



WE GO BEYOND TO ENABLE TRANSFORMATION

Evonik Oil Additives
@ Kepler Cheuvreux Investor Field Trip



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1. Evonik at a glance

2. Business Line Oil Additives

Evonik at a glance

(structure until April 2025)

€11.6 bn
Sales¹

€1.7 bn (14.5%)
Adj. EBITDA (margin)¹

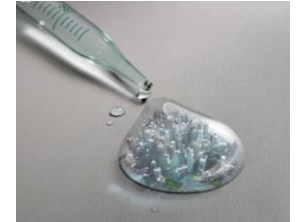
€701 m
Free Cash Flow¹

€1.17 (~7%)
Dividend (yield)²

**LEADING
BEYOND
CHEMISTRY**

Specialty Additives

Small amount –
big effect



Nutrition & Care

Life at heart.
Systems in mind.
Partners at hand.



Smart Materials

We find solutions
for the needs
of today and tomorrow



1. First nine months of 2024 | 2. Paid in 2024 for fiscal 2023; yield calculated with share price at year end 2024

3 January 2025 | Evonik Oil Additives

Evonik with new Group structure: Leaner and more differentiated (structure from April 2025)

CUSTOM SOLUTIONS

- Sales: €5.6 bn; adj. EBITDA: €852 m; ~7,000 employees
- Innovation-driven businesses with tailored solutions for customers
- Stronger role as growth driver with superior EBITDA growth

Additives
Sales €3.7 bn

Main products:
Additives for CASE² industry
Lubricant additives
PU foam additives
Catalysts

**Health &
Care**
Sales €1.9 bn

Care Solutions
Health Care

ADVANCED TECHNOLOGIES

- Sales: €6.0 bn; adj. EBITDA: €752 m; ~8,000 employees
- Efficiency-driven businesses with leading technology & cost position
- Stronger financing role with superior cash flow generation

Organics
Sales €1.7 bn

Crosslinkers
High Performance Polymers

Inorganics
Sales €2.5 bn

Silica
Hydrogen Peroxide

**Animal
Nutrition**
Sales €1.8 bn

Amino acids (e.g. Methionine)

TECHNOLOGY & INFRASTRUCTURE ¹⁾ / OTHER (Sales: €3.7 bn; adj. EBITDA €52 m)

Two segments reflecting different business archetypes

Custom Solutions

Advanced Technologies

Tailored Solutions

Winning Argument

Technology/Cost (Economies of Scale)

Product/Project/Solution

Innovation Focus

Process

Expand Position

Market Position

Maintain leading Position

Product Excellence (incl. Time-to-Market)

Excellence Focus

Operational Excellence

Offering/Market

Driver of Complexity

Assets/Sites

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Business Line Oil Additives

Creating possibilities
for a sustainable world.

Stefan Plass, SVP & General Manager
Dr. Torsten Stöhr, VP R&D



The success of Oil Additives is based on the core competencies of viscosity & wax modification as well as tailoring of monomers

Oil Additives products

BL Oil Additives

Total sales share ~20%

Lubricant Additives

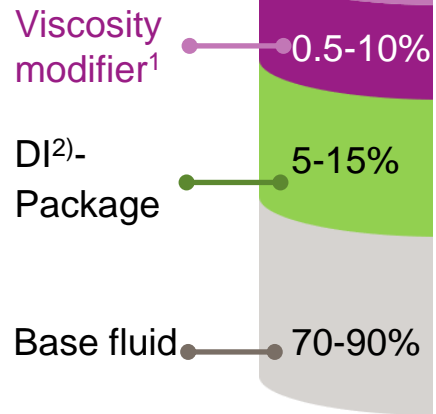
Specialty Methacrylates

Applications (exemplary)



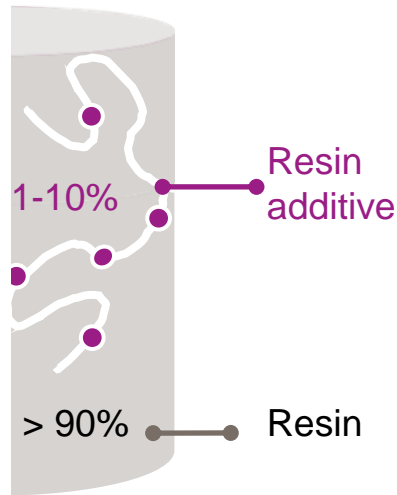
Automotive

Total sales share ~50%

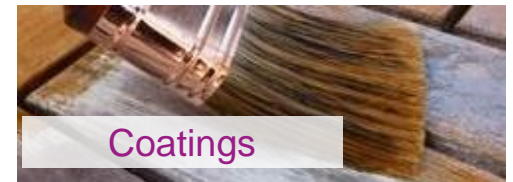


Industrial

Total sales share ~30%



Applications (exemplary)



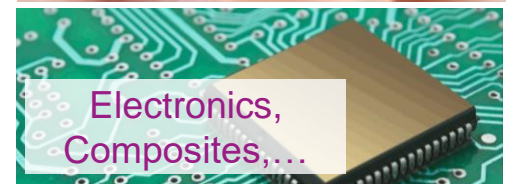
Coatings



Oilfield



Personal Care



Electronics, Composites,...

Market position: #1

Key effects

Viscosity modifier¹ to...

- deliver fuel economy and low temperature performance
- increase energy efficiency and productivity in industrial fluids

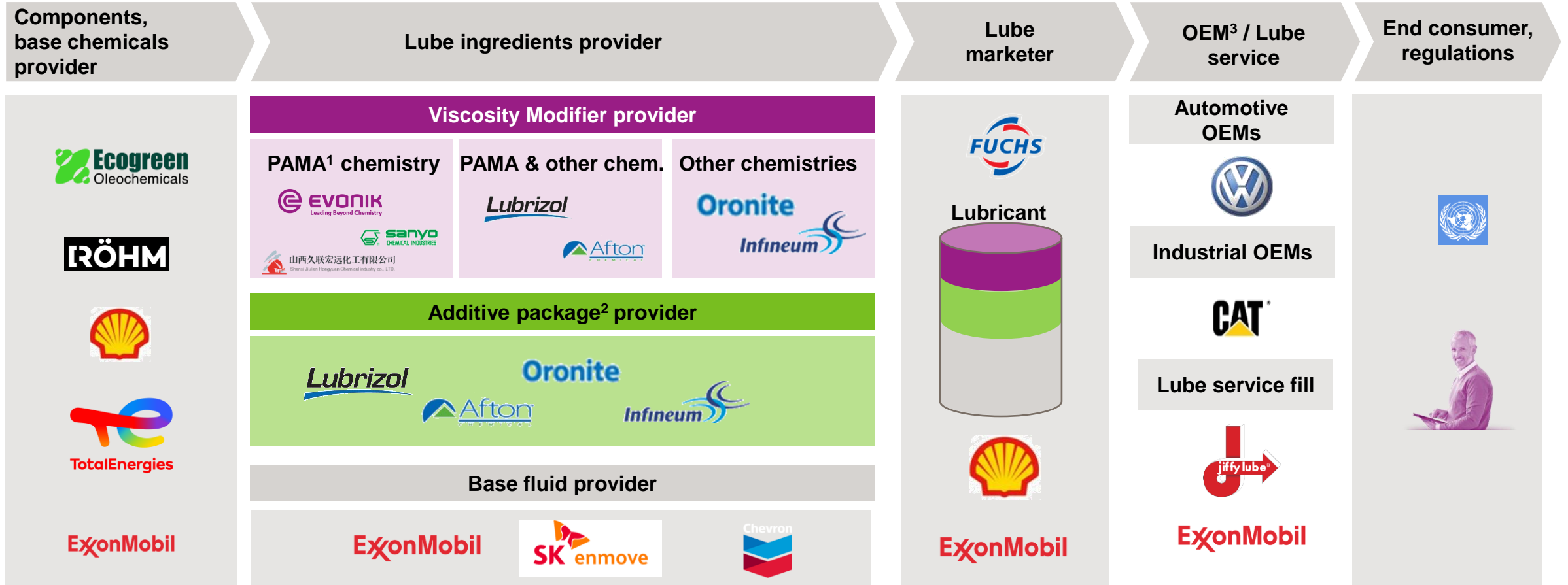
Specialty methacrylate monomers...

- allow for longer life paints & less use of organic solvents in coatings
- Improve comfort in contact lenses and femcare products

Market position: #1

1. Viscosity modifiers = BL OA Lubricant Additives product portfolio, incl. viscosity index improvers and pour point depressants | 2. Dispersant/ inhibitor

In the Lubricant value chain, BL Oil Additives is indispensable as focused provider of viscosity modifiers and market leader in PAMA¹ technology



1. PAMA: Poly(alkyl methacrylate) | 2. Dispersant, Detergent, Antiwear / extreme pressure, Antioxidant Corrosion inhibitor, Friction modifier, Emulsifier | 3. OEM: original equipment manufacturer

Oil Additives' Success Factors are putting the customer at the center



Three major trends affect the lubricant market resulting in threats but also opportunities to grow

↑ Opportunity ↓ Threat

Energy efficiency ↑



- Lower energy consumption and **cost reduction**
- **CO2 reductions** / sustainability
- **Stricter regulations** and specifications

➤ **PAMA wins** over **other** Viscosity Modifier chemistries

Electrification ↓



- Shift to electric **propulsion**
- **Mind-set change** at OEM and change of priority towards e-mobility

➤ **Lower demand** in engine oils and driveline fluids

Improved technologies in base oils, materials and equipment ↓



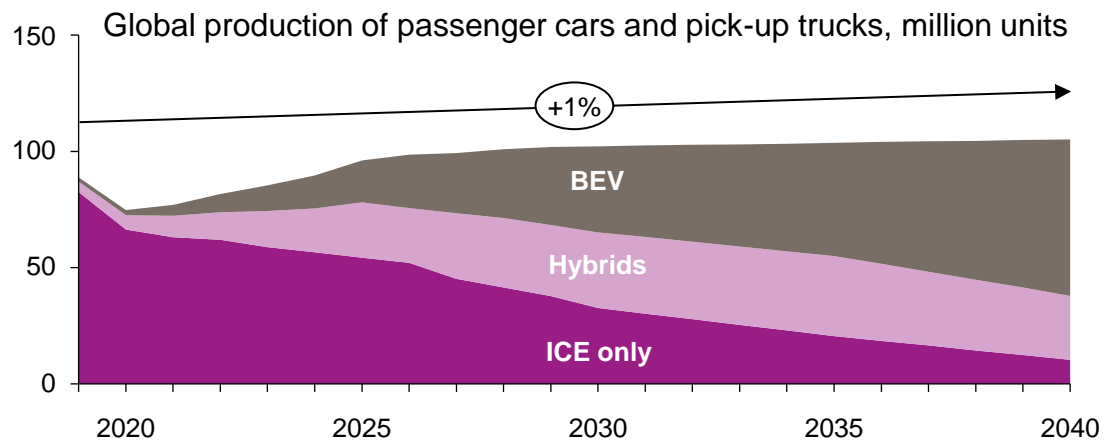
- Higher quality in **base stocks** and **additives**
- **Improved surfaces materials** of gearsets
- More **effective oil filter** and hydraulic **pump design**

➤ **Lower lubricant consumption** and **longer oil drain intervals**

AGO: Automotive Gear Oils ; AT :Automatic Transmission; CVT: Continuously Variable Transmission; DI; dispersants and inhibitors AO: Anti-oxidants; VII: Viscosity Index Improver; PAMA: Poly Alkyl Methacrylate

Battery Electric Vehicles (BEV) will become dominant propulsion technology replacing Internal Combustion Engines (ICE), but transition of fleet takes time

Production of Vehicles with Combustion Engine is declining¹⁾



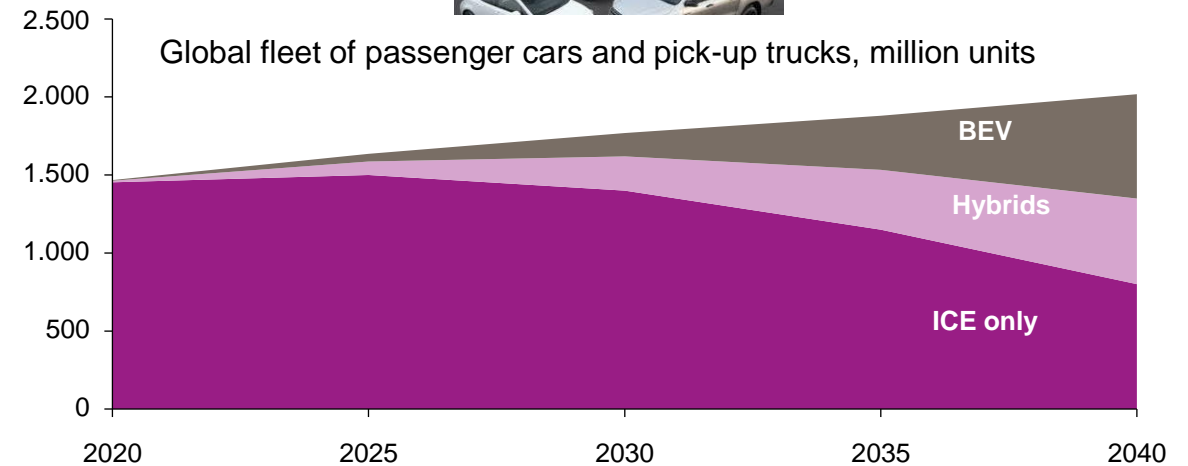
- Shift of market share from Europe to China
- Hybrids as transition technologies
- Decrease of vehicles production with ICE by 50% till 2040

Source: LMCA G ETF - Data - Quarter 4 2023 Production volume

1) Dynamic transition with significant uncertainty. Therefore, continuous monitoring via 'Evonik for Automotive' team and BL OA

2) Source: LMC Q2/2021, Kline and OVIP expertise; Historical car production data and forecasted vehicle production data summed up considering a car use-phase of 20 years

Car Fleet will transform much slower for Light-Duty Vehicle²⁾



- Steadily increasing fleet of battery electric vehicles
- Car fleet with ICEs decreases only gradually
 - BEVs will dominate fleet in East Asia & Europe
 - Americas, Africa, Middle East, SEA high share of ICE cars

High Potentials of Value Growth for PAMAs by converting Monograde to Multigrade Lubricants driven by Regulations and Total Cost of Ownership

Multigrade

Monograde

Lubricant Market 2023¹

Automotive: 18.7 Mt

LD-Driveline



30%

HD-Driveline



72%

LD-Engine Oil



14%

HD-Engine Oil



33%

Motorcycle



68%

PPD
Used in nearly all lubricants



Industrial: 18.5 Mt (thereof ca. 6.5 Mt targetable)²

Hydraulics



70%

Agriculture



39%

IGO



90%

Specialties

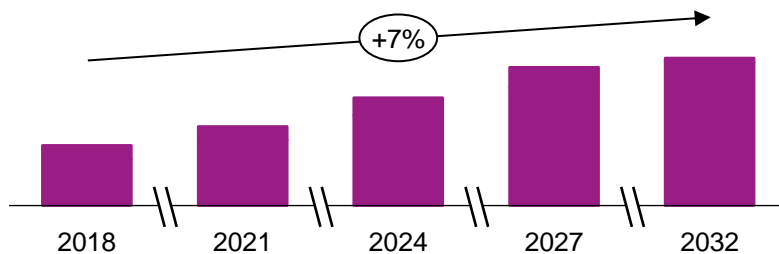


1) Source: Kline 2) Non targetable lubricant applications like metal working, process oils, etc.
LD: Light-duty; HD: Heavy-duty; PPD: Pour Point Depressant; IGO: Industrial Gear Oil

Innovative Technologies like COMB-Polymers and VISCODASE® enable us to grow in a competitive environment

COMB-Polymers as leading technology for fuel-efficient engine oils targeting 100 m€ sales mid-term

Global sales of COMB-polymers, million €

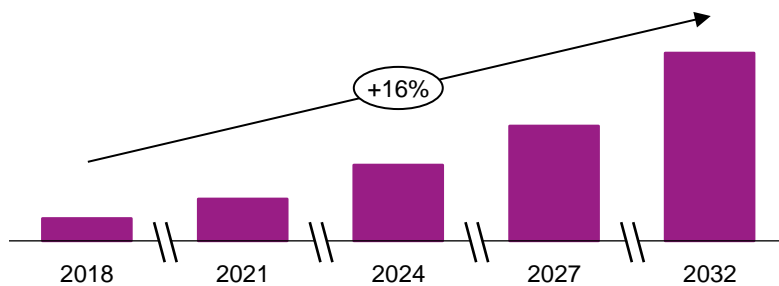


- Comb polymers the leading technology for **fuel-efficient engine oils**
- **Key features:** Reduced viscosity at low T and maintained viscosity @ high T to avoid wear/fatigue
- **Asia** as predominant growth market
- **Expansion projects** on-going



Industrial gear oil (IGO) with VISCODASE® as base fluid shows high performance at attractive fluid costs

Global sales of VISCODASE®, million €

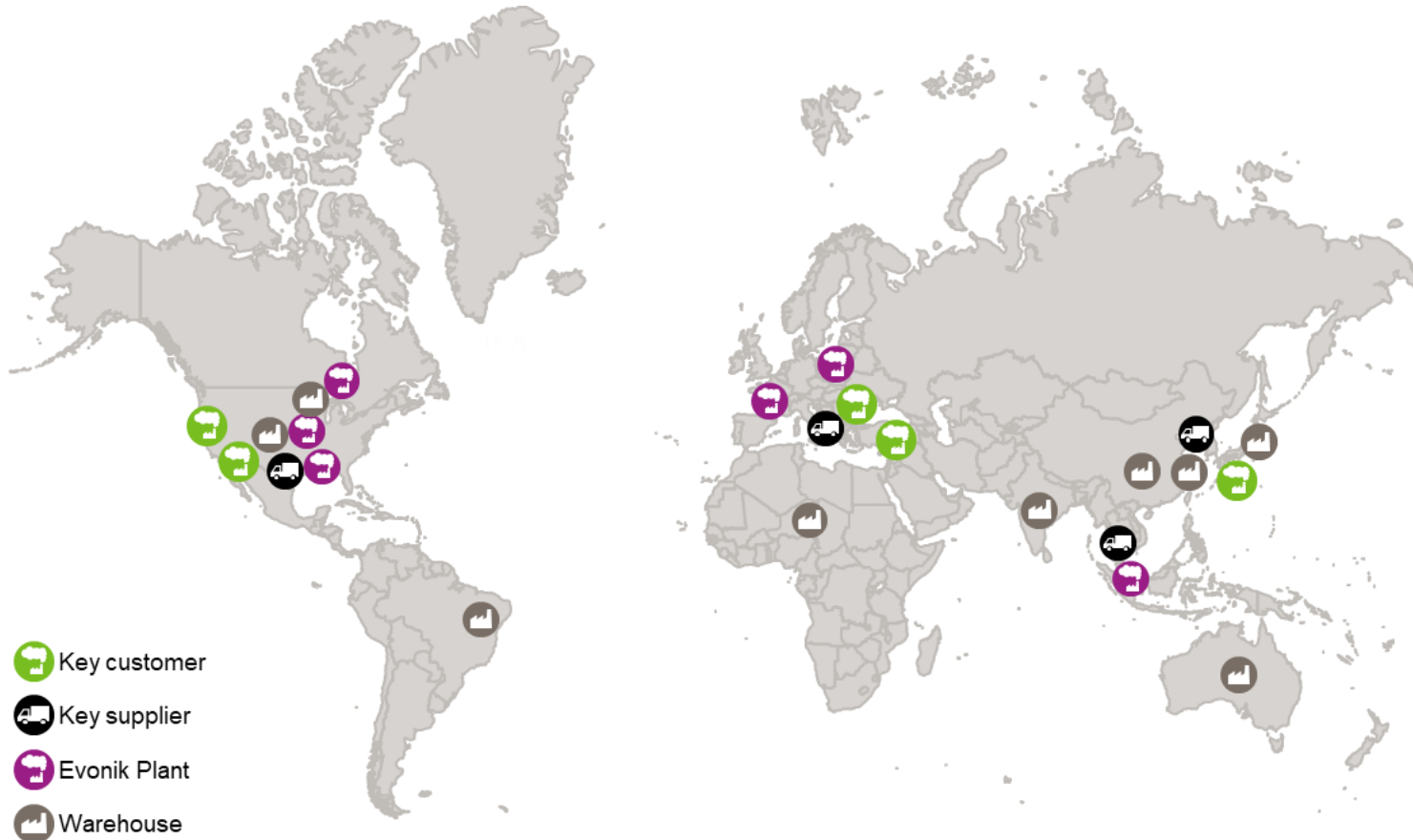


- **Cost-optimized** alternative to established top tier PAO-systems
- **Performance upgrade** alternative to mineral formulations
- With leading OEM approvals and proven performance in **field trials**
- Local formulation and **regional flexibility** based on regional components.
- **Expansion projects** on-going



PAO: Poly Alpha Olefins

Global production footprint follows a region per region strategy – this increases our resilience and ability to react to geopolitical disruptions



Global set-up increases **resilience** against global disruptions and anti-globalization trends

Global trade flow: Less than 25 % of our finished goods, intermediates and raw materials are trans-continentially shipped

Domestic production for customer proximity, saving logistic cost and enabling regional growth

Comparable **technology** for standard products in all regions implemented

Oil Additives in a Nutshell

260 products

in our active sales portfolio



> 60

development projects

6.5 %

sales enabled by innovation < 5 y



~2.2 %

R&D-ratio

>55 %

patent protected sales



6 Brands

VISCOPEX[®],
VISCOBASE[®],
COPI[™], DYNAVIS[®],
NUFLUX[®], VISIOMER[®]

~ 550

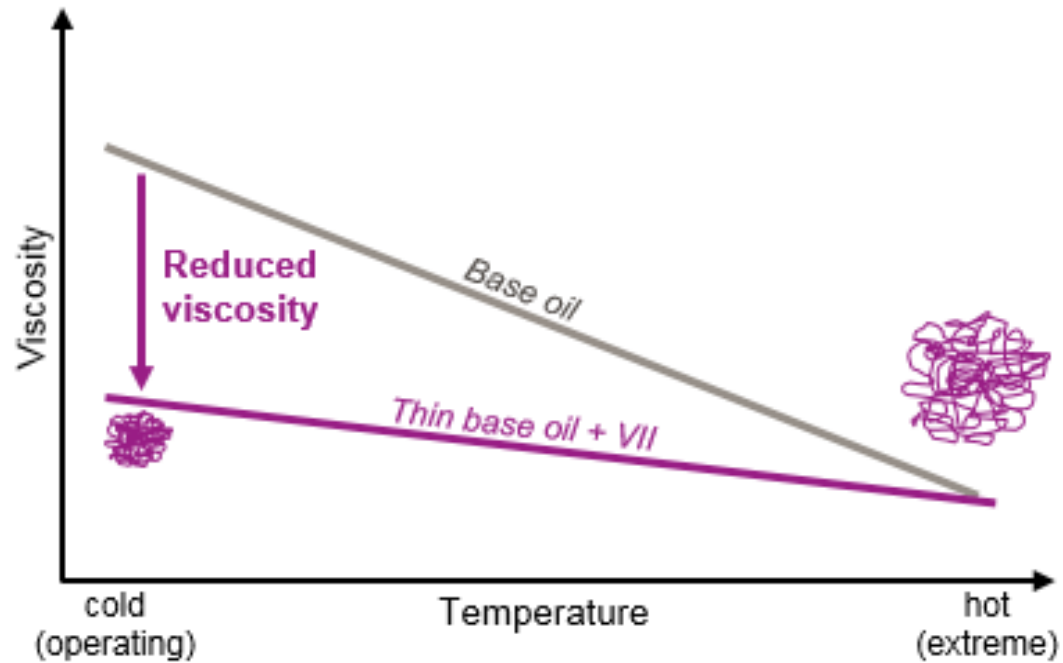
Thereof ~25 % located in Asia



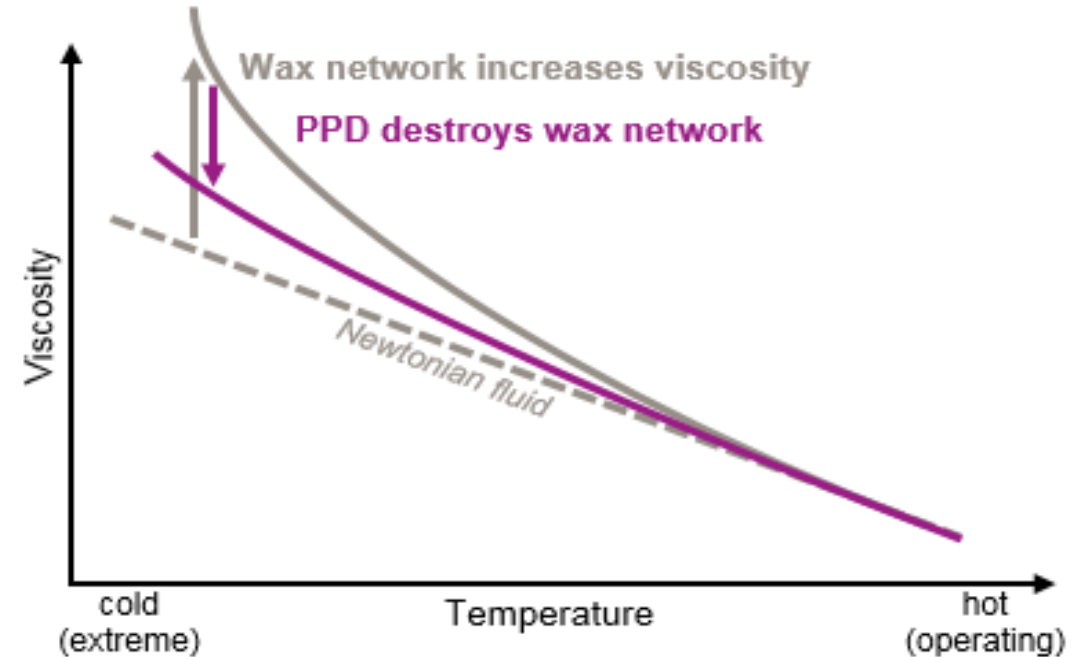
BL OA's key effects are based on polyalkylmethacrylate (PAMA) expansion and collapse as well as its interaction with base oil wax

Viscosity modifiers (VM)

Viscosity index improvers (VII)

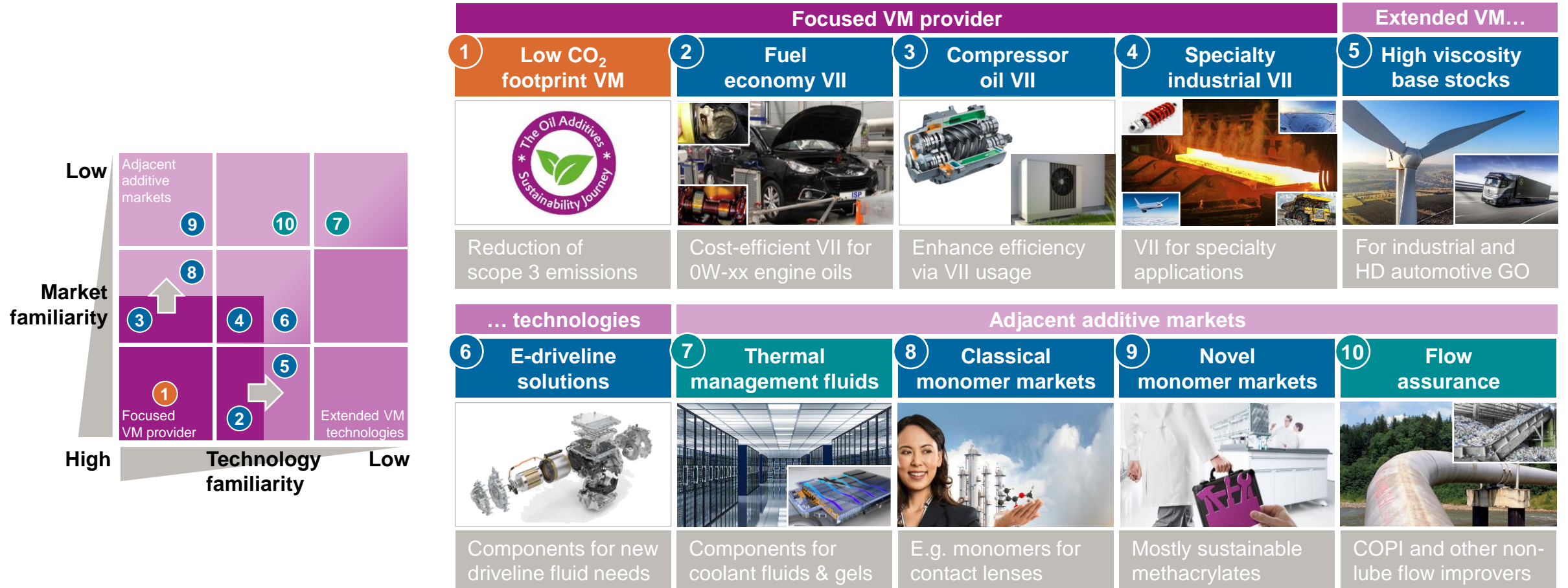


Pour point depressants (PPD)



The innovation strategy transforms BL OA from a focused VM provider into extended VM technologies and adjacent additive markets

■ Defend program
 ■ Extend program
 ■ Create program



HD: heavy duty. GO: gear oil. COPI: crude oil paraffin inhibitors.

Evonik's innovation growth areas and fields address the most pressing challenges of our time where we can make a difference – BL OA contributes

BL OA contributions

Advance precision biosolutions



Nucleic acid-based medicines & drug delivery

Cell culture solutions

Biosurfactants & biofunctional ingredients

Cosmetic actives & delivery systems

Accelerate energy transition



Membranes, hydrogen generation and transport

Future mobility and battery solutions

Carbon capture and storage

Renewable energy and energy efficiency

Enable circular economy



Enable plastic recycling

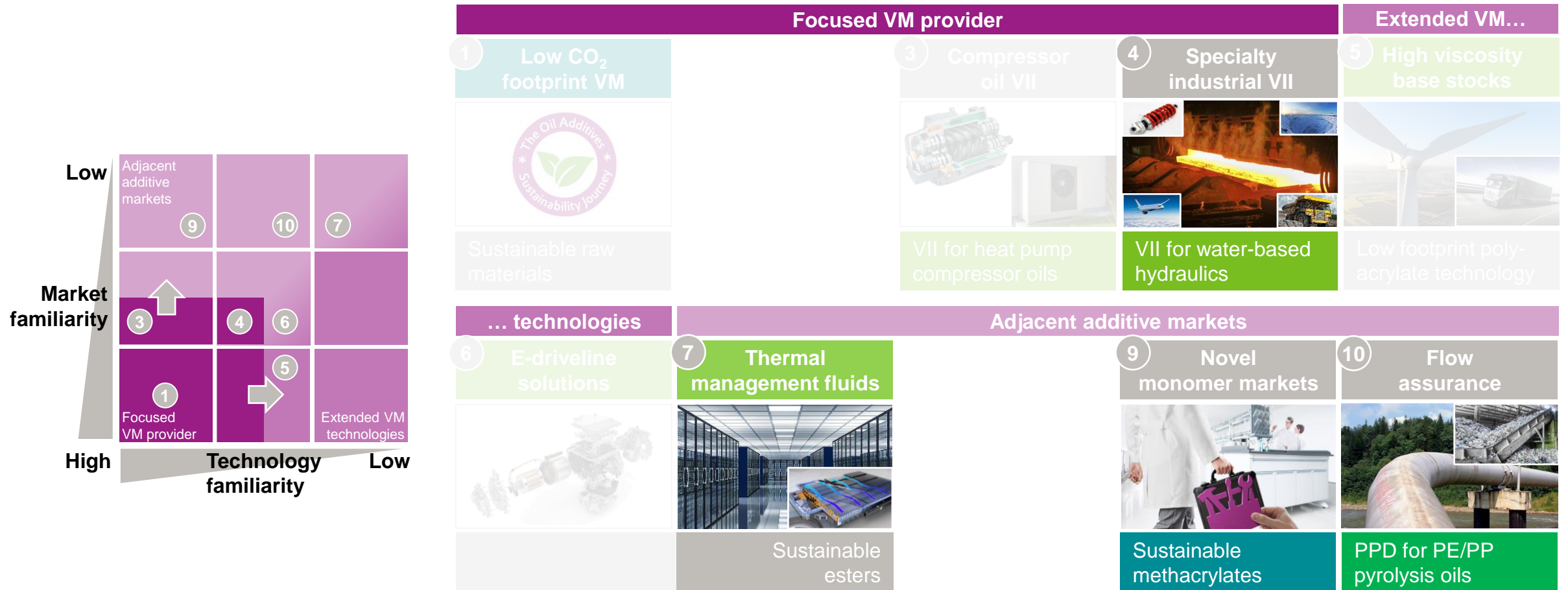
Enable catalyst and inorganics recycling

Renewable or recycled raw materials

Design for circularity



Committed to sustainable self-renewal, we push for innovation opportunities aligned with Evonik's innovation growth areas and fields

- IGA Accelerate energy transition / IGF Future mobility and battery solutions
- IGA Accelerate energy transition / IGF Renewable energy and energy efficiency
- IGA Enable circular economy / IGF Enable plastic recycling
- IGA Enable circular economy / IGF Renewable or recycled raw materials



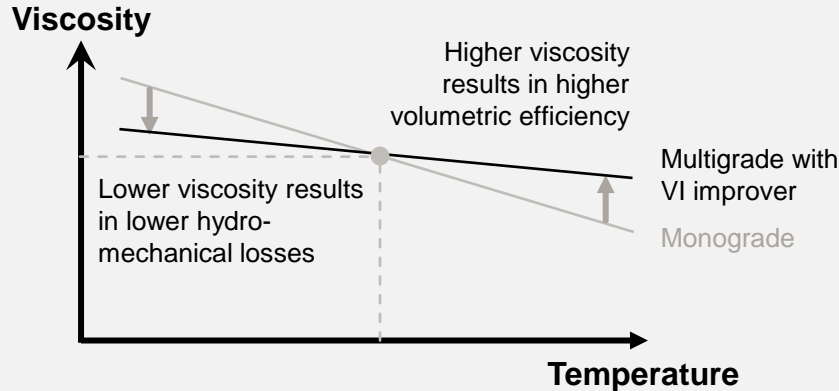
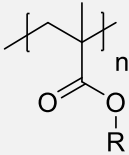
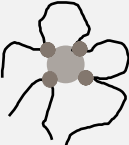
IGA: Innovation growth area. IGF: Innovation growth field. PE/PP: polyethylene/polypropylene.

R&D program 'Specialty industrial VII' bundles developments that must be tailored to specialty polar base oils – most prominently glycol/water

Background and innovation target		
Specialty hydraulic	Polar base oil	Key need
<p>Fire-prone applications, e.g. steel mills</p> 	<p>HFC fluid: glycol/water 60/40¹</p>	<p>Increase efficiency by flat viscosity and maintain durability</p>
<p>Environmentally delicate applications, e.g. mining</p> 		

¹ Application range -20 to +60°C.

HFC: hydraulic fluid type C. AW/EP: antiwear/ extreme pressure.

Specialty additives	
<p>Polar comb polymer VII with superior efficiency</p> 	
<p>AW/EP additive, e.g. inorganic particles stabilized by functional polymer</p>	
<p>Corrosion inhibitor, e.g. amine-based</p>	
<p>Defoamer, e.g. silicone-based</p>	

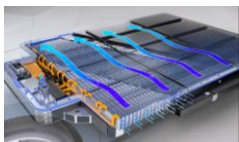
R&D program ‘Thermal management fluids’ serves growing cooling needs in electronic applications using various Evonik technologies

Background and innovation target

- **Efficiency maximized** in defined temperature window
- **Safe immersion cooling** of data centers as high growth market



- Application to **electric vehicles** (battery, e-motor) taking off >2030



Immersion coolant

Performance

- Low viscosity
- High heat transfer
- Oxidative stability

Safety

- High flash point
- Low electric conductivity
- Sustainability

Compatibility

- Seals
- Coatings
- Copper

PCM-based cabinet

Safety

- Absorb heat peaks for elevated thermal runaway time



Specialty additives and components

Additives	<p>Modified silicones as water-in-oil emulsifiers</p> <p>Inorganic particles, stabilized by functional polymer, as heat transfer agents</p>	
Polar base fluid	Specialty sustainable esters	
Non-polar base fluid	Specialty hydrocarbons	
PCM gel additives	Functional polymer as crosslinker (together with 2 nd component) and as compatibilizer of paraffin matrix	
PCM slurry additives	Functional polymer as stabilizer of paraffin core/shell particles	

PCM: phase change material.

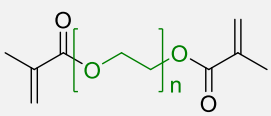
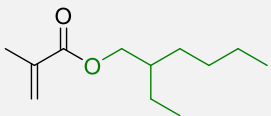
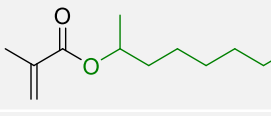
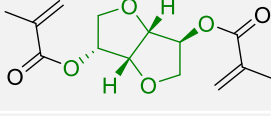
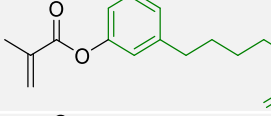
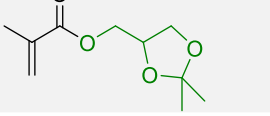
Sustainable methacrylate projects of R&D program 'Novel monomer markets' address opportunities arising from biobased feedstocks

Background and innovation target

- **Regulatory pull** to replace petrochemicals by biobased materials, e.g. 30% in EU by 2030
- Claim 'biobased' as **differentiator** at end-consumers and OEMs
- **Increasing interest** at formulators and resin producers in sustainable methacrylates
 - **Self-imposed targets** for CO₂ footprint reduction and circularity
 - In some cases, **certified and traceable** raw material requested
 - **Biodegradability not necessarily required**
- Evonik as **first mover**



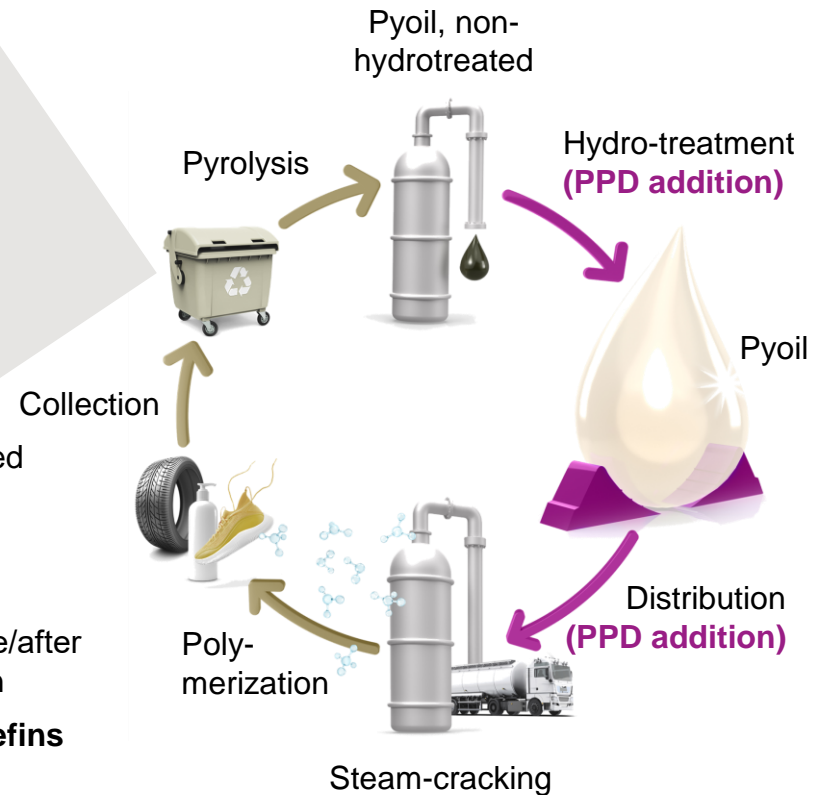
Methacrylate toolbox

	VISIOMER® with up to 85% biogenic C-atoms	Application	Alternative to
Biobased drop-in version of existing product	Terra PEG200DMA Polyethylene glycol 200 dimethacrylate 	Crosslinker	PEG200DMA (fossil based)
	eCO EHMA Ethylhexyl methacrylate 	Hydrophobic alkyl methacrylate	EHMA (fossil based)
Terra OCMA Octyl methacrylate 			
Product from new biobased feedstock	Terra ISDMA Isosorbide dimethacrylate 	Rigid crosslinker	EGDMA (ethylene glycol dimethacrylate, fossil based)
	Terra CARMA Cardanol methacrylate 	Oxidation crosslinker	Condensation crosslinker
	Terra IPGMA Isopropylidene glycerol methacrylate 	Adhesive ether methacrylate	THFMA (tetrahydrofurfuryl methacrylate)

Terra: fully biobased. eCO: biomass-balanced.

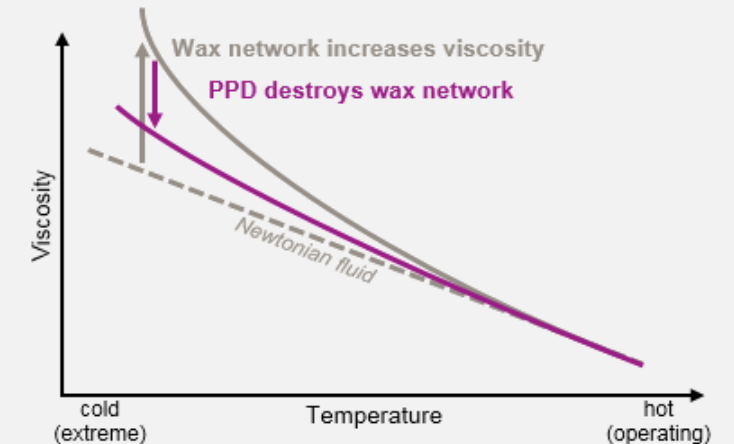
R&D program 'Flow assurance' focusses on revamping our flow improver portfolio – most prominently PPD for pyrolysis oils

Background and innovation target



- Only 16% of **plastic waste** gets recycled
- 99% mechanical (pure grades) and 1% **chemical recycling** by degradation to **pyrolysis oils** (PE/PP mix grades)
- **Transportation issues** of “pyoil” before/after hydro-treating due to wax crystallization
- Final pyoil steam-cracking to **C2/3/4 olefins** (naphtha substitute)

PPD addition



- **Flow assurance** of waxy feedstocks (crude oil, mineral oil, biodiesel) as **key competence**
- Low temperature **co-crystallization** of PAMA with feedstock wax **destroys 3-dimensional network**
- Interestingly, **pyoils** are **like crude oils** and existing **COPI** are applicable as **PPD** for pyoils

Oil Additives' Success Factors are putting the customer at the center





EVONIK

Leading Beyond Chemistry