



PETRONAS

PETRONAS Chemicals Group Berhad

Knowledge Sharing : Specialty Chemicals

8 May 2023

Our Speakers



Dr. DEBBIE CHIU

Head, Specialty Chemicals

BSc Chemical Engineering,
MSc Chemical Engineering &
Statistics, Doctor (PHD)
Chemical Engineering

Previous held various senior
management roles including
VP for Performance Plastics at
LCY Chemical (Taipei, Taiwan)
APAC CTO and Managing
Director of EPS Business
Sherwin Williams (Shanghai
China)



HARDEEP PARMAR

VP M&A, Kline

Executive MBA, Imperial
College London, Honors
degree in Chemical
Engineering, Fellow at the
Royal Society of Chemistry.

Began as a Process Engineer,
in the energy industry before
moving into management
chemicals consulting.



RALPH PINCKAERS

CEO, BRB Group

Msc Chemical Engineering

Appointed as Managing
Director and CEO of BRB
Group in 2001. Has been with
BRB for 29 years in various
roles.



IB JENSEN

CEO, Perstorp Group

B. Com Accounting + B. Com
Finance & Banking.

Leadership training from
Ashridge, INSEAD and IMD.
Previously CFO at Arxada, Senior
Vice President Finance & IT at
Lonza and various senior
positions within companies such
as Syngenta, Danisco and LEGO



AZLI ISHAK

CFO, PCGB

Majored in Accounting and
Finance and a fellow of the
Chartered Accountants
Australia and New Zealand and
a member of the Malaysian
Institute of Accountants.

He leads the overall financial
and fiscal management of
PETRONAS Chemicals Group
(PCG) Malaysia and its
subsidiaries. He previously held,
holding various roles in M&A,
corporate finance, joint venture
management and venture
capital investment.

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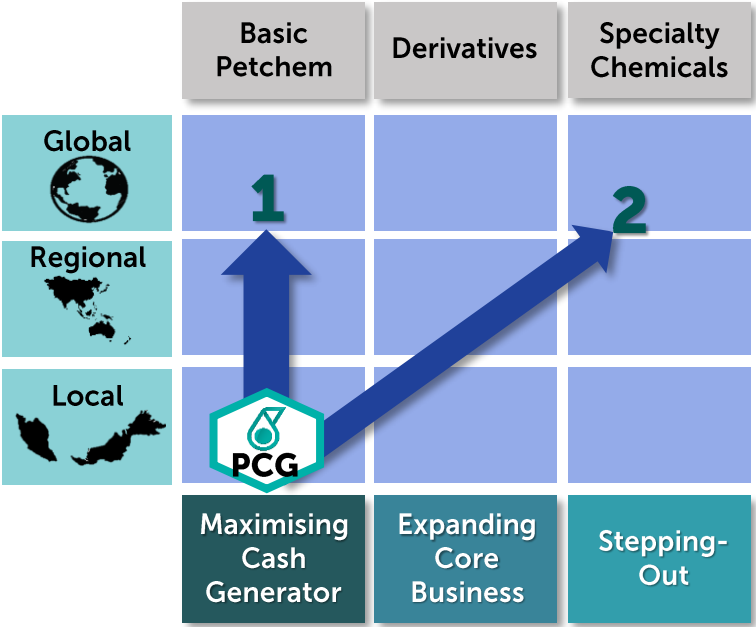
PCG Specialty Chemicals Business and Growth Strategy

by: Dr. Debbie Chiu



PCG has embarked on a 2-prong growth strategy to futureproof the business via 3 growth levers

2-Pronged strategy



- 1. Sustain strength in basic petrochemicals
- 2. Selectively diversify into derivatives, specialty chemicals and solutions

Diversify into derivatives, specialty chemicals and solutions to future-proof the business

Expanding Core Business



Extend Value Chain (EVC)

via **downstream investment**

Stepping-Out



Build Specialty Platform

via **Mergers & Acquisitions (M&A)**



Create Optionality for Growth

via **Technology Research** and **Corporate Venture Capital (CVC)**

✓ 2019 – **BRB**
✓ 2022 – **Perstorp**

Post BRB acquisition, PCG has intensified pursuit for a sizeable platform guided by identified specialty pathways



*Post Merger
Integration Phase*

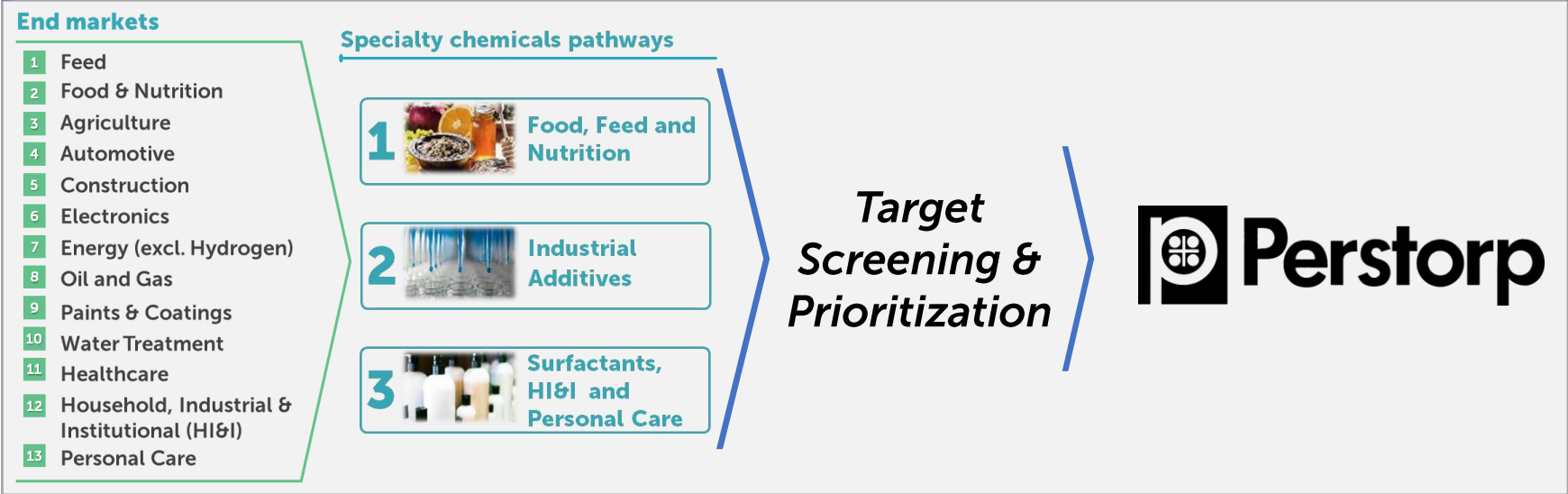
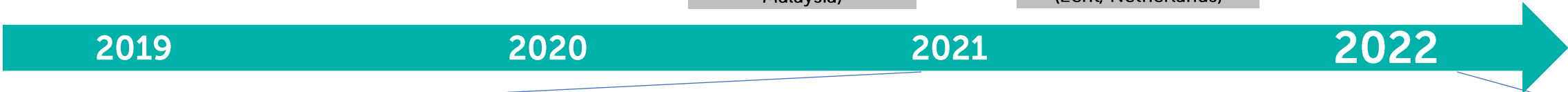


New Silicone Blending Facility (Gebeng, Malaysia)



New Lube Additives & Chemicals Facility (Echt, Netherlands)

*Consistent growth
since acquisition*



To manage the acquired Specialty Chemicals businesses effectively, PCG has established a new business division

Specialty Chemicals Division

Drive PCG's Specialty Chemicals
Business Performance and Strategy



PCG Specialties at a Glance

PCG Specialties 2022

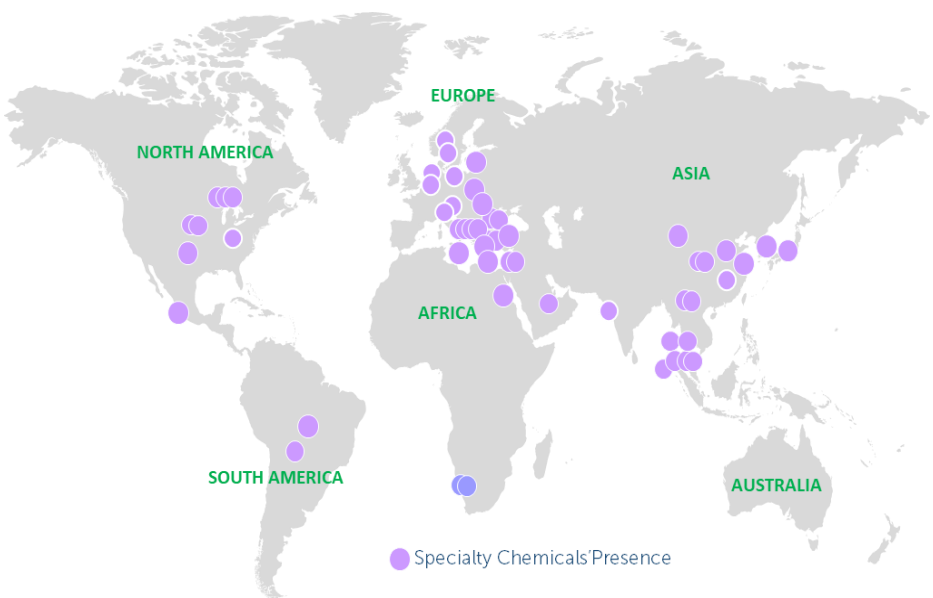
~RM 8.2 bil
Revenue

~RM 1.1 bil
(13.5%)
EBITDA (Margin)

~50%
of Sales from Leading
Market Positions

27+ countries
Global Presence

PCG Specialties Worldwide



Specialty Chemicals portfolio boosts our market presence in Americas and EMEA, while strengthening our footprint in APAC

PCG Specialties Focused Segments

1



Resin & Coatings

2



Engineered Fluids

3



Animal Nutrition

4



Advanced Materials

5



Silicones

6



Lubricant Additives & Chemicals

To contribute towards 30% additional revenue from non-traditional business

We are focused on stabilizing the Perstorp business amidst the challenging environment and charting the growth of our Specialty Chemicals platform

Stabilize the business and enhance the operations



Deliver **Business Plan** ("BAU")

Stabilize Current Business to **Protect Culture** and **Retain Talent**

Value-driven **Integration** Plan

Enhance business excellence from operations and commercial

Accelerate growth and capitalize on the partnership



Assure and Accelerate **Planned Projects** under BAU

Chase **Revenue** Synergies

Chase **Cost** Synergies

Replicate **technology / chemistries in Malaysia** to serve SEA / APAC

Build for the future



Opportunistic **Bolt-on M&A**

Replicate **R&D** Competencies through **Innovation Network**

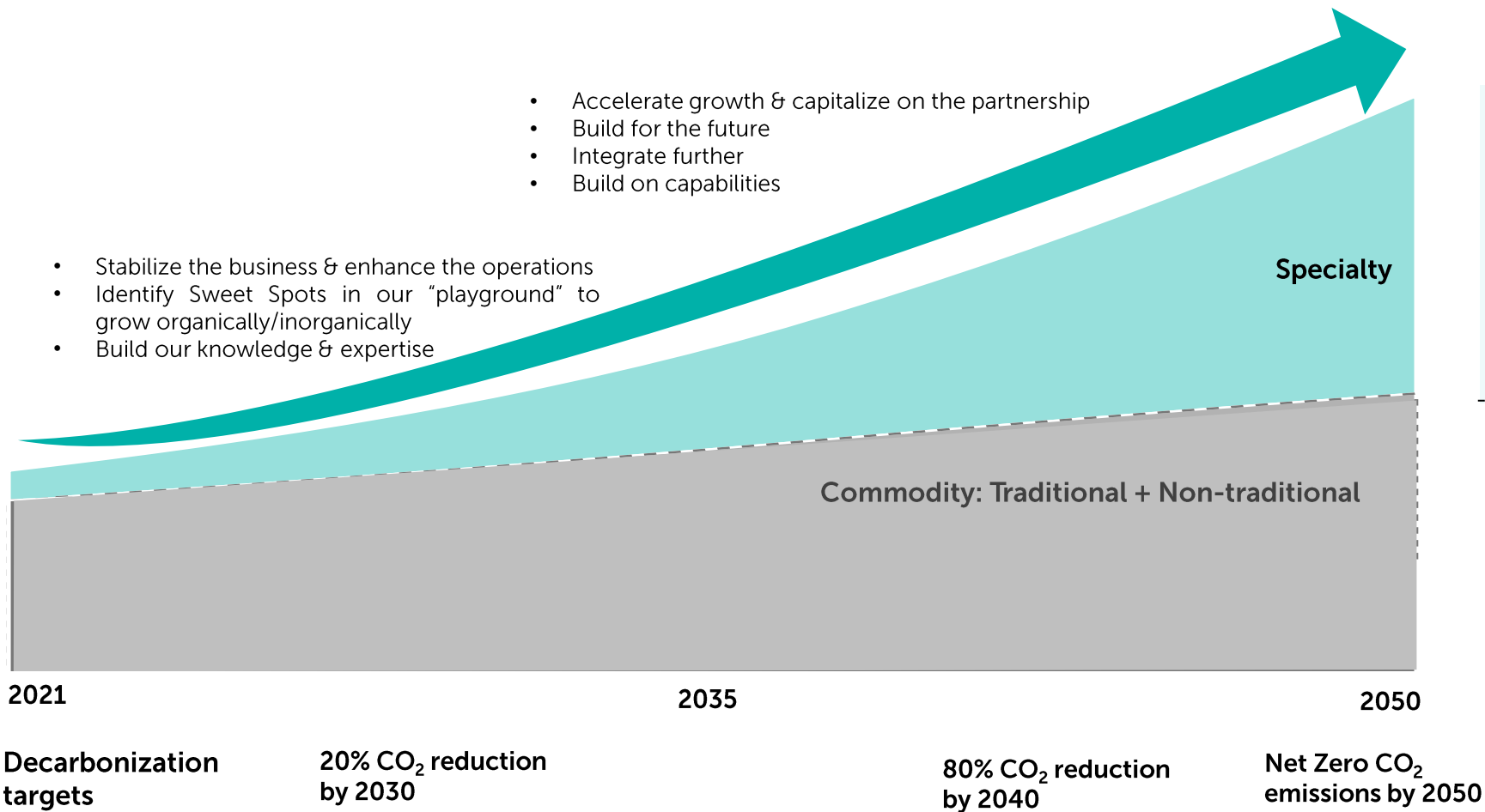
Refine the long-term **growth strategy**

Enhance **market leadership position**

Specialty Chemicals will become a distinct new business area for PCG with different characteristics

/ ILLUSTRATIVE

EBITDA growth



Diversify into specialty

- Margin maximization
- Customer service and intimacy
- Product innovation and differentiation
- Flexibility, customization and speed

Sustain volumes in commodity

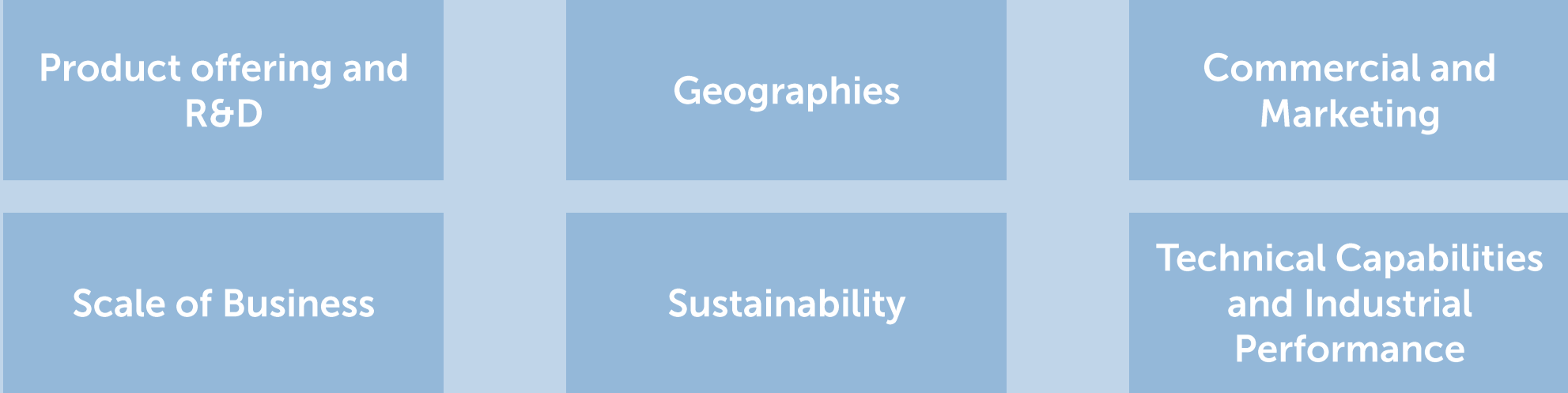
- Cost optimization
- Standardization
- Adaptation to supply/demand cycles
- Integrated supply chain

We are refining our focused areas in the specialty chemicals space

- Transportation
- Construction
- Paints and Coatings
- Oil & Gas
- Mining
- Water Treatment
- Agriculture
- Animal Nutrition
- Food and Beverage
- Healthcare
- Personal Care
- HI&I Cleaning
- Apparel & Clothing
- Pulp, Paper, Printing
- Packaging
- Electronics
- Energy
- General Industrial

End Markets

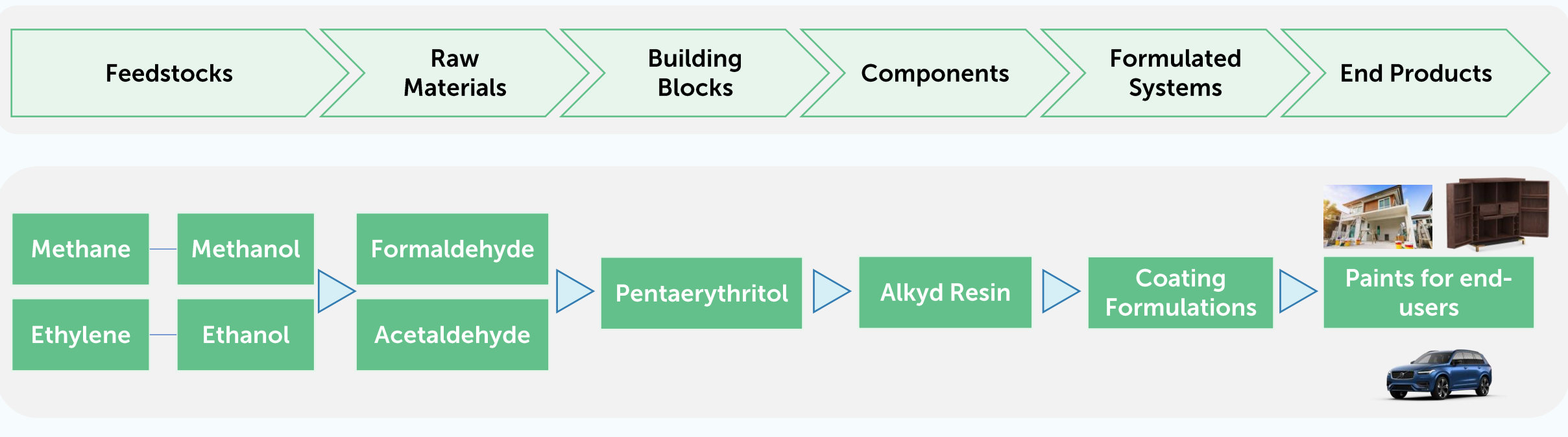
Potential portfolio plays and strategic developments evaluated along several levers



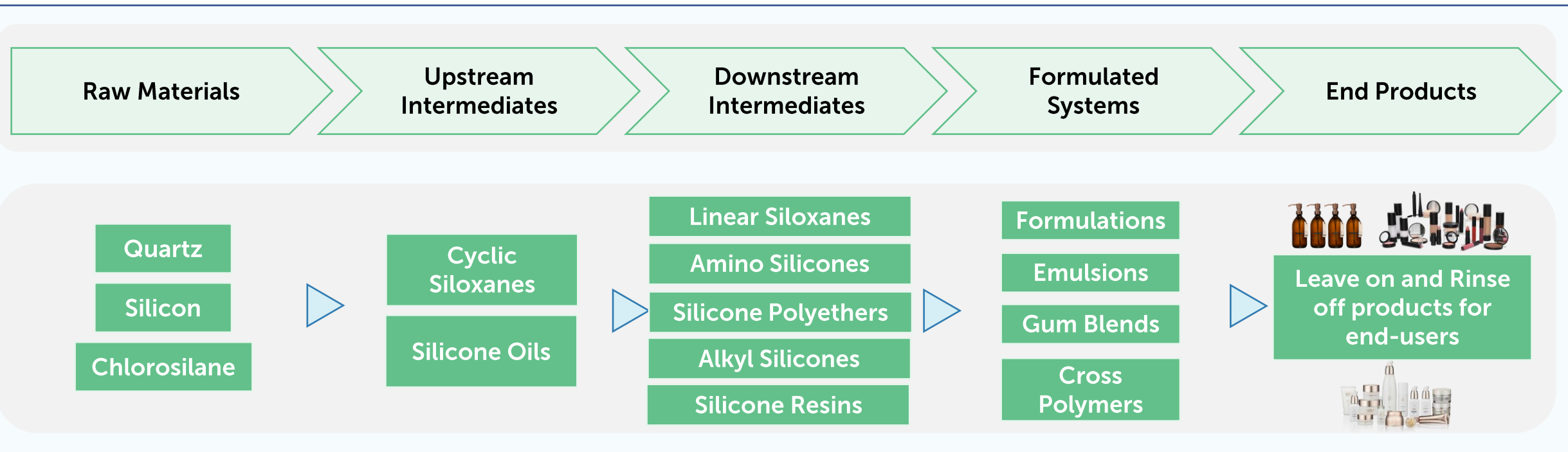
- Bulk Chemicals
- Polymers
- Additives / Ingredients
- Inorganic materials
- Formulations
- Fine Chemicals

Chemical clusters

Illustrative value chain for Pentaerythritol (Penta) in Paints and Coatings

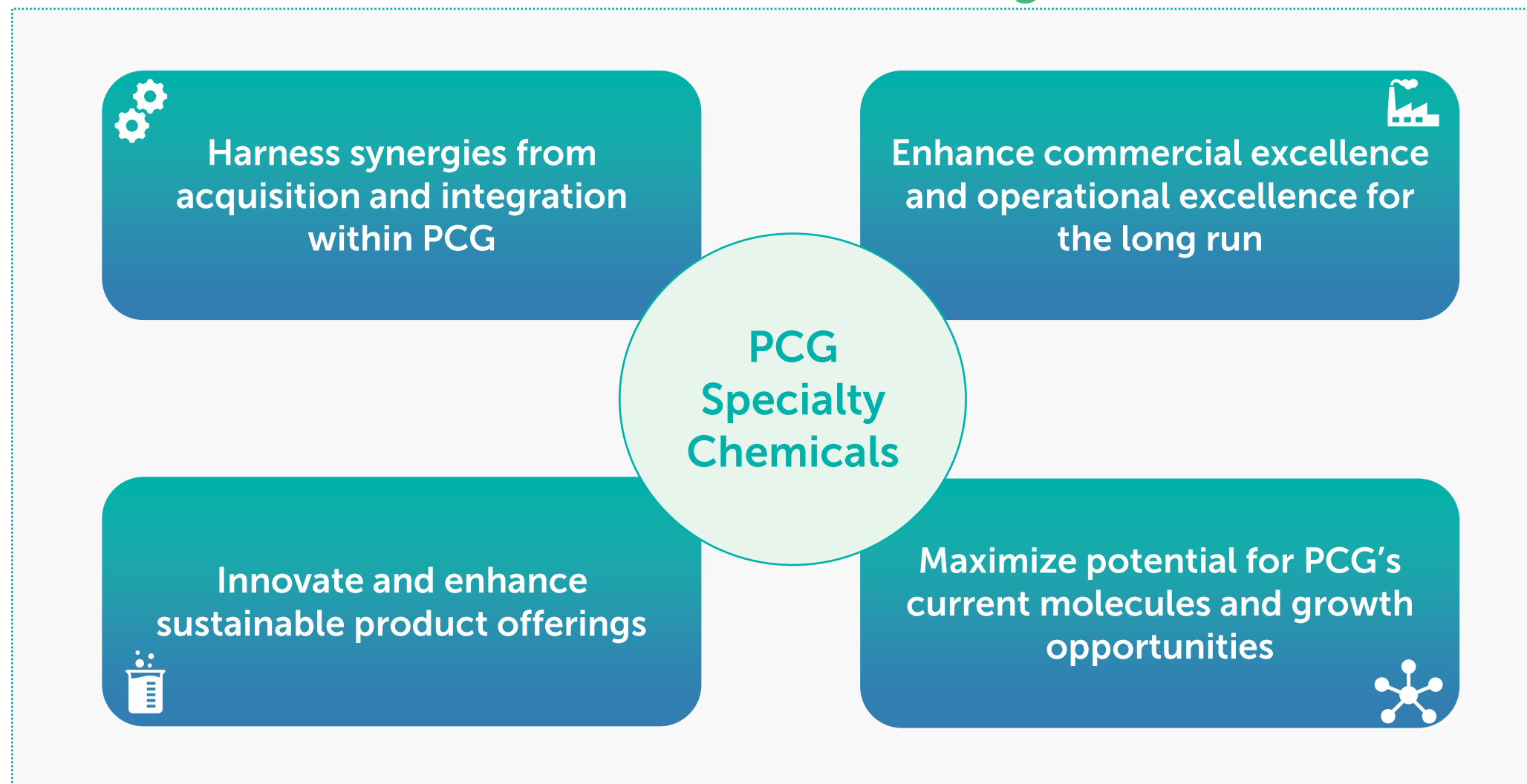


Illustrative value chain for Silicones in Personal Care



*Note: The companies and chemistries listed above are examples that are non-exhaustive

Moving forward, PCG Specialty Chemicals will continue to drive the combined capabilities under one roof to deliver sustainable growth



BRB Business Overview and Introduction

by: Ralph Pinckaers



Overview of BRB



BRB was founded in 1981
Headquarters in the Netherlands

Over 400
employees



Independent manufacturer of lube oil
additives, silicones and other specialty
chemicals



9 New products
launched in
2022

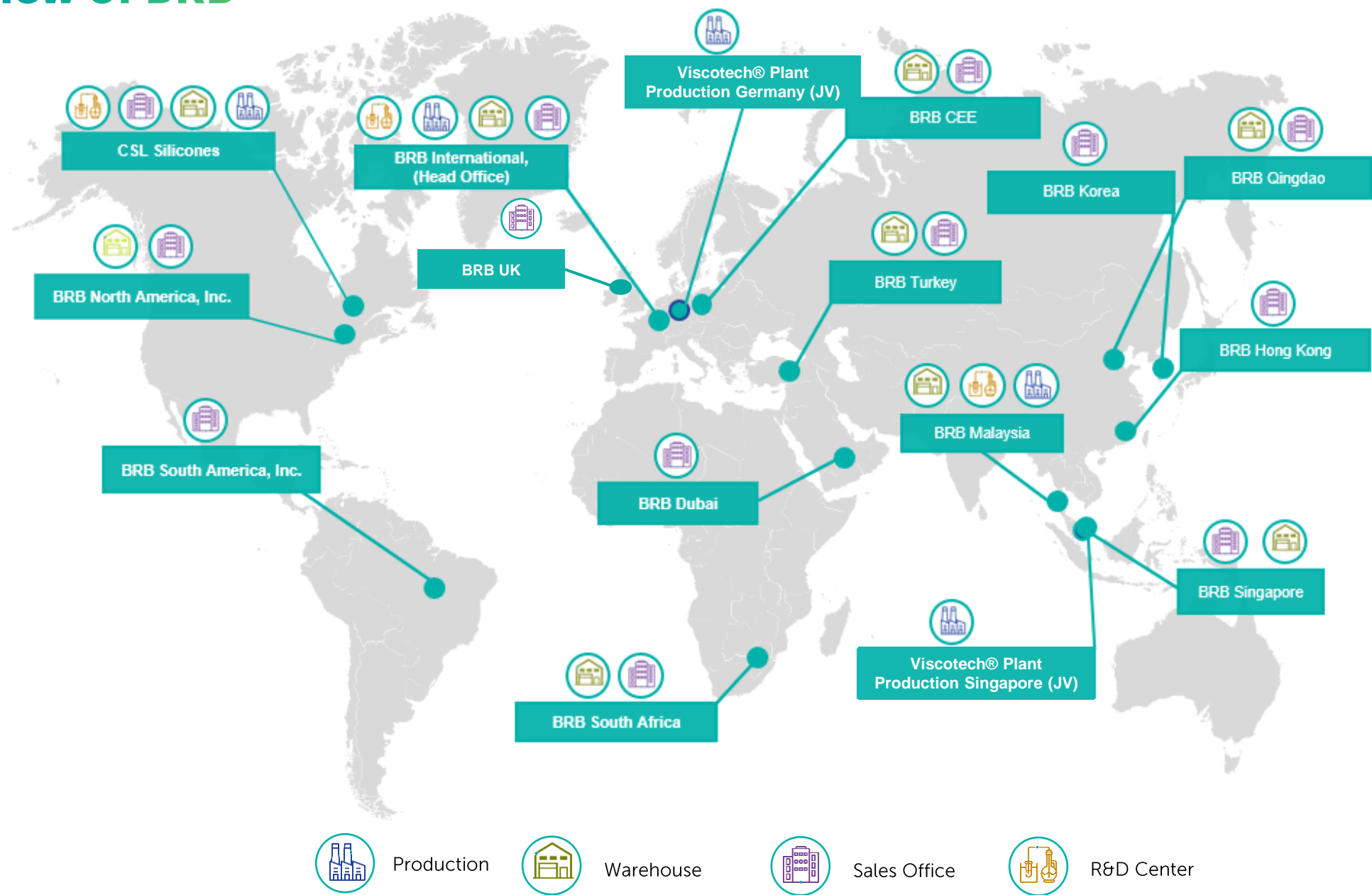


16 locations
worldwide

A subsidiary of
PETRONAS Chemicals Group Berhad
since September 2019



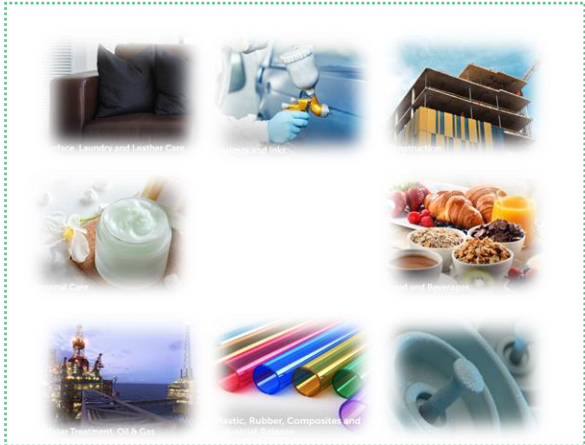
Overview of BRB



BRB – A subsidiary of Petronas Chemicals Group



PETRONAS CHEMICALS GROUP BERHAD



**Business Unit
Silicones**



**Business Unit
Lube oil Additives & Chemicals**



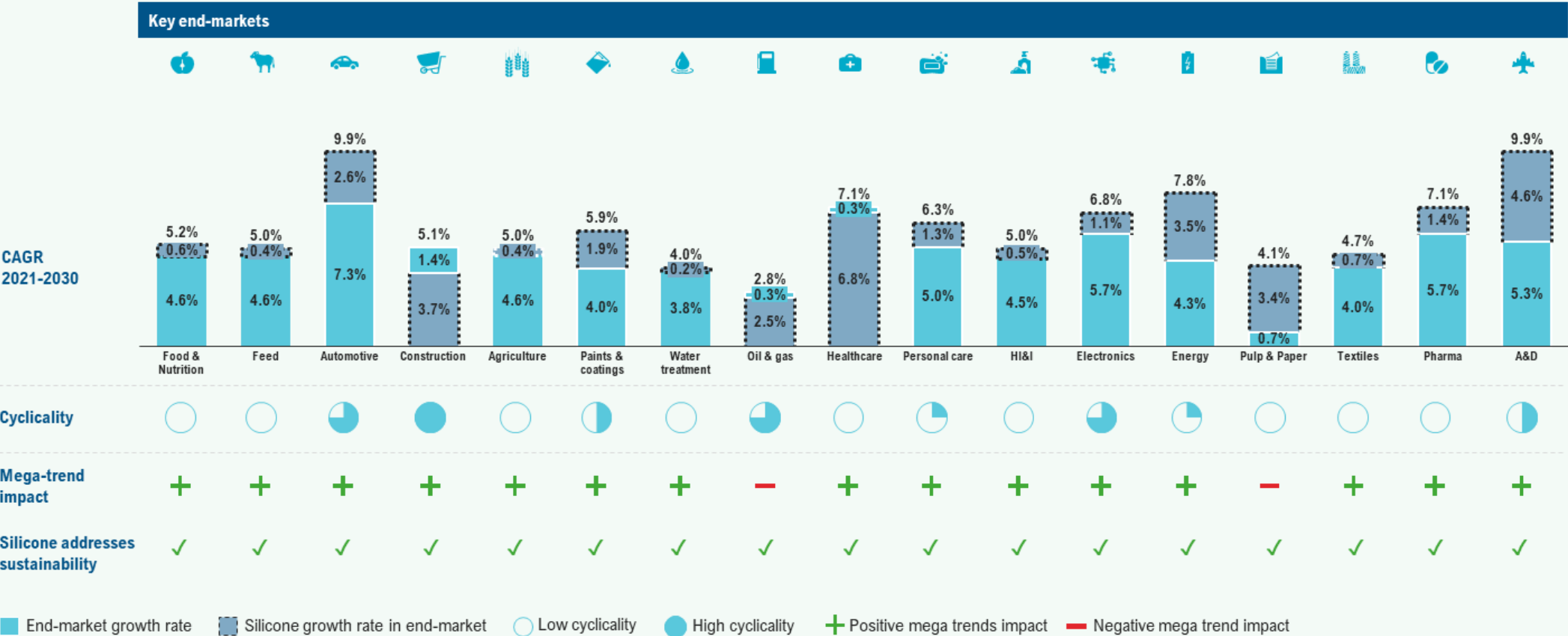
The power of a silicone major, the flexibility of a formulator

BRB Silicones, a business unit of BRB International BV, is a producer of specialty silicones like **emulsions**, **antifoams**, **water repellants**, **elastomers**, **lubricants**, **silanes**, **resins**, **silicone polyethers**, **dimethicone** & **cyclomethicone blends**, **cross polymers** and many more **customised products**. BRB Silicones also supplies a very broad range of core and specialty intermediates to the entire silicone industry with a superior combination of product supply regularity and competitive pricing.



Silicones outgrow most of their parent markets and are also addressing key sustainability trends

Growth by end-market and segment [CAGR %, 2021-2030]



1) HI&I = Household, Industrial & Institutional; A&D = Aerospace & Defence; 2) Pharma: same growth rate as healthcare based on medical-grade silicone products

Source: Market reports, expert interviews, Oxford Economics, Roland Berger

Silicones Product Lines and Key Markets

Product Lines

Silicones Intermediates

Functional Silicones Fluids

Silanes

Silicone

Emulsions

Antifoams

Silicone Resins

Silicone Elastomers

Markets



Surface, Laundry, and Leather Care



Coatings and Inks



Oil & Gas



Plastic, Rubber, Composites, and Industrial Release



Food and Beverage



Construction



Personal Care



Water Treatment

Personal Care – The Power of Smart Ingredients

Color Cosmetics

Soft & silky feel, enhance spreading, emolliency, long lasting and transfer resistant.



Hair care

Soft & silky feel, shine, enhanced combing, color & heat protection and frizz control



Skin Care

Smooth & silky feel, moisturizing, long lasting, enhanced spreading and water resistant



Volatile Fluids Dimethicones Phenyl Modified Fluids Polymer Fluid Blends
Dimethicone Copolyols Silicone Crosspolymers Silicone Emulsions Silicone Resins



Lancome (L'Oréal):
Dullness Relief &
Energy Recharge



Nivea (Beiersdorf):
Color Care shampoo



(L'Oréal):
True Match Accord Parfait
Liquid Foundation

*Note: The products shown are for illustrative purposes and non-exhaustive

Lube oil Additives & Chemicals (LAC) Portfolio

- Facilitates additives and lubricating oils used for automotive and industrial equipment to operate better and extend the lifecycle.
- Formulate and manufacture additives that improve the performance of lubricants and fuels.
- Registered trademarks:
 - **Petrolad®** - Additives product range
 - **Viscotech®** - Viscosity modifiers product range

Lube oil Additives & Chemicals Product Lines and Key Markets

Viscosity Modifiers
Engine Oil Additives
Drive Line Additives
Hydraulic Additives
Fuel Additives
Tractor Oil Additives
Finished and Specialty Products
Sulfonates, Tackifiers & Others
Coolants
Screen Wash

Automotive



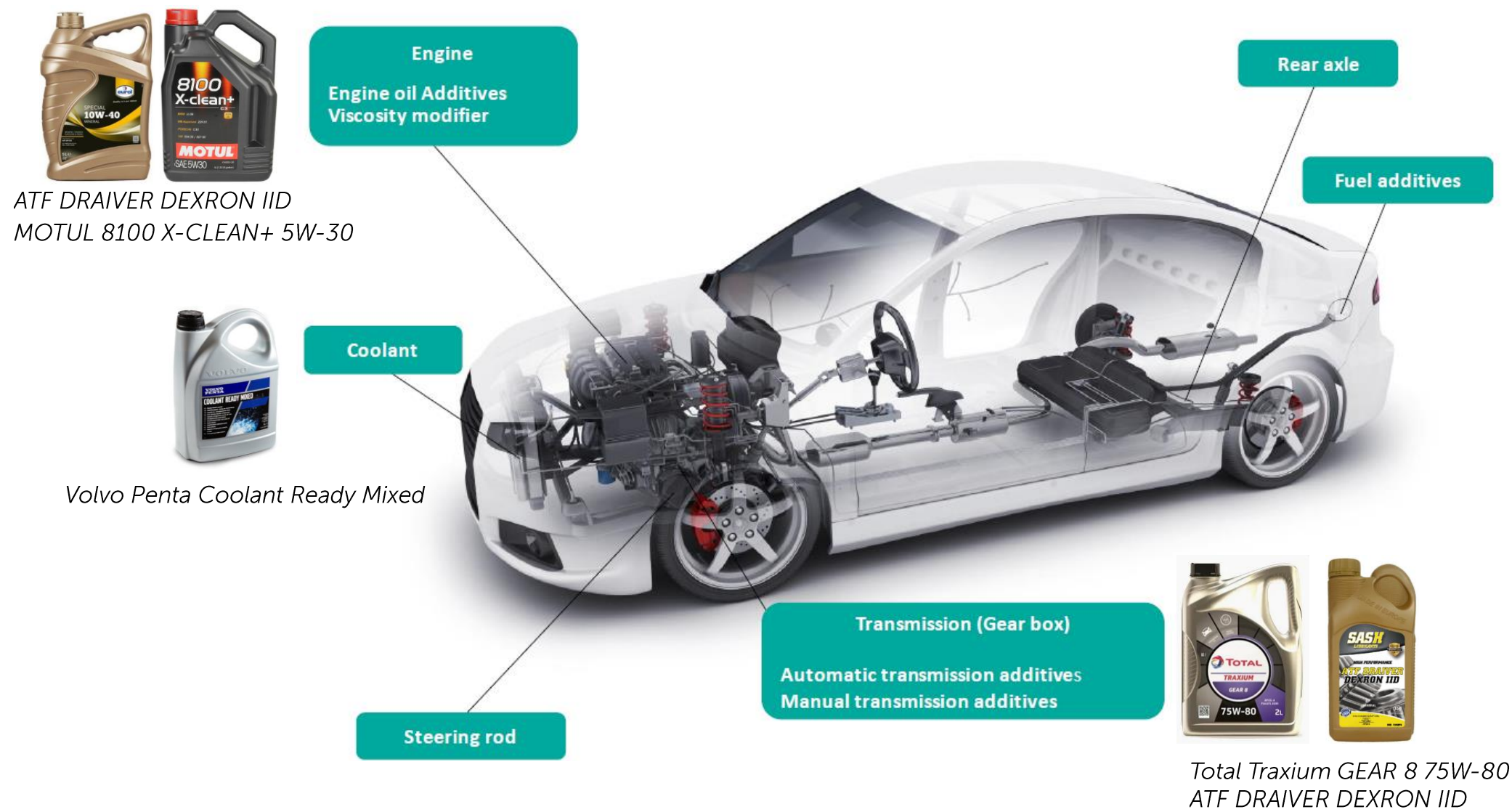
Industrial



Off-road



Applications in automotives



*Note: The products shown are for illustrative purposes and non-exhaustive

Growth Journey with PCG thus far



New blending facility for silicones business in Gebeng, Pahang operational in Dec 2021

Strengthen BRB's offering in three product portfolios - silicone gum blend, silicone antifoam and silicone emulsion

Strategically located in the vicinity of PCG's petrochemical complex in Gebeng, Kuantan

Boost BRB's position as one of the key silicone manufacturers in the APAC and MEA regions



Halal & Kosher certification for range of food grade at facility in Gebeng, Pahang



&

✓ Kosher



✓ Free Sales Certificates (China)



Launched new LAC plant in Echt, Netherlands in Nov 2022



Perstorp Business Overview and Introduction

by: Ib Jensen



Perstorp in Brief



- World leader in several sectors of the specialty chemicals market
- Pioneer in formalin chemistry, plastics and surface materials
- Present in 25 countries and production plants in Europe, Asia and North America
- Sales representation in all major markets

No. 1

position in
50% of
portfolio

Top 3

position in
80% of
portfolio

Ymer™ 90, Ymer™ 180
GASTRIVIX™ AVI, Isononanoic Acid
Neeture™ N100, Evyron™ T100

consistently innovating: 6 new
product launches in the last year
with more to come

140+
YEARS

of professional
expertise

25
COUNTRIES

with sales presence
and represented in
many more

1,500
EMPLOYEES

Perstorp worldwide

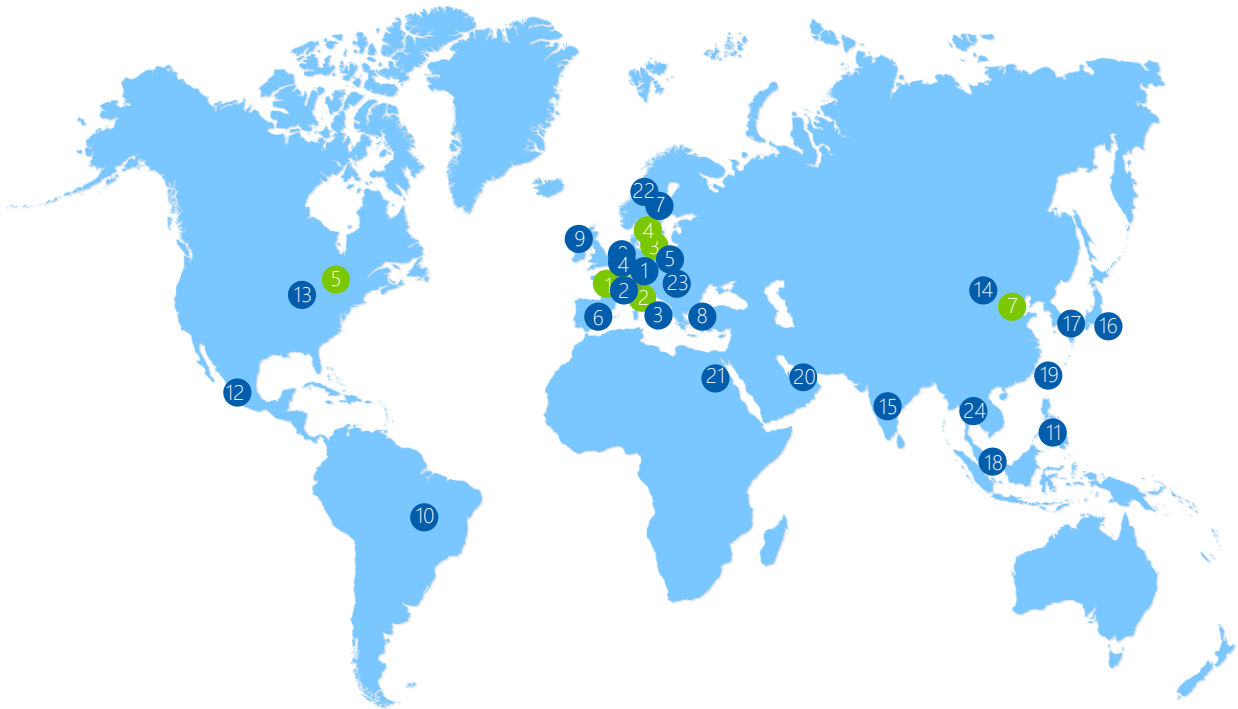
Perstorp is the operator of 8 production units in Asia, Europe and North America. Sales representation in three different regions. This, together with sales representation in all major markets and more than 50 agents, safeguards a global presence.

Production units

- | | |
|-------------------------|--|
| 1. Bruchhausen, Germany | 6. Waspik, the Netherlands |
| 2. Castellanza, Italy | 7. Zibo, China |
| 3. Perstorp, Sweden | 8. Sayakha, India (<i>planned start-up Q2, 2023</i>) |
| 4. Stenungsund, Sweden | |
| 5. Toledo, the US | |

Sales representation

- | | | |
|-------------------|---------------|--------------|
| 1. Germany | 12. Mexico | 23. Norway |
| 2. France | 13. USA | 24. Slovakia |
| 3. Italy | 14. China | 25. Thailand |
| 4. Netherlands | 15. India | |
| 5. Poland | 16. Japan | |
| 6. Spain | 17. Korea | |
| 7. Sweden | 18. Singapore | |
| 8. Turkey | 19. Taiwan | |
| 9. United Kingdom | 20. UAE | |
| 10. Brazil | 21. Egypt | |
| 11. Philippines | 22. Norway | |



Focused Value Generation

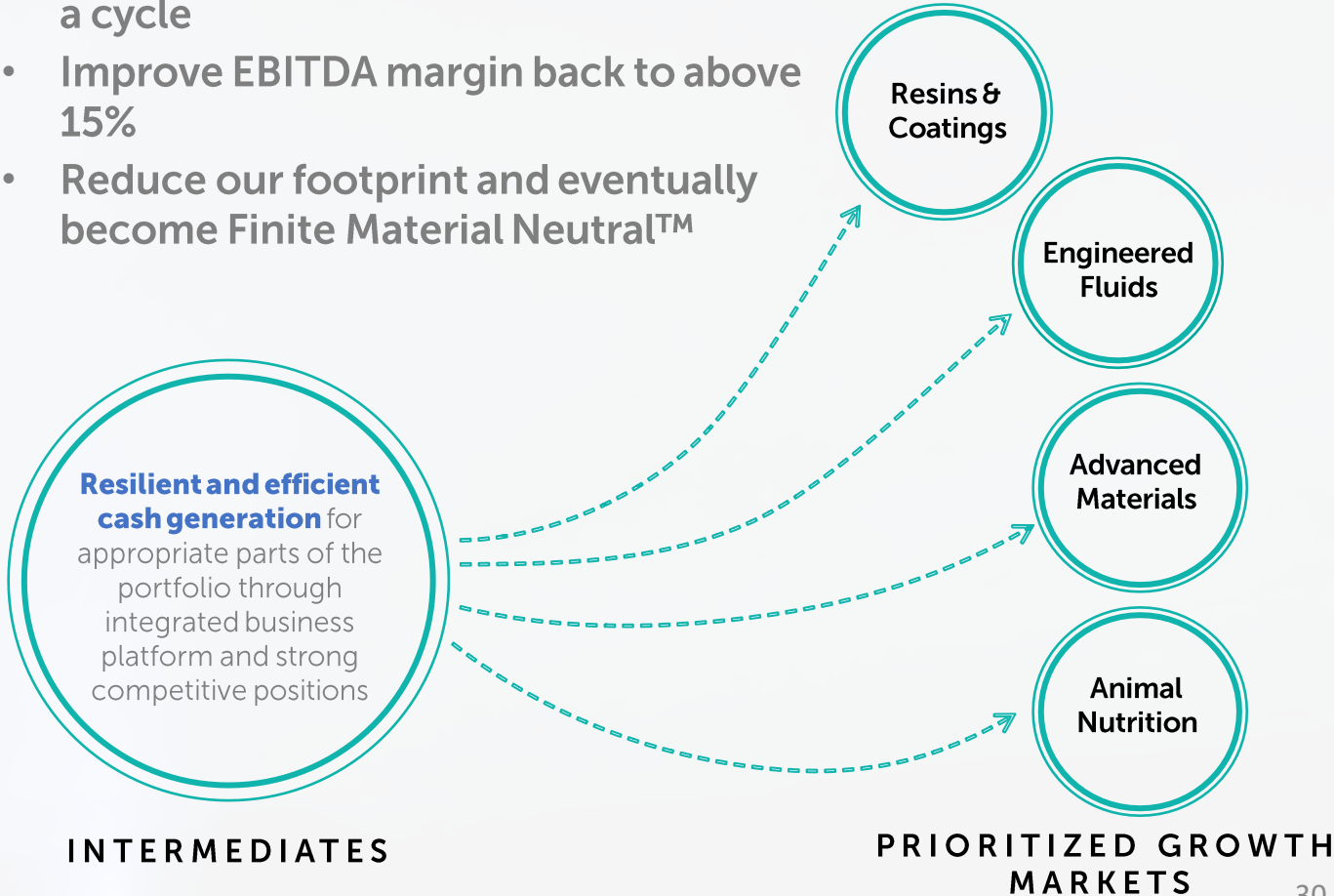
Moving Downstream - Growth Investments in 4 Prioritized Market Segments

GROWTH DRIVERS

- Growth **investments** in specialties, supporting prioritized market segments
- Innovation** focused to address customer needs in the prioritized market segments
- Selective bolt-on **acquisitions** to gain capabilities and access to specialty market adjacencies
- We will selectively invest in **strengthening our position in Asia**

TARGETS

- Grow core volumes well above GDP over a cycle
- Improve EBITDA margin back to above 15%
- Reduce our footprint and eventually become Finite Material Neutral™



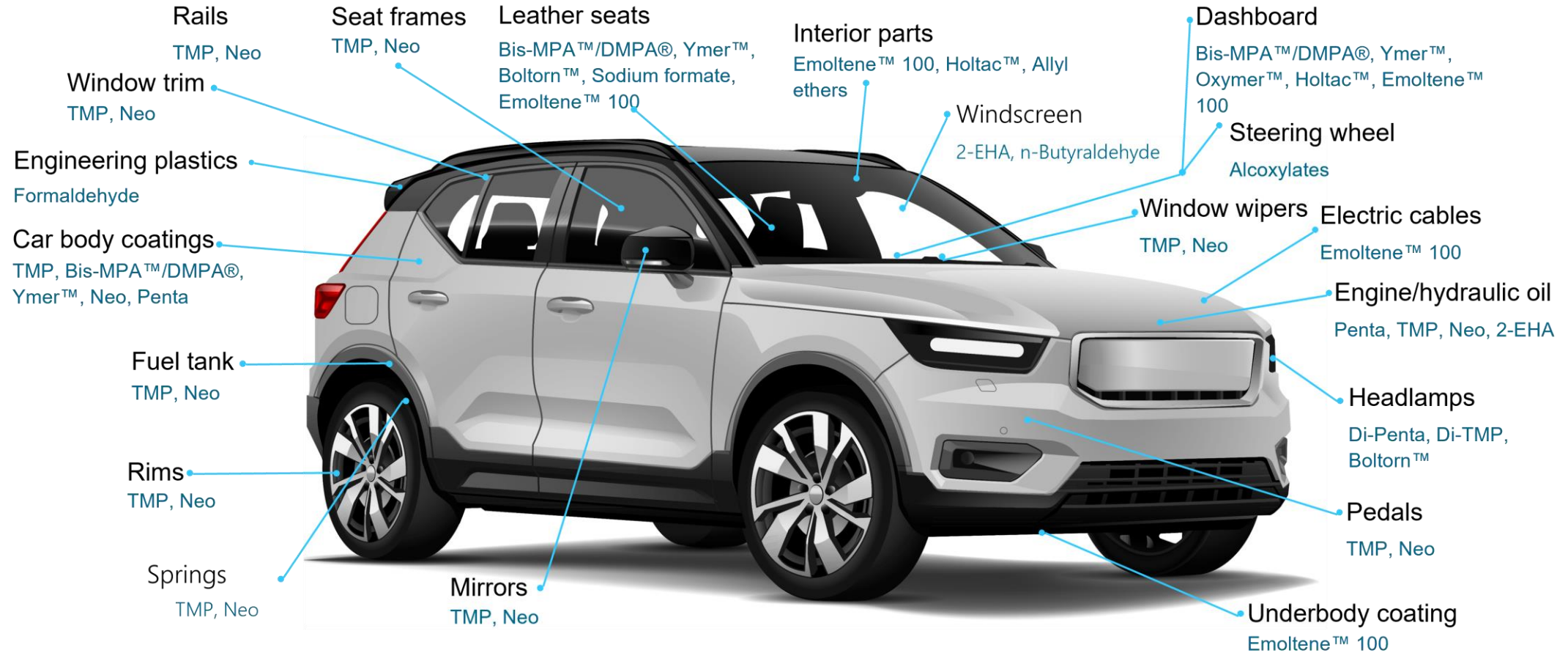
Our market segments



96% of manufactured goods rely on chemicals



Did you know that there are more than 15 kg of Perstorp products in a new car?



Resins & Coatings

Pure performance. Pure advantage.

Perstorp's essential building blocks and specialty products can be used and tailored to produce resins and coatings that perfectly satisfy the requirements of different segment needs and thousands of applications

Segment offer

Alkyd resins, Liquid saturated polyester, Liquid unsaturated polyesters, Powder polyesters, Polyurethane dispersions, Radiation curing, Cationic curing, Intumescent carbon donors

Leading Perstorp products & technologies

- Penta / Voxtar™ - Alkyd Paints
- Neo / Neeture™ - Powder Polyesters
- TMP / Evyron™ - Packaging
- Bis-MPA™ and Ymer™ - Polyurethanes
- Oxymer™ - Wood Coatings
- Curalite™ - UV Cured Resins
- Charmor™ - Intumescent Coatings

Recently at the European Coatings Show, hosted a customer event in coordination with Arkema and participated at their event



Engineered Fluids

Essential intermediates ester lubricant base stock

Working with Perstorp, you will get a one-stop shop for high quality building blocks for polyol ester base stock. Our Polyol portfolio is second to none and we are the only supplier offering a complete range to choose from

Key Sub-segments

Aviation turbine oils, Hydraulic fluids, Metalworking fluids, Refrigeration lubricants, Transformer oils and di-electric fluids

A selection of Perstorp's leading products & technologies

- Oxo alcohols (2-EH & 2-PH) - Hydraulic Fluids
- Oxo acids (2-EHA & Valeric acid) - Refrigeration lubricants
- Penta / Voxtar™ - Transformer Oils
- Di-Penta - Refrigeration lubricants
- Penta Exceteq™ - Aviation Turbine Oils
- Neo / Neeture™ - Metalworking Fluids
- TMP / Evyron™ - Hydraulic Fluids



Creating materials that advance everyday life

Perstorp provides focused and innovative chemistry, developed and manufactured for the plastic industry in partnership with formulators, converters and customers. The dedication to produce future- proof, safe, sustainable and high-performing materials is the driving force.

Sub segments

Thin Wall Packaging, Performance Polymer Additives, 3D Printing Materials, PVB Films, PVC Plasticizers

Leading Perstorp products & technologies

- Akestra™ sustainable thermoplastic polyester
- Holtac™ environmentally friendly PVC co-stabilizer
- Curalite™ gives your 3D formulation an extra edge
- Pro-environmental low carbon footprint building blocks for plastic additives
- Emoltene™ 3GO performance plasticizer for PVB
- Pevalen™ true non-phthalate plasticizer
- Emoltene™ general purpose C10 plasticizer

Animal Nutrition

Devoted to success in gut health and preservation

Perstorp is a specialist in organic acid-based solutions for the agricultural industry, with a history dating back to the 1960's. We produce several commonly used organic acids. Our team of feed specialists developed them into effective solutions that are easy to work with. Improving gut health, inhibiting mold growth and improving feed hygiene are just a few of the benefits of the feed additives, ensiling agents and preservatives from Perstorp

Sub segments

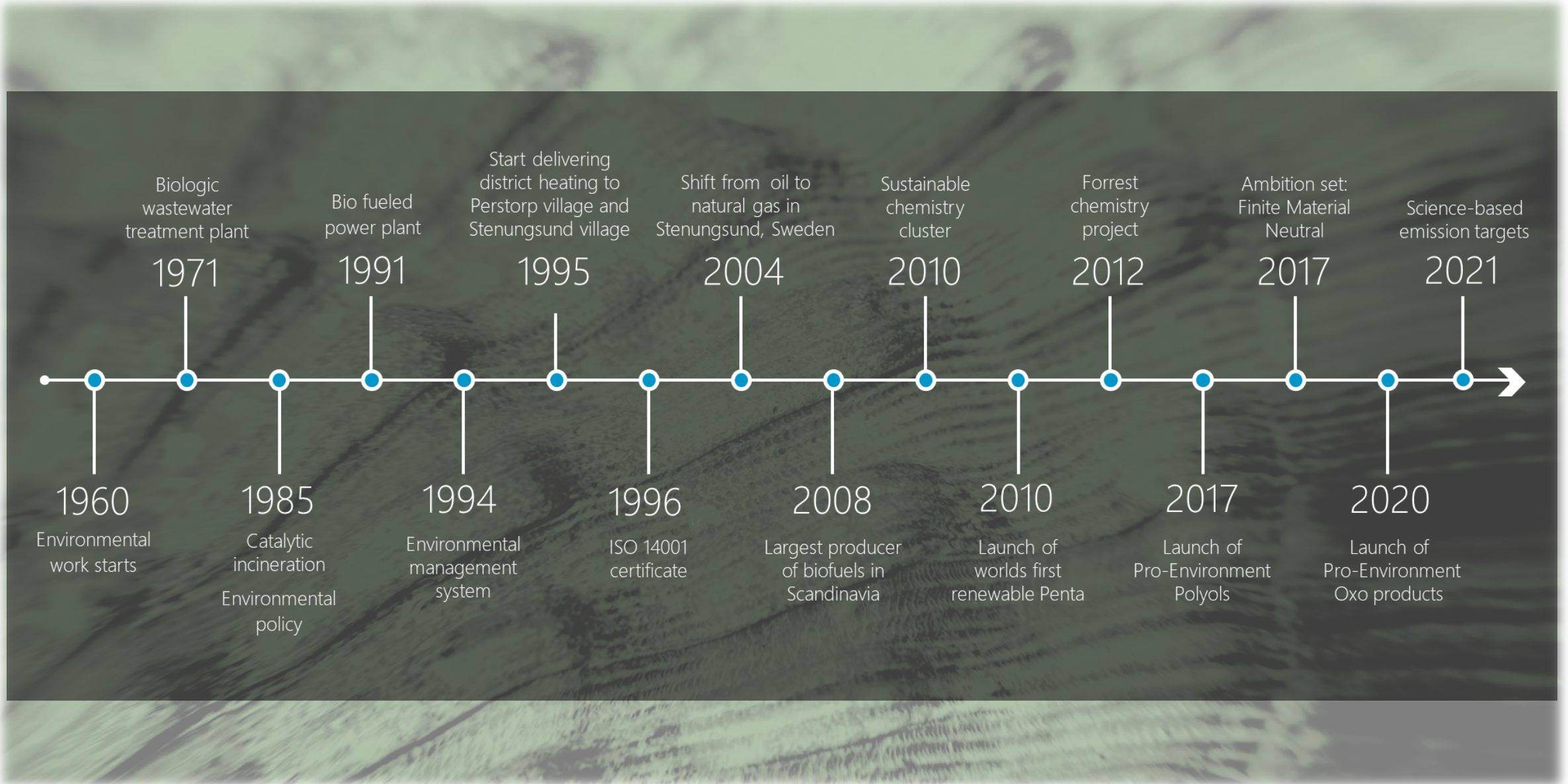
Feed hygiene, Feed preservation, Silage preservation, Poultry, Ruminants, Swine, Pets

Leading Perstorp products & technologies

- ProPhorce™ SR - improved animal gut health
- ProSid™ MI 700 - mold inhibitor for a long-lasting preservative effect
- ProMyr™ NT - optimal ensiling of grass, clover and alfalfa.
- ProPhorce™ AC 299 - an ideal sodium source and feed acidifier



A chemical company with care: Our environmental journey



Our guiding star and long-term ambition since 2017

Finite Material Neutral

e.g. shifting all raw materials and energy globally to renewable or recycled.

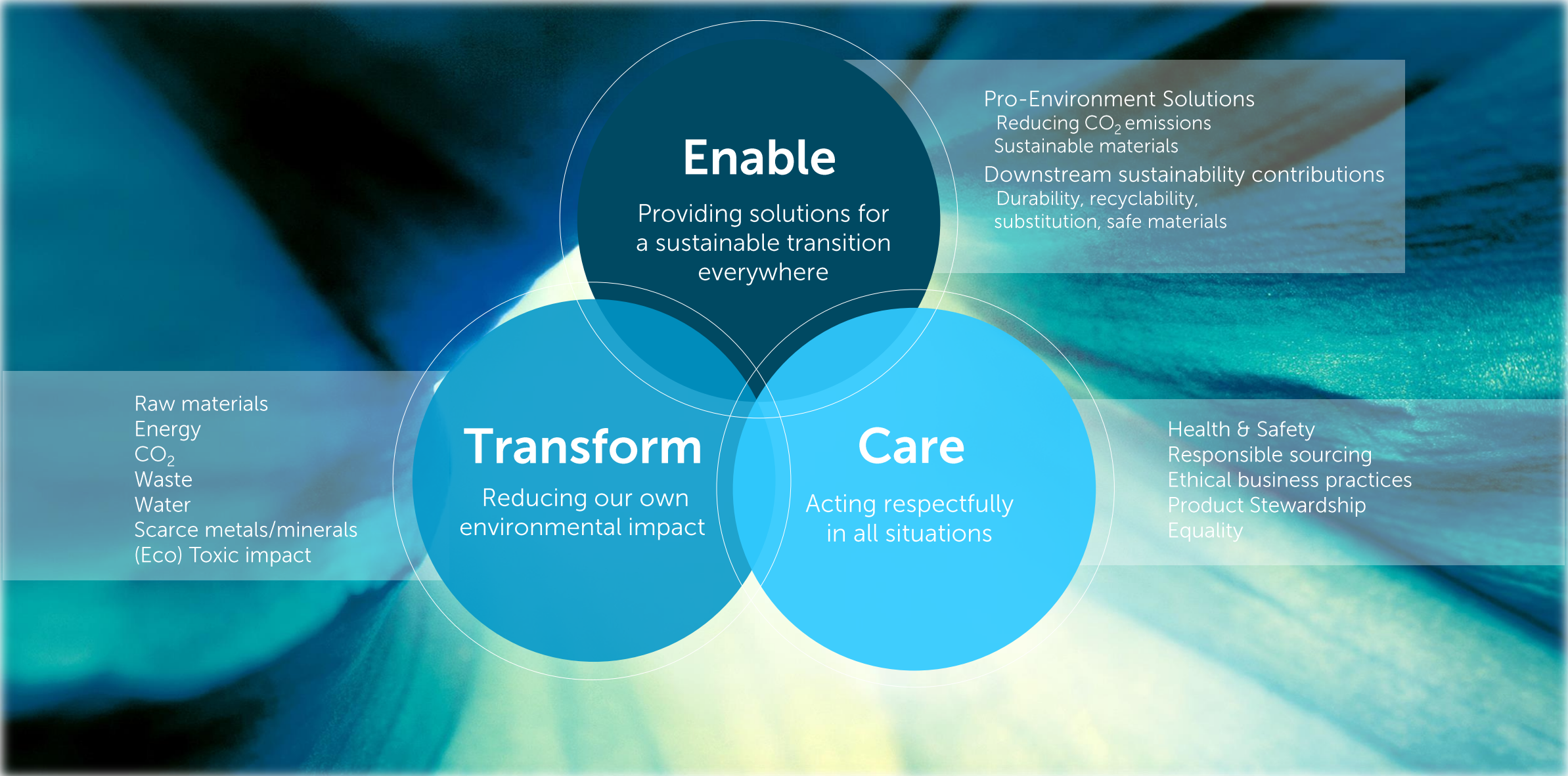
Raw
materials

Waste

Catalysts

Water

Energy



Key Initiatives



Pro-Environment

Our expanding Pro-Environment Portfolio consists of ISCC PLUS certified products which are reducing CO₂-emissions and are produced from recycled or renewable raw material based on traceable mass balance. The portfolio is constantly growing and today consists of both polyols, specialty products, acids, alcohols and plasticizers.



Project Air

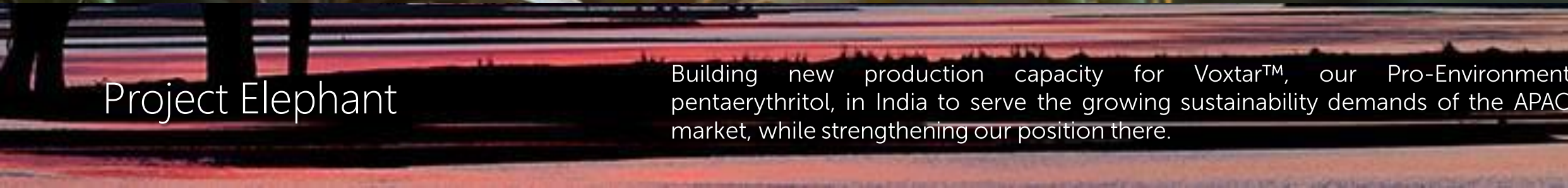


Producing climate neutral methanol from CO₂, residue streams, biogas and hydrogen from electrolysis with the purpose of replacing all the fossil methanol used by Perstorp in Europe today. Project Air will eliminate half a million ton CO₂ emissions annually and demonstrate that chemical industry can move towards climate neutrality by developing new circular production processes.



Project Gaia

Perstorp has started the work of phasing out all virgin fossil base polyols produced at site Perstorp as a first step towards phasing out virgin fossil feedstock from all Perstorp sites globally. By doing this Perstorp drive change towards a climate neutral chemical industry and take a leading role in enabling sustainable transformation throughout value chains.



Project Elephant

Building new production capacity for Voxtar™, our Pro-Environment pentaerythritol, in India to serve the growing sustainability demands of the APAC market, while strengthening our position there.

Pro-Environmental roadmap (Period 2010-2030)

Renewable/Recycled products reducing the carbon footprint



Voxtar™

2010

Launch of world's first renewable Penta



Eyron™

Neeture™

2017

Launch of Pro-Environment Polyols and ISCC PLUS certification



2019-2030

Geographical expansion to all sites globally



2019-2030

Pro-portfolio expansion to existing and new products



2025

Secure prerequisites for transformation

Continuously reducing product carbon footprint

Project Air

- **>50%** reduction of Perstorp direct CO₂ emissions from its site in Stenungsund
- Annual replacement of **200 000 tons** fossil methanol in chemical products
- Will be the **world's largest Carbon Capture and Utilization unit**
- Recent Updates:
 - Methanol license and engineering services for Project Air initiated
 - Agreement for grant from the Innovation Fund signed




PCG Specialty Chemicals Way Forward


by: Azli Ishak




PCG will continue to focus on delivering values aligned with our immediate and long targets



50% improvement in cash flows from operations by 2025



30% revenue by 2030 from non-traditional business










Net Zero carbon emissions by 2050

1 Maximise value from OE & CX

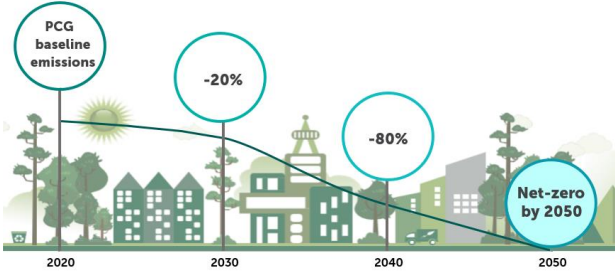
2 Optimise Cost

3 Environment Stewardship & Resource Efficiency






- BRB
- Perstorp
- Melamine
- Nitrile ButadieneLatex
- Specialty Ethoxylates



2020 2030 2040 2050

Execute Sustainability roadmap



Questions & Answers



Petronas Chemicals Group Berhad
Knowledge Sharing #1 (Specialty
Chemicals) May 2023



Thank you

Your feedback is
important to us 😊

