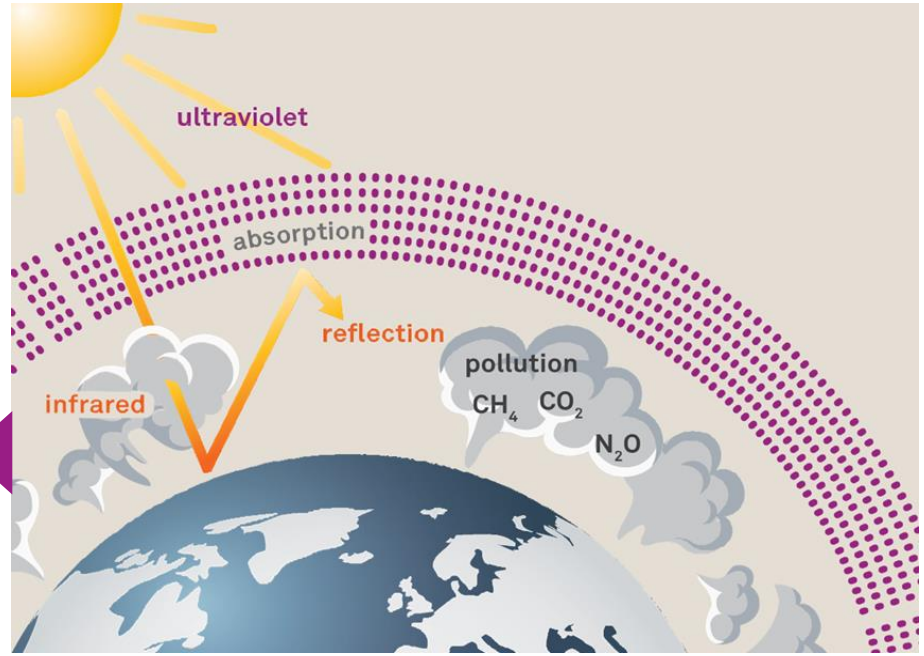
The PU industry is introducing novel blowing agents with low global warming potential (GWP)

- **Improved insulation** is key for CO_2 reduction
- **Spray foam** allows efficient insulation of buildings
- Spray foam systems require **blowing agents**

Introduction 4th generation blowing agents with low GWP



- Blowing agents: **Halogenated hydrocarbons**
- 1st and 2nd generation already phased out
- 3rd generation with high global warming potential

EVONIK Leading Beyond Chemistry

Novel Evonik PU additives enable the use of environmentally friendly blowing agents in spray foam

Challenge

- New, 4th generation blowing agents with low GWP needed
- But: these tend to decompose in pre-formulated PU systems, hence limiting shelf life
- **Novel PU additives required to guarantee storage stability and ensure consistent application performance**

Solution

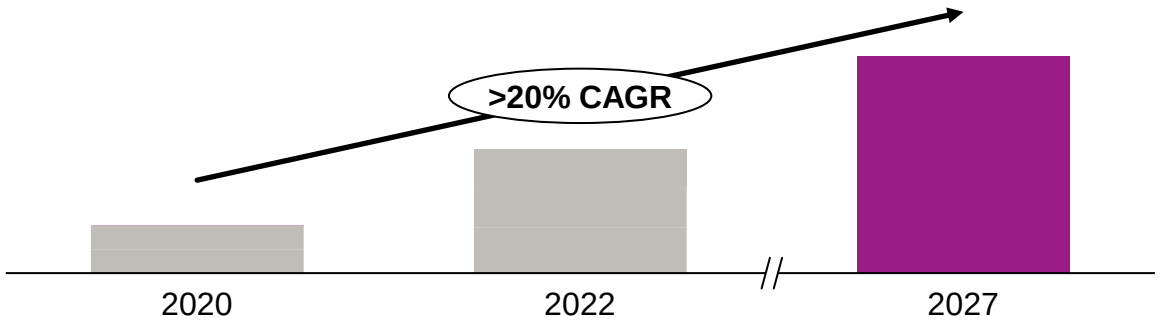
- Evonik POLYCAT® 203 – 206: new additives with key advantages
  - **Good compatibility with 4th generation blowing agents**
  - **Enabling prolonged storage stability**
  - **Low emissions in use**

PU construction market growth rates (CAGR ’21 – 27)[1]

4-5% Construction total

7-8% Spray foam submarket

Sales potential (in € m)



1: Source: IAL and Evonik internal market studies

EVONIK Leading Beyond Chemistry

Evonik additives are essential for emerging environmentally friendly artificial leather production at high quality

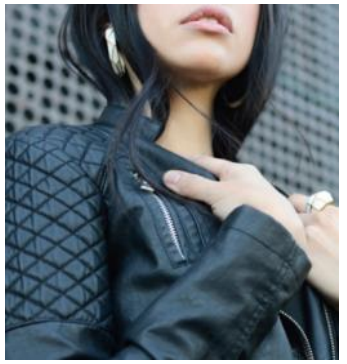
Challenge

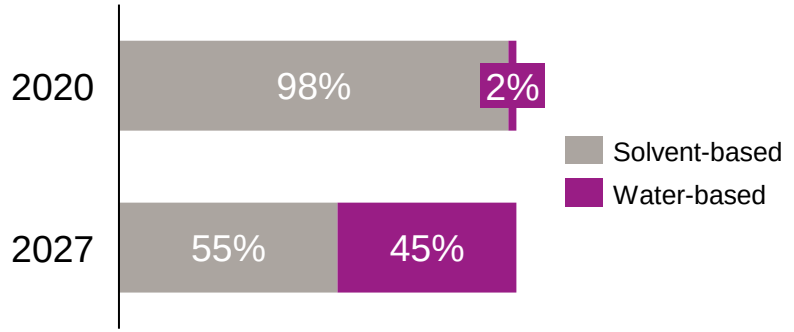
- Increasing demand to replace genuine leather by artificial leather
- Existing process for artificial leather production is solvent-based and thus of environmental concern
- Environmentally friendly water-based technology with lower quality leather surface

Solution

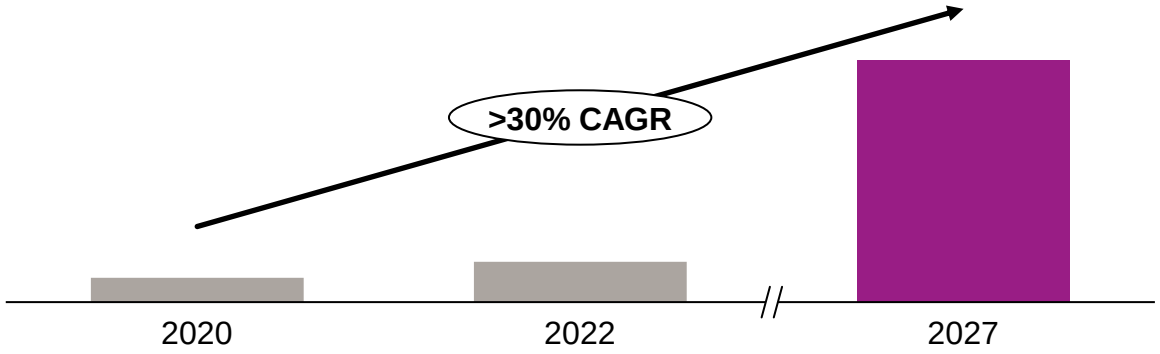
- New ORTEGOL® P series: Novel foam stabilizers for water-based PU artificial leather production
  - **Enable production of high-quality artificial leather (vegan)**
  - **Environmentally friendly solution**

Artificial leather market development[1]





Sales potential (in € m)



1: Source: IAL and Evonik internal market studies

EVONIK Leading Beyond Chemistry

Linerless labels have significant sustainability benefits with up to 40% reduced material usage

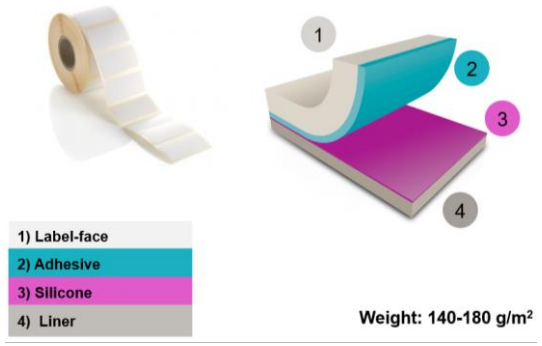
Challenge

- Every day >275m parcels are delivered, consuming 4.3m m^2 labels
- Liner make up up to 40% of the weight of traditional labels
- **Causing unnecessary waste, emissions, material and logistics costs**

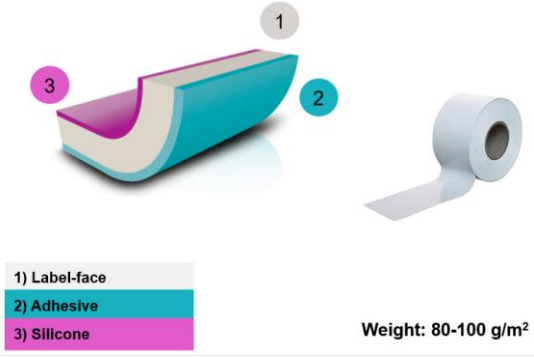
Solution

- A silicone coating ensures that the windings separate cleanly and quickly before dispensing the individual label
- **Linerless labels can save ~75 kg of CO_2 per 1,000 m^2 of label**
- More efficient logistics and handling

Standard Label



Linerless Label



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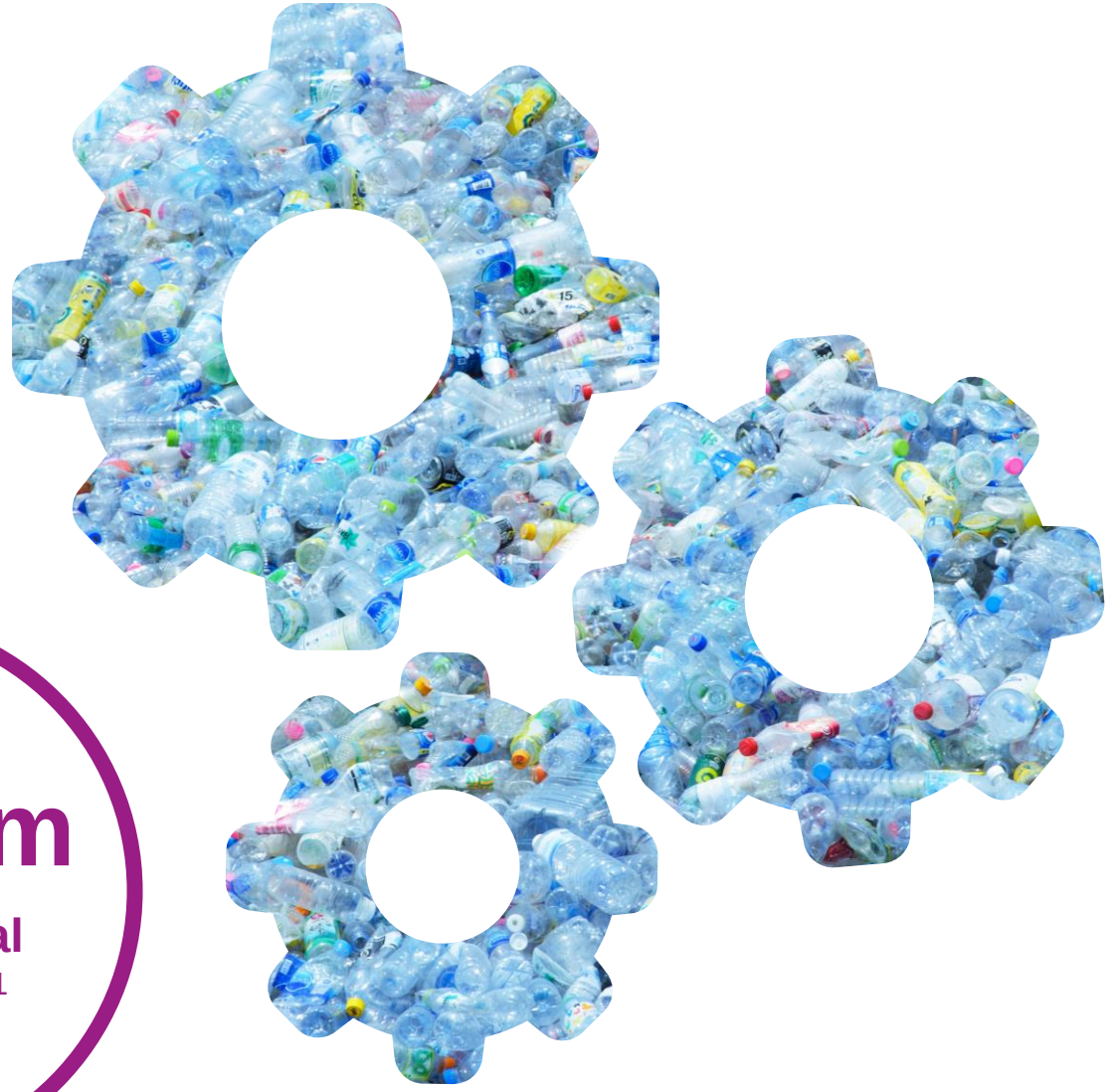
MECHANICAL AND CHEMICAL RECYCLING

- Providing technologies and services to recover valuable resources from disposed materials
- Additives for performance upgrade
- Additives, catalysts & expertise for efficient processing

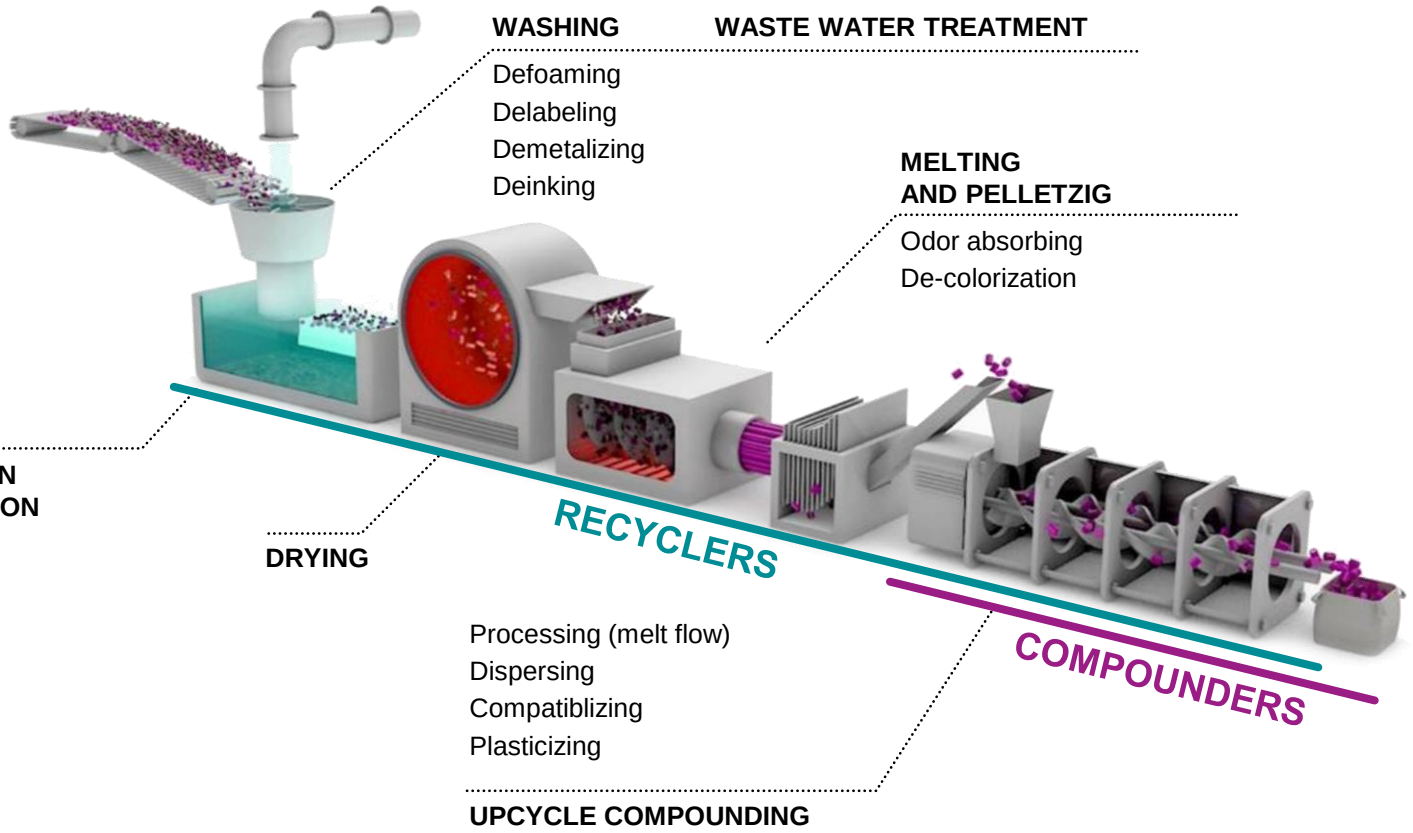
>€350 m

sales potential p.a. by 2030[1]



1: Sales potential from Evonik Circular Plastics Program on Group level

Our technologies help along the entire process of mechanical plastics recycling



Mechanical Recycling

- During separation/washing, **our additives help to make recycling processes more efficient** resulting in higher quality of recyclates
- During compounding, **our additives improve processing** leading to competitive costs and quality

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Emerging solutions for highest flexibility and eco-efficiency of chemical recycling

Defined polymer waste

Monomer recycling

Depolymerization

Solvolysis

Silicone recycling

Additives enabling use of recycled polyurethanes

Specialty Additives delivers technologies & additives to enable chemical recycling

Mixed plastic waste

Pyrolysis to synthetic oil

Antifouling additives (SiYPro)

Pour point depressants

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Mattress recycling is an example how Evonik enables circular PU solutions

Recycled components are processed into corresponding PU precursors

Evonik process enables mattress recycling via hydrolysis of PU

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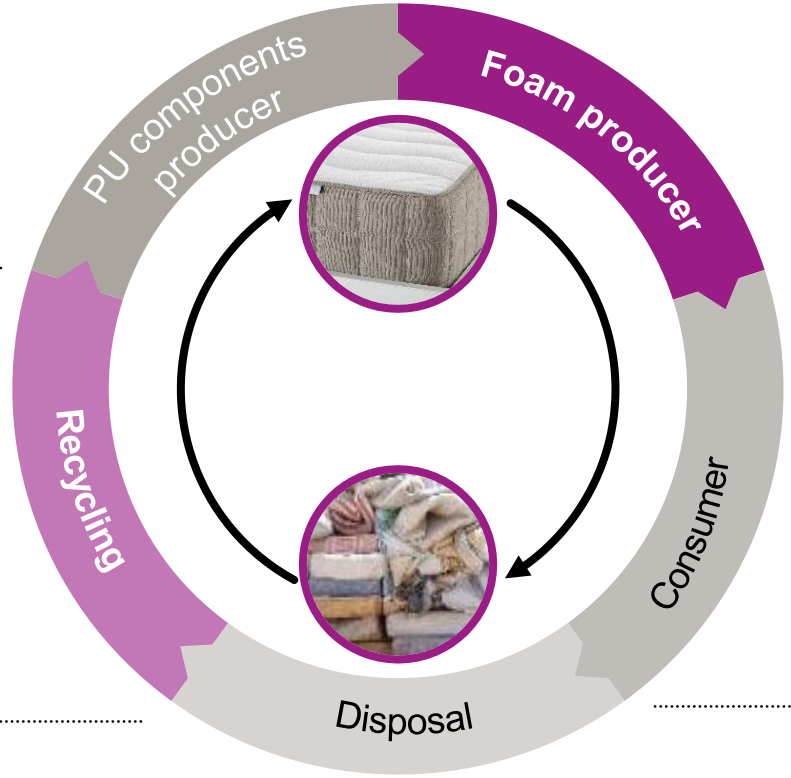
Various business model options



Evonik additives allow for high use level of recycled PU components and reduction of scrap rate

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Additives

Enjoys highest performance with significantly reduced CO_2 footprint

On average, a mattress is discarded after ten years (approx. 30 m mattresses per year in the EU ~ 450kt[1])

1: Source: Federal Association secondary raw materials

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DIGITAL SOLUTIONS

Specialty Additives
Division Spotlight Series 2021

Gaetano Blanda, Head of Coating Additives

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DIGITAL SOLUTIONS ENABLE THE FUTURE SUCCESS OF OUR ADDITIVES BUSINESSES

Our digital solutions improve …

… the customer experience (frontend)

… the products we create (backend)

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Evonik digital solutions help coating customers to become more efficient in formulating or reformulating

Digital solutions from Coating Additives help coating customers to become more efficient in formulating or reformulating coating solutions:

- 20-30% less iterations required due to specific data models
- Faster validation of results when using high throughput equipment (HTE)

Benefit for Customer: >20% cost savings and improved time-to-market

Benefit for Coating Additives: Share of cost savings, formulation data of customers

1: Source: Evonik estimate

Evonik's High Throughput expertise significantly reduces time and costs when formulating a coating

Formulating a coating is complex and time consuming

300+ different coating additives produced by Evonik

40 effects can be elicited using these additives

No single source of truth – but enormous complexity

Sample calculation

10 solvents × 10 binders
× 10 pigments × 10 additives
= **10k combinations**[1]

Manually: >10 years

Solution:

High Throughput Equipment (HTE)

Fully automated:

- Prepare a large number of coating formulations
- Coat different types of panels
- Evaluate the coated panels with a variety of tools and measures to analyze coating performance

Sample calculation

10 solvents × 10 binders
× 10 pigments × 10 additives
= **10k combinations**[1]

HTE: <6 months[2]

1: Changes in mixing ratios are not taken into account, therefore many more combinations would be tested under real conditions
2: Standard samples

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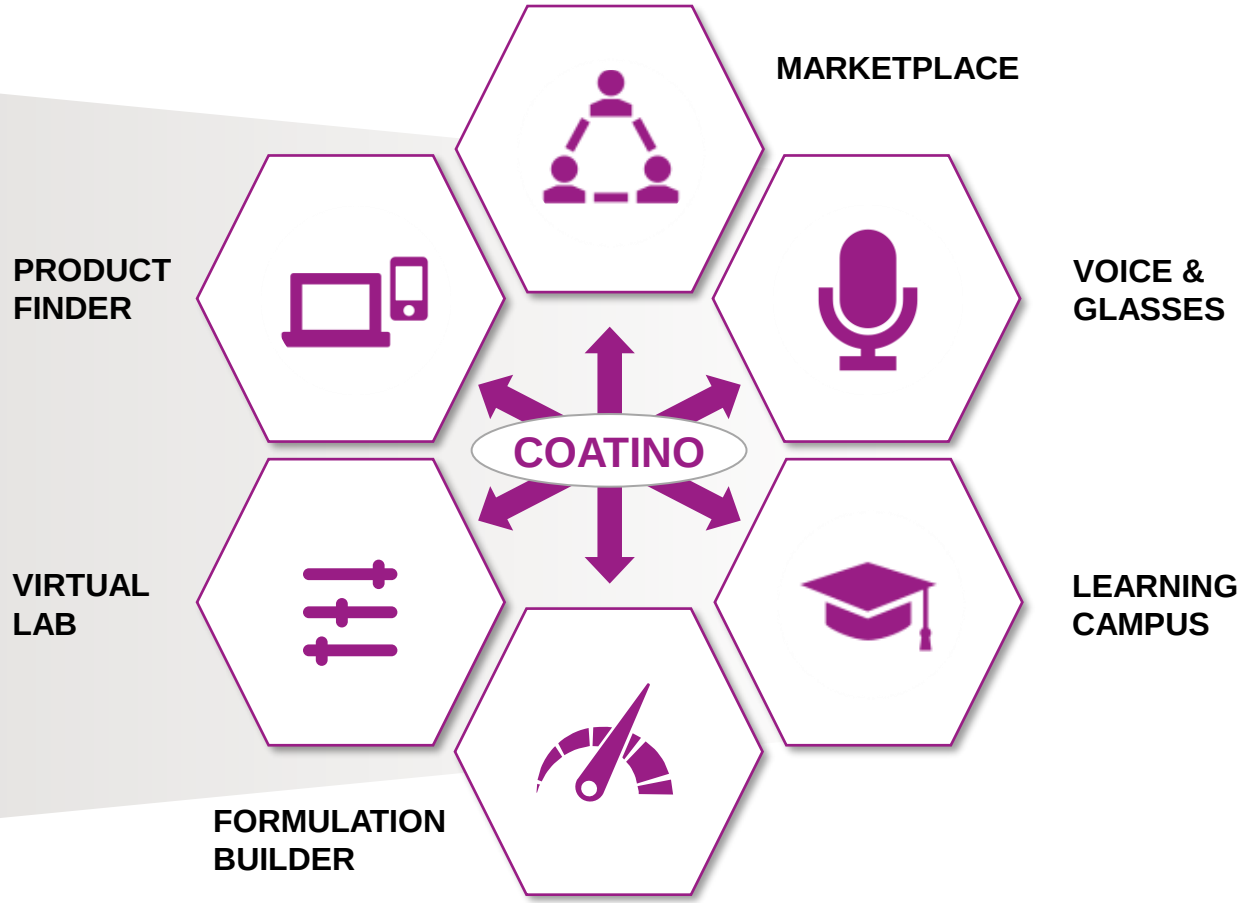
Evonik has launched COATINO as coatings industry-specific solution to manage complexity, increase efficiency and support innovation

THE DYNAMIC FORMULATION NETWORK



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SMALL AMOUNT. BIG EFFECT.

Specialty Additives
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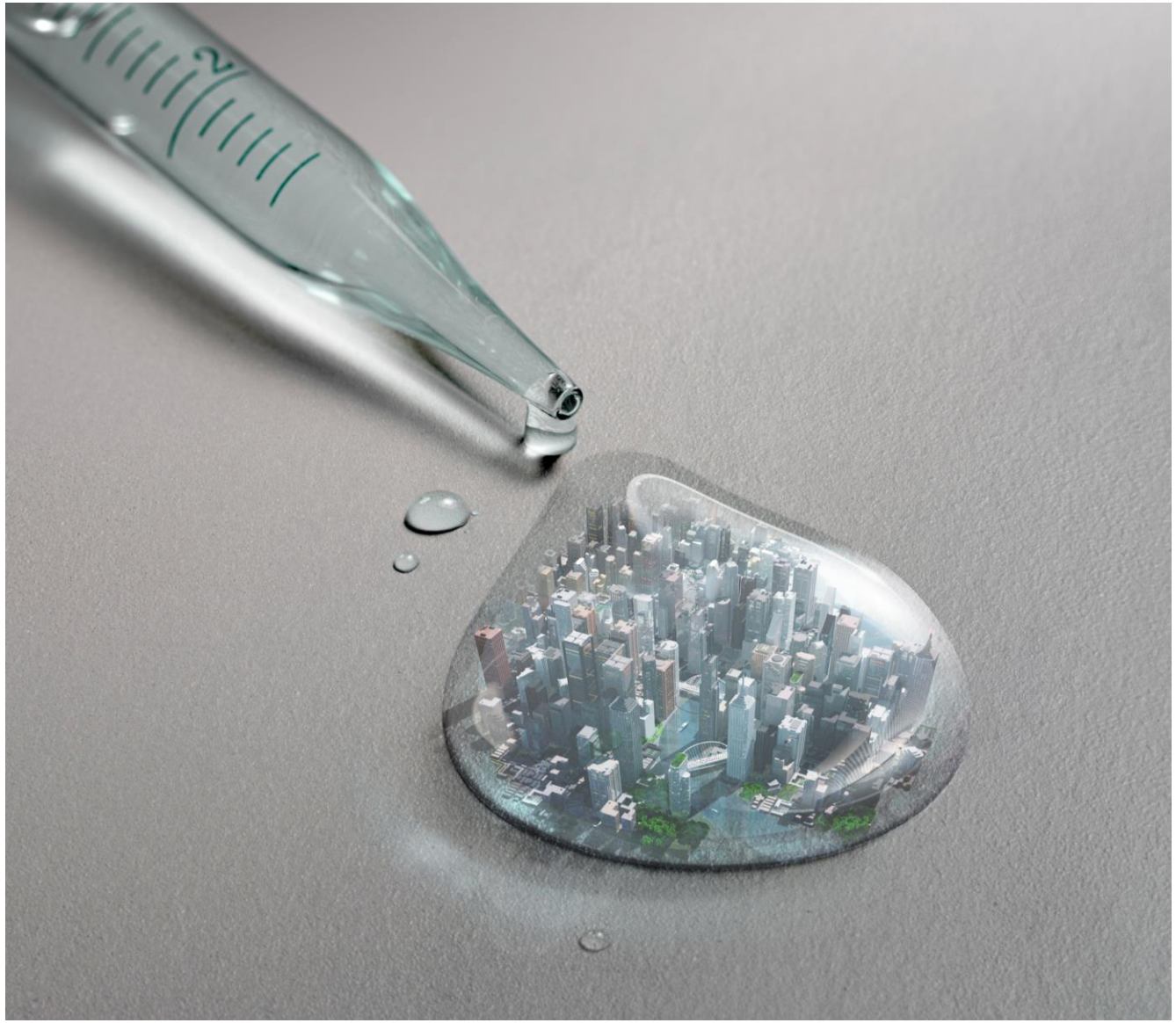
Lauren Kjeldsen
President of Specialty Additives



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Growth opportunities driven by sustainability and digitalization

Strong base for future growth

Key growth driver: Sustainability

Enabler: Digitalization

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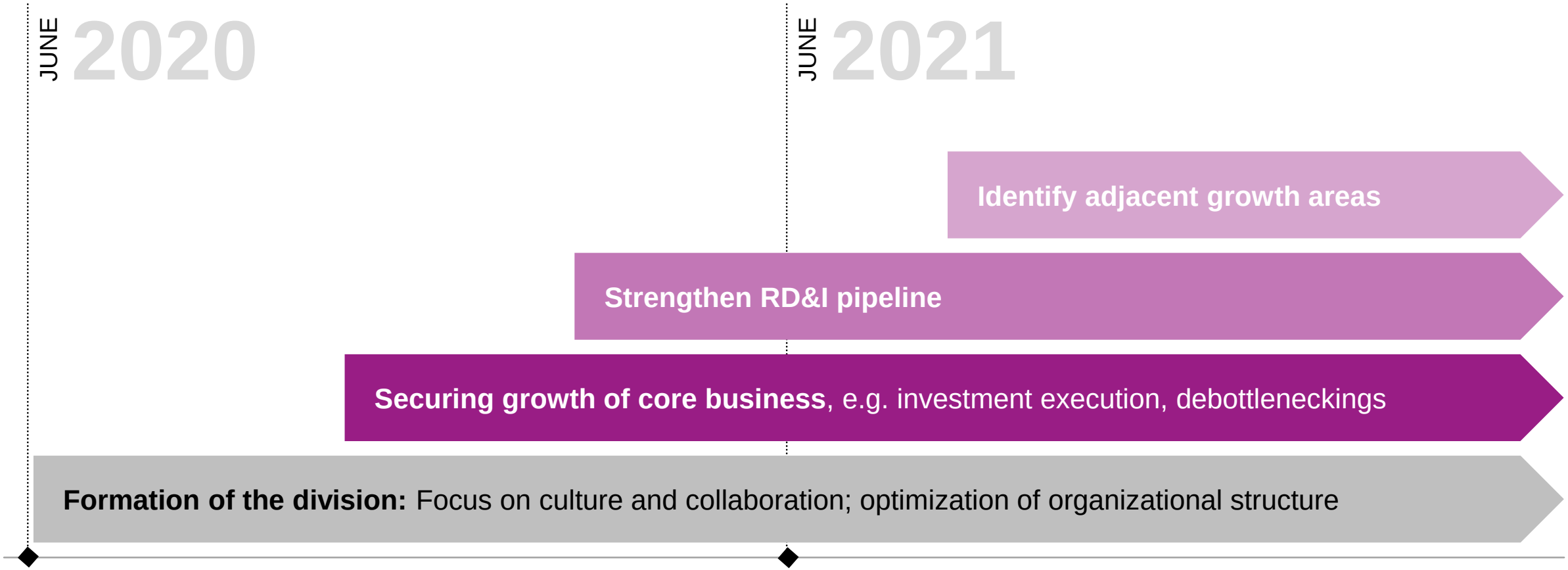
Since formation of the division we are driving a clear strategic agenda



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Mid-term targets

We will drive diversity, sustainability and value from a very strong foundation

People	Drive **“Diversity”**	Cultural Diversity	**> 60** nationalities
		Competence Diversity	**> 100** expertise areas
Planet		Next Generation Solutions[1]	**> 37%**
Profit		Volume growth CAGR	**> 3%**
		Adj. EBITDA margin	**Secure strong level** (FY 2020: 26.6%)
		ROCE	**Secure strong level** (FY 2020: 16%)

1: Products and solutions with a clearly positive sustainability profile that is above or well above the market reference level

Specialty Additives Play

Sitting at the table

Building #1 position in customer relevance to be decisive part of their innovation agenda and product offering

Ability to assess

Understanding our customers' value chains and markets to create the ideal solution

Rapid tailored innovation

Delivering continuously new solutions for markets and customers

Mastering complexity

Broad spectrum of **tailored product** for numerous customers


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Specialty Additives: Five major technology platforms

Amines	Isophorone chain	Silicones	Oleochemicals, Silica & BL specific platforms
Special catalysts for high performance spray foam insulations	Crosslinkers for durable wind turbine blades	Silicone surfactants for designed polyurethane foams in mattresses, seats and insulation	Additives and dispersing agents for waterborne artificial leather
Curing agents for high quality and efficient epoxy coating and flooring	High performance composite ingredients for electro vehicle components	Highly effective polyether siloxane defoamer for waterborne coatings	Scratch/scrub/burnish resistance with spherical amorphous silica
			Poly alkylmethacrylate for fuel efficient lubricants

Technology platforms with modular, stepwise and capex-light expansion **~4%** **capex to sales ratio**

Investment example: Amines platform
Stepwise debottlenecking of intermediate products in China and the US

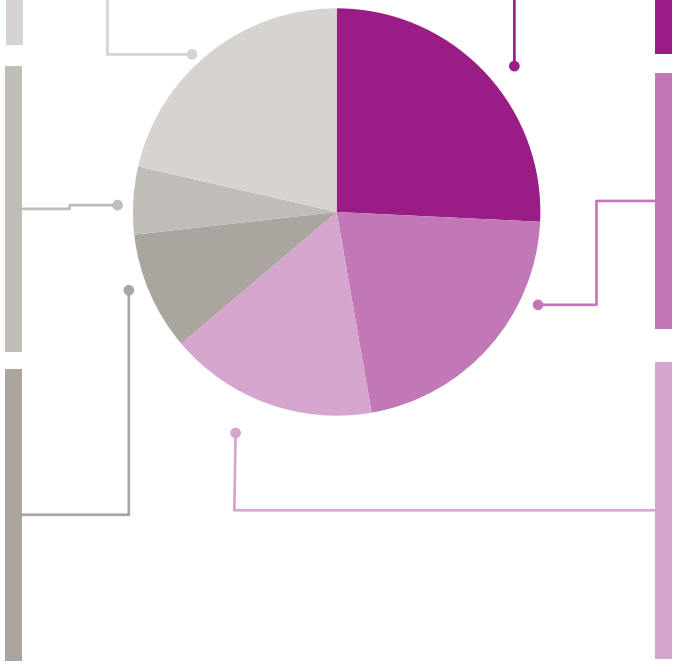
Investment example: Silicones platform
Implementation of expanded regional hubs in Europe, China and the US

Specialty Additives end markets and product examples

Other
- Additives for conventional and biological plant protection for growing global population
- Industrial gear lubricants to achieve more productivity, less downtime and optimal fluid service
- Coating Additives for flame retardant cables

Environmental
- Crosslinkers for wind blades to enable mechanical stability and ensure a long service life
- Linerless labels to reduce material usage
- Foam stabilizers for water-based PU artificial leather production

Coatings
- Additives for paint systems as lasting barrier against chemical cleaning agents
- Marine coatings
- Fillers to increase burnish resistance and prolong life of paints



Mobility
- Coating additives for topcoats and under body coating
- Anti-fouling coatings for ship hulls
- PU foam additives for seating
- Lubricant additives for motor and transmission oils

Construction
- Crosslinkers for composite-reinforced bars
- Additives for more durable cement-based applications
- Water repellent additives to protect buildings against precipitation

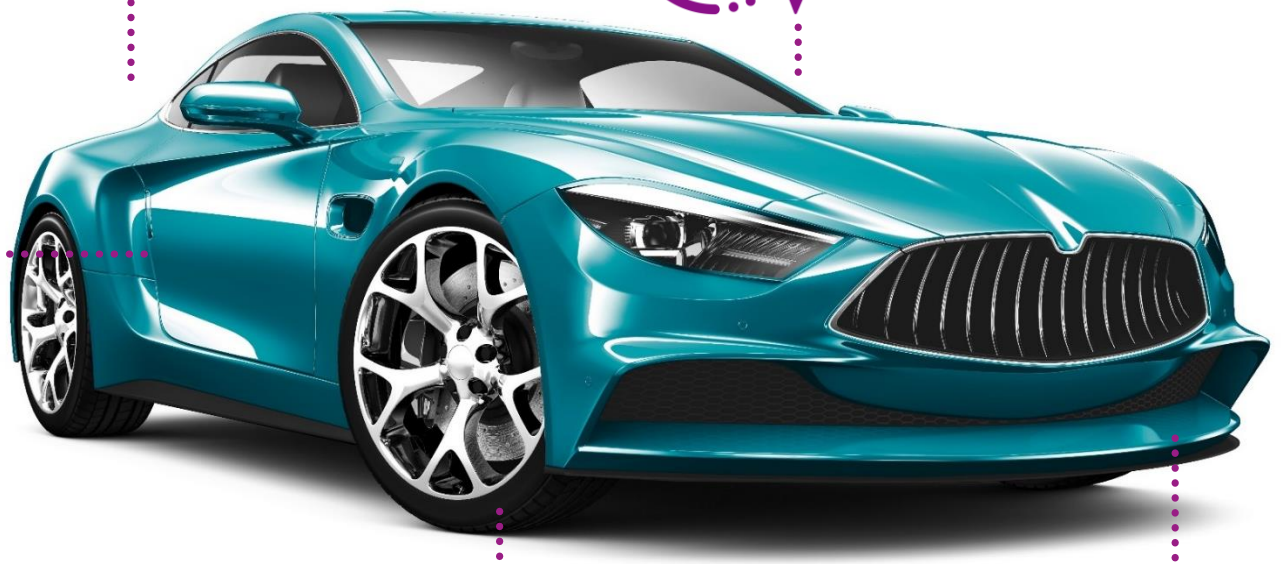
Consumer goods
- PU foam additives for fridges and freezers
- Soil and water repellent additives for fabrics used in outdoor clothing and equipment

We make a difference

Solutions for maximum performance

SILIKOTOP®
for ultra-high-solids top coats
MORE PROTECTION

TEGOSTAB®
for lighter and comfortable seating
LESS ENERGY



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for scratch resistant surfaces
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Nourybond®
for under body coating
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LESS MAINTENANCE

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TEGO® RC
for reducing paper waste in food, logistics & e-commerce labeling
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VESTAGON®
for PU powder coatings
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NANOPOX®
for more durable wind turbine blades
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LESS ENERGY

TEGO®
for FDA approved can coatings
MORE DURABILITY

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