



# INDUSTRIAL SPECIALTIES

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Industrial Specialties and Coating Solutions

**ARKEMA**  
INNOVATIVE CHEMISTRY

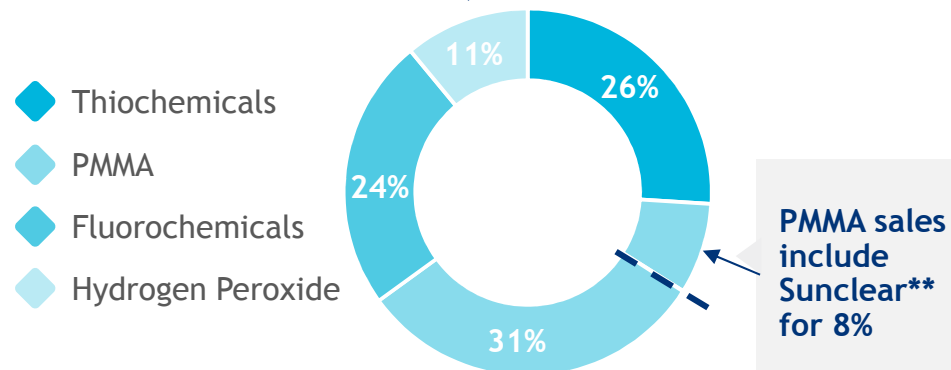
# INDUSTRIAL SPECIALTIES AT A GLANCE

## 2014 KEY FIGURES\*

IN €M

Sales	2,269
EBITDA	312
EBITDA margin	13.8%
EBIT	169
Capex	268

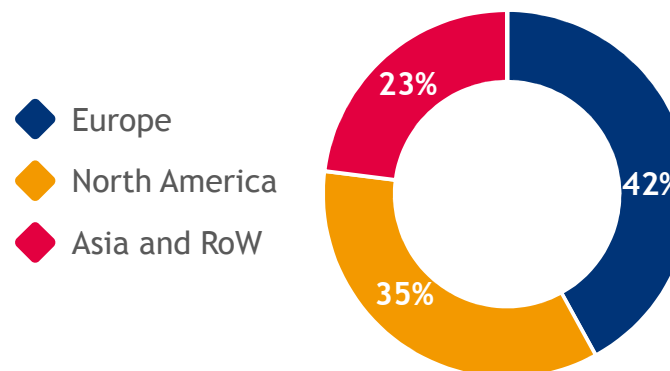
## 2014 SALES BY BUSINESS UNIT\*



## KEY SUCCESS FACTORS

- ▶ Leading positions in four platforms
- ▶ Large integrated chemical lines
- ▶ Proprietary technologies and competitive production processes
- ▶ World-scale production sites
- ▶ Global footprint
- ▶ Recognized and well-established brands
- ▶ Strong partnerships / customer base

## 2014 SALES BY REGION\*



\*Sales using new reporting

\*\*Project subject to information / consultation of works councils in France announced in June 2015

# LEADING POSITIONS IN FOUR MAIN PLATFORMS

BU / platform	Main products	Main end-markets	Worldwide position
<b>THIOCHEMICALS</b>	▶ Sulfur derivatives	<ul style="list-style-type: none"> <li>▶ Animal nutrition</li> <li>▶ Petrochemicals and refining</li> </ul>	<b>#1</b>
<b>FLUOROCEMICALS</b>	▶ Fluorogases	<ul style="list-style-type: none"> <li>▶ Air-conditioning and refrigeration</li> <li>▶ Fluoropolymers</li> </ul>	<b>#3</b>
<b>PMMA</b>	<ul style="list-style-type: none"> <li>▶ MMA</li> <li>▶ PMMA sheets and resins</li> </ul>	<ul style="list-style-type: none"> <li>▶ Automotive</li> <li>▶ Signs and displays</li> <li>▶ Electronics</li> </ul>	<b>#2</b>
<b>HYDROGEN PEROXIDE</b>	▶ Hydrogen peroxide	<ul style="list-style-type: none"> <li>▶ Pulp and paper</li> <li>▶ Detergence</li> <li>▶ Electronics</li> </ul>	<b>#3</b>

# INDUSTRIAL SPECIALTIES STRATEGY

DIFFERENTIATED STRATEGY BY BU		
	Growth	Strategy
THIOCHEMICALS	GDP ++	Accelerate growth
FLUOROCHEMICALS	GDP	Restore competitiveness in a changing environment Next generation of gases
PMMA	GDP	Take advantage of growth in specialty applications
HYDROGEN PEROXIDE	GDP	Take advantage of growth in specialty applications



# OPERATIONAL EXCELLENCE TO ACHIEVE SUPERIOR PERFORMANCE

## TECHNOLOGY LEADERSHIP

- ▶ Proprietary technologies in each platform with strong in-house expertise
- ▶ Continuous improvement of complex processes
  - ~50% of R&D allocated to process innovation
- ▶ Recent success:
  - Fluorogases manufacturing processes: HFC125 / HFO1234yf
  - Thiochemicals: state-of-the-art sulfur derivatives process for animal nutrition in Malaysia
- ▶ Proven ability to manage complex industrial projects

## MANUFACTURING EXCELLENCE

- ▶ Take safety and reliability to a best in class level
- ▶ Reinforce competitiveness
  - Thiochemicals - Lacq, France  
Lacq 2014 project:
    - Long-term competitive access to sulfur secured for next 30 years
    - Optimization of process and organization
  - Hydrogen Peroxide - Jarrie, France
    - Conversion of a mercury electrolysis to a membrane electrolysis
    - Ongoing reorganization of the site
- ▶ Shutdown of loss-making units
  - PMMA - Bernouville, France\* (38 positions)
  - Fluorochemicals - Zaramillo, Spain (59 positions)
- ▶ Optimize energy efficiency and yields

High barriers to entry

Very competitive cost position

\*Subject to the information - consultation process of works councils in France

# ASSET FOOTPRINT WELL ESTABLISHED IN ASIA



## THIOCHEMICALS

Kerteh (Malaysia)



**+6 to 7%** growth\* per year driven by animal nutrition, refining and petrochemicals



## FLUOROCHEMICALS

Changshu (China)



**+3 to 4%** growth\* per year driven by regulation (HCFCs to HFCs)



## PMMA

Jinhae (South Korea)



Growth driven by automotive



## HYDROGEN PEROXIDE

Shanghai (China)



Growth driven by industrial applications (Chemical synthesis, bleaching, cleaning,...)

World-scale units supporting Group's long-term growth

\*Expected growth of the market

# ACCELERATE DEVELOPMENT IN SPECIALTIES



## THIOCHEMICALS

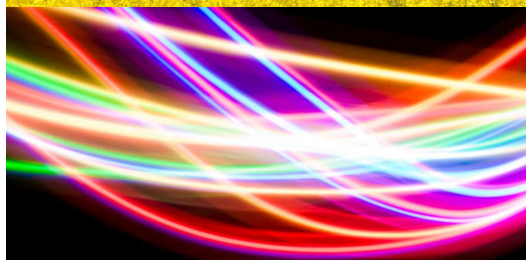
- ▶ Customized solutions (service + product)
- ▶ Paladin® for soil fumigation

**CARELFLEX**  
BY ARKEMA



## FLUOROCHEMICALS

- ▶ Intermediates for agrochemicals
- ▶ Synthesis intermediates for pharmaceuticals
- ▶ Development in electronics



## PMMA

- ▶ High heat PMMA for automotive parts
- ▶ New generation of glass for LED lighting

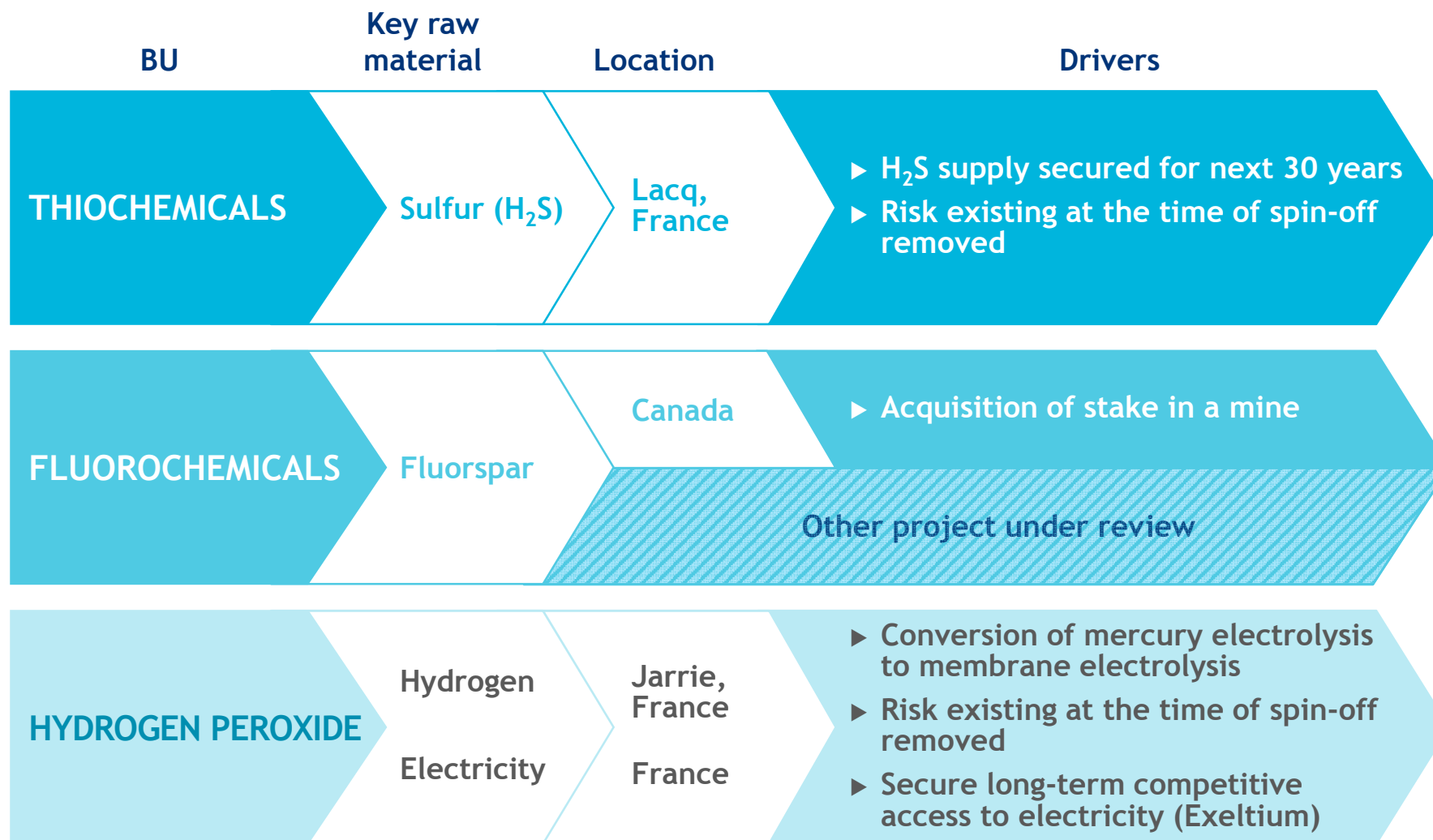


## HYDROGEN PEROXIDE

- ▶ Food applications
- ▶ New energies
- ▶ Electronics

Strong pipeline of innovations at different stages of development

# SECURE ACCESS TO STRATEGIC RAW MATERIALS





# STRONG PARTNERSHIPS

THIOCHEMICALS

NOVUS<sup>®</sup>

THIOCHEMICALS



FLUOROCHEMICALS



HYDROGEN PEROXIDE

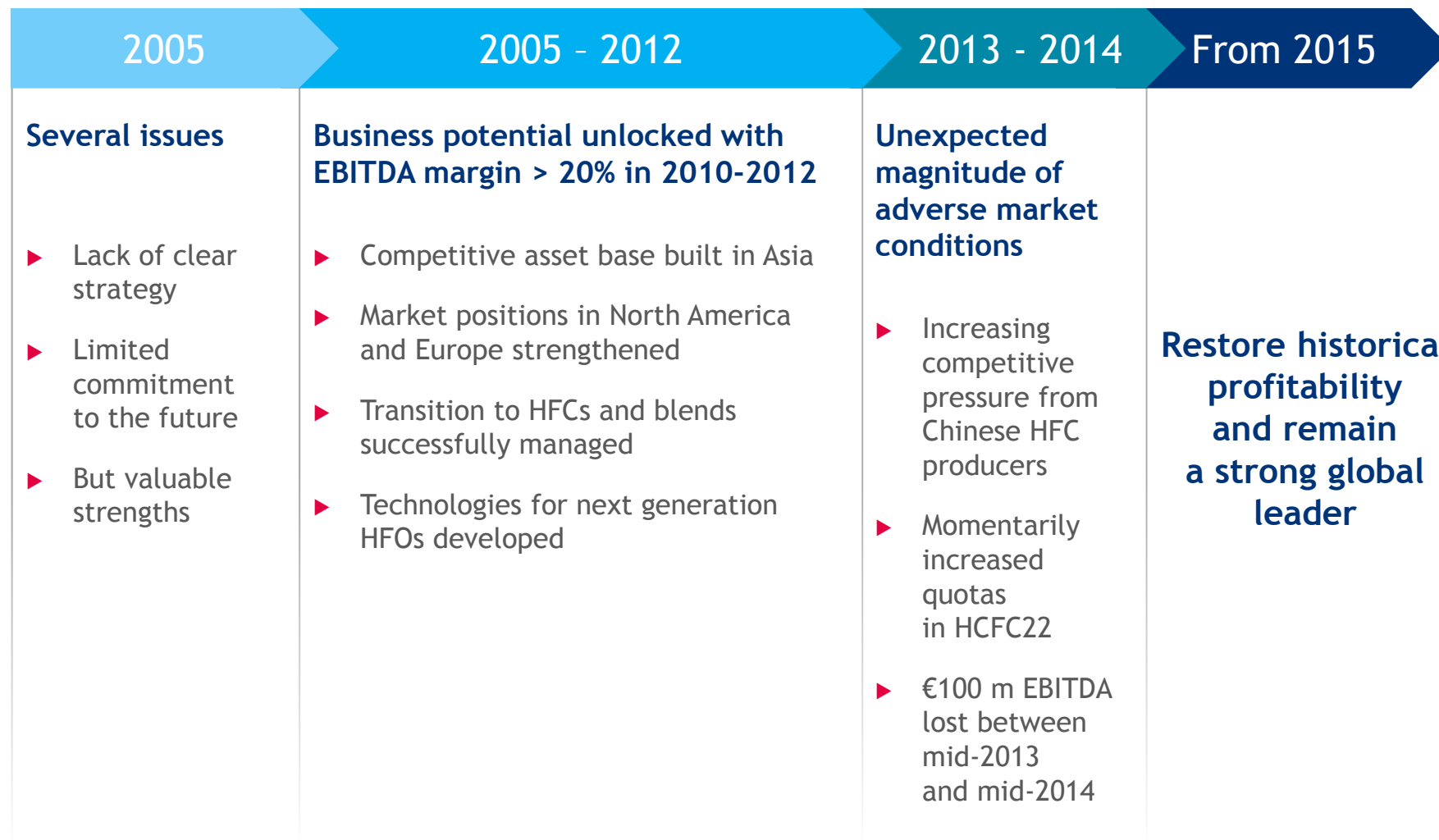
# WELL POSITIONED TO SUPPORT GROUP'S LONG-TERM AMBITION



**FLUOROGASES**

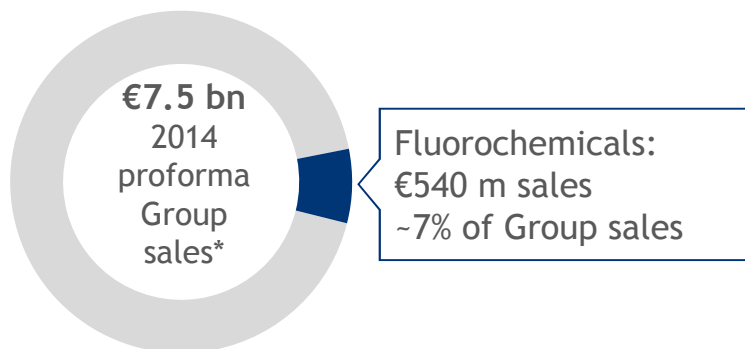
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# A STRONG LEADER BUILT OVER THE PAST 10 YEARS



# ARKEMA'S FLUOROGASES AT A GLANCE

## 2014 SALES



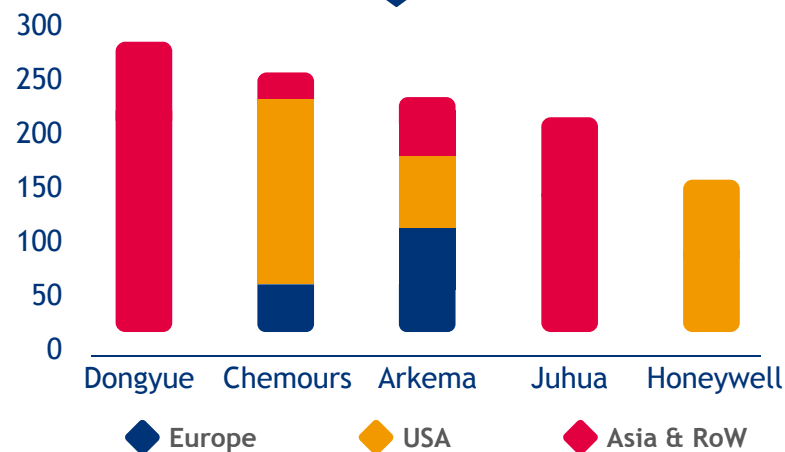
## KEY SUCCESS FACTORS

- ▶ Integrated chain from gases to fluoropolymers
- ▶ Wide range of products
- ▶ Proprietary technologies
- ▶ Recognized brands (Forane®)
- ▶ Global footprint with world-scale units
- ▶ Strong R&D know-how (process, product)

\*2014 proforma sales including Bostik and using new reporting

\*\*IHS CEH Fluorocarbons 2014, production capacities in kt

## #3 WORLDWIDE\*\*



## GLOBAL PRESENCE



- ▶ Calvert City..... Production
- ▶ King of Prussia..... R&D



- ▶ Pierre-Bénite..... R&D + Production

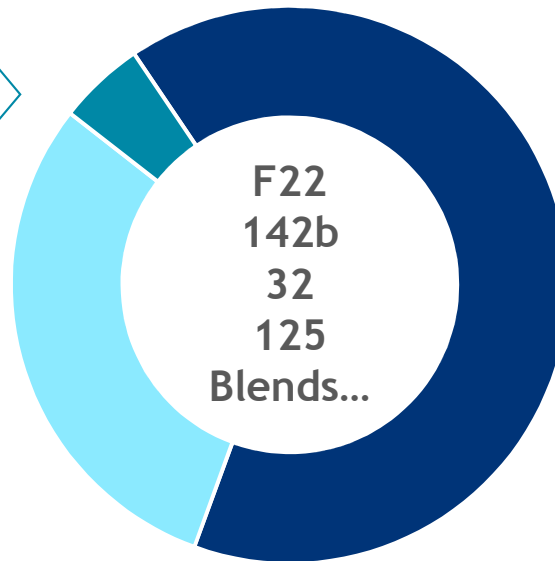
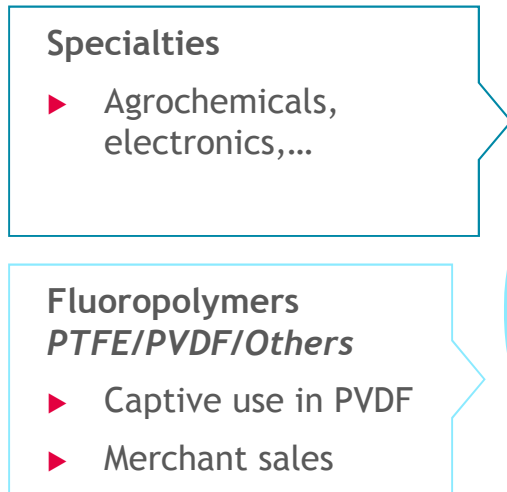


- ▶ Changshu..... R&D + Production

# A MARKET SPLIT BETWEEN EMISSIVE AND NON EMISSIVE APPLICATIONS

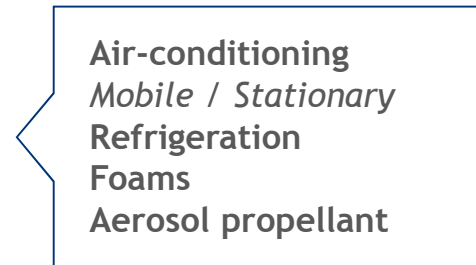
## NON EMISSIVE APPLICATIONS

GROWTH: +5 TO +6% PER YEAR



## EMISSIVE APPLICATIONS SUBJECT TO REGULATIONS

GROWTH: +2 TO 3% PER YEAR



Capture growth opportunities

Successfully manage transition of products

Source: IHS CEH Fluorocarbons 2014, Arkema internal estimates

# A GLOBAL FRAMEWORK WITH DIFFERENT REGULATORY STAGES BY REGION



## A GLOBAL REGULATORY FRAMEWORK...



### Montreal Protocol

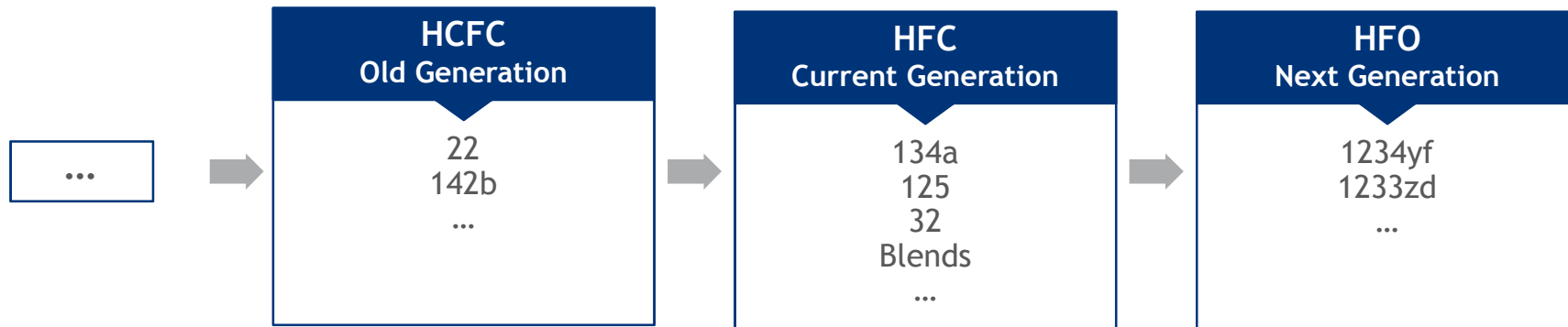
- ▶ Ozone depleting substances
- ▶ Impact on HCFCs (142b, 22)

### Kyoto Protocol

- ▶ Global warming potential substances
- ▶ Impact on HFCs (134a, 32, 125, 143a, HFC blends)



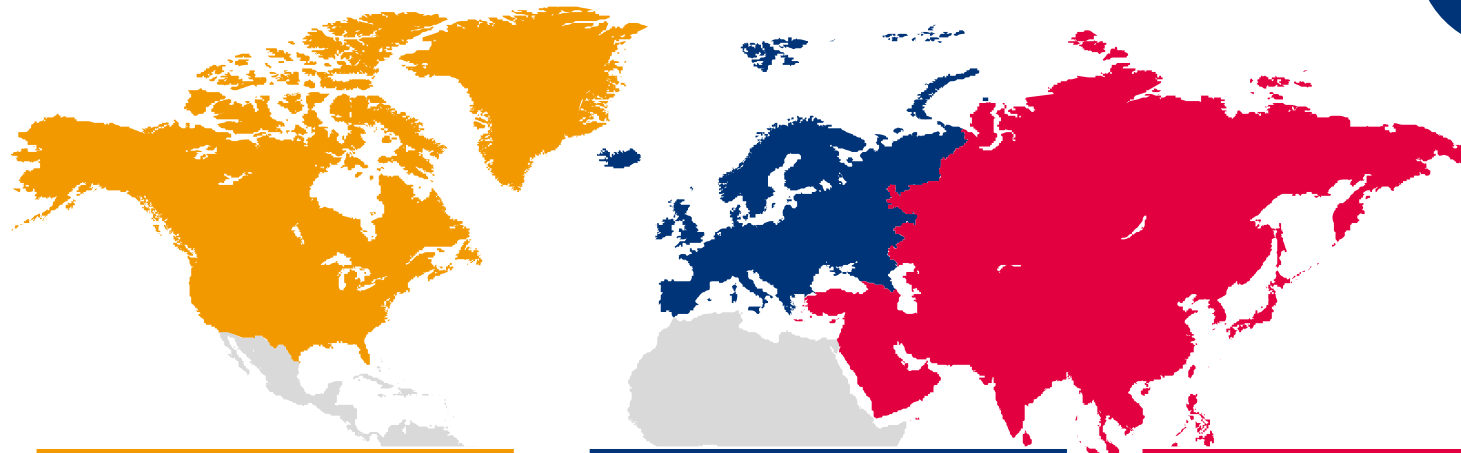
## ... LEADING TO PERMANENT TRANSITIONS TO NEW GENERATIONS OF PRODUCTS...



## ...WITH INCREASING COUNTRY-SPECIFIC HFC REGULATIONS (US, Canada, Japan, Europe, etc.)

# A GLOBAL LONG-TERM TRANSITION AT A DIFFERENT PHASE IN EACH MAIN REGION....

Emissive applications



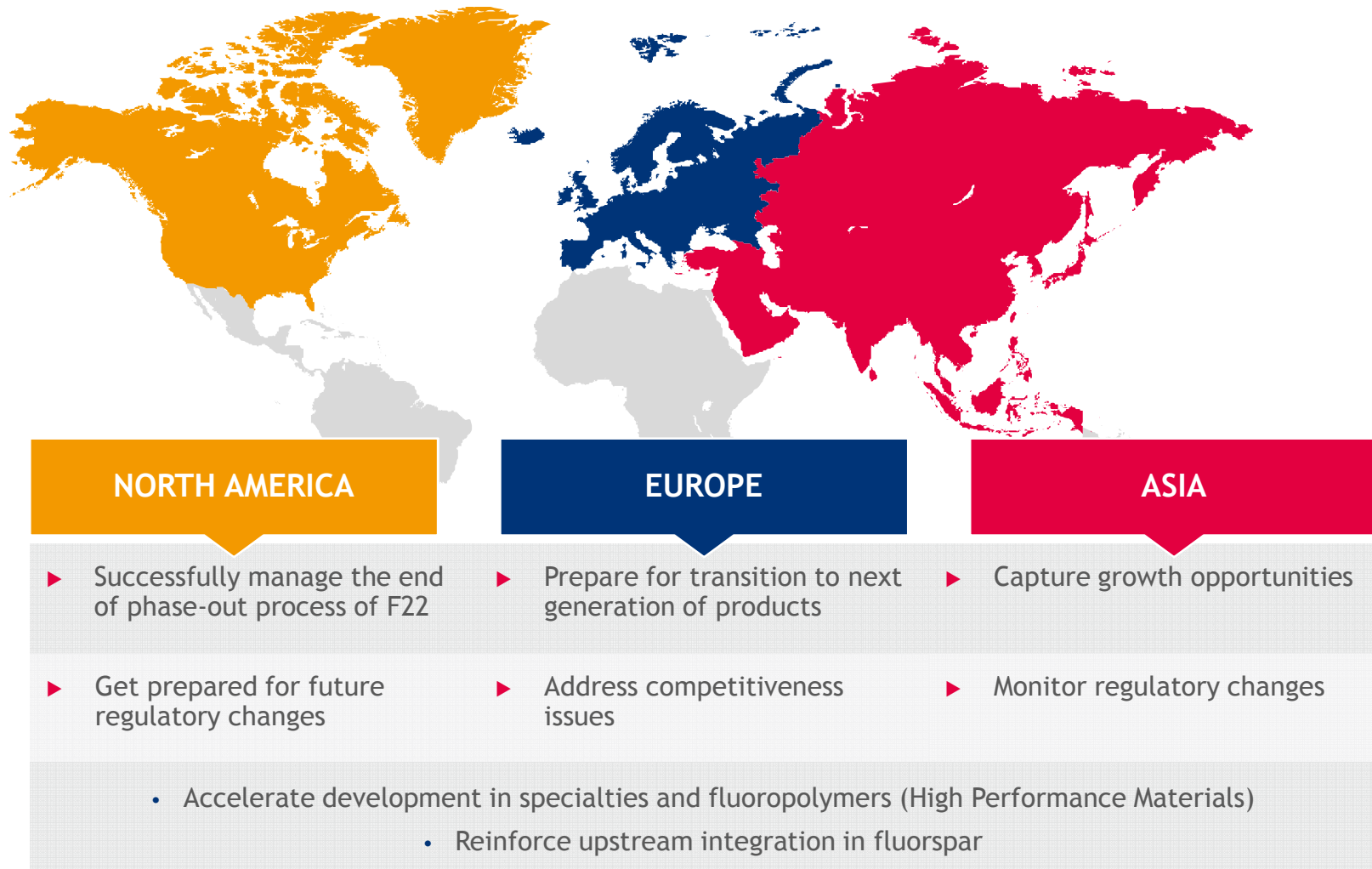
	<b>NORTH AMERICA</b> ~25% of global demand	<b>EUROPE</b> ~10% of global demand	<b>ASIA</b> ~45% of global demand
<b>HCFCs</b>	▶ Phase-down to be completed in 2020 through “cap and allocation”	▶ Phase-down completed	▶ Start-up of phase-out over next 25 to 30 years
<b>HFCs</b>	▶ Phase-down under review by authorities (SNAP)	▶ Phase-down starting with quotas (F-gas regulation from 1 January 2015)	▶ Significant growth to replace HCFCs
<b>HFOs</b>	▶ Favored by EPA regulation on CO <sub>2</sub> emissions	▶ Phase-out of HFC with GWP>150 from 1 January 2017 in new vehicles (MAC directive)	▶ Country by country approach

**A COMPLEX WORLD OFFERING OPPORTUNITIES FOR TECHNOLOGY LEADERS**



# ... IMPLYING DIFFERENT STRATEGIC PRIORITIES BY REGION

Emissive applications



# OUR AMBITION FOR FLUOROGASES

COMMITTED TO REMAIN A STRONG AND PROFITABLE  
GLOBAL LEADER IN FLUOROGASES WITH A COMPREHENSIVE RANGE  
OF PRODUCTS

## Mid-term priority (3 to 4 years)

Restore profitability  
to historical levels  
+ €100 m EBITDA  
through a combination  
of internal measures  
and better pricing environment

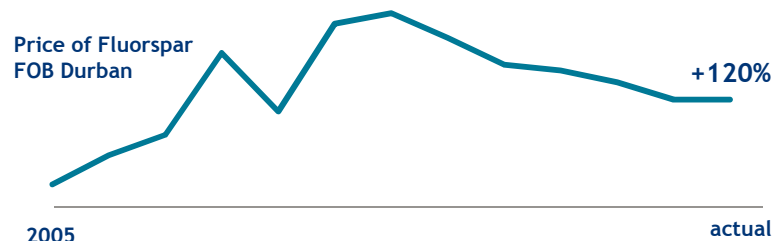
## Long-term priority

Be a leading and integrated player  
in the next generations  
of fluorogases

# +€50 M EBITDA FROM INTERNAL MEASURES

TARGET  
€50 M

## DEVELOP UPSTREAM INTEGRATION IN FLUORSPAR



▶ Positive progresses  
in the definition of the project

## ADDRESS COMPETITIVENESS ISSUES IN EUROPE

- ▶ Shutdown of Zaramillo (Spain) effective 2Q'15: expected EBITDA gain of €6 m
- ▶ Other projects progressing (fixed and variable costs)

## INCREASE MARKET SHARE OF SPECIALTIES AND FIRST DEVELOPMENTS IN HFOs



Agrochemical  
intermediates



Pharmaceutical  
synthesis  
intermediates



Electronics



HFO 1234yf

- ▶ Investment in progress in China

# +€50 M EBITDA FROM BETTER PRICING ENVIRONMENT

## 3 MAIN DRIVERS

- ▶ F22 USA: new quotas implemented since 1 January 2015
- ▶ HFC Europe: F-gas regulation  
→ quotas on HFC products implemented since 1 January 2015
- ▶ 134a USA: final resolution on antidumping rights rejected end of 2014  
Appeal made by Mexichem and DuPont

## NEW

- ▶ HFC blends USA: filing of antidumping petition against imports from China

## IMPACT



Prices



Volumes

Net positive



# DEVELOP NEXT GENERATION OF FLUOROGASES



## HFO 1234yf for automotive air-conditioning

- ▶ HFO 1234yf defined as the new global standard by the automotive industry
- ▶ In Europe, mandatory use as from 1 January 2017 of products with GWP < 150 for every new car sold in Europe (MAC directive)
- ▶ In the US, 1234yf will support the EPA regulation to curb CO<sub>2</sub> emissions
- ▶ Statement of objection issued by the European Commission end 2014. Waiting for final decision
- ▶ Investment in progress in a new plant in China to produce 1234yf with start-up expected before end 2016



## HFO 1233zd and HFO blends

- ▶ Foams and chillers (mid-term)
- ▶ Stationary air-conditioning (longer term)

# WRAP UP



**THIOCHEMICALS**

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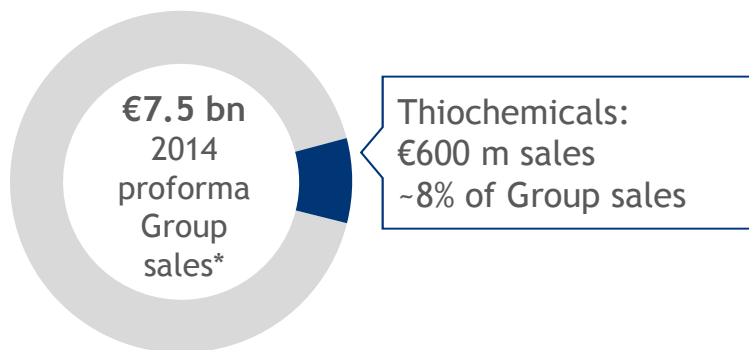
# REINFORCING LEADING POSITION OVER THE PAST 10 YEARS



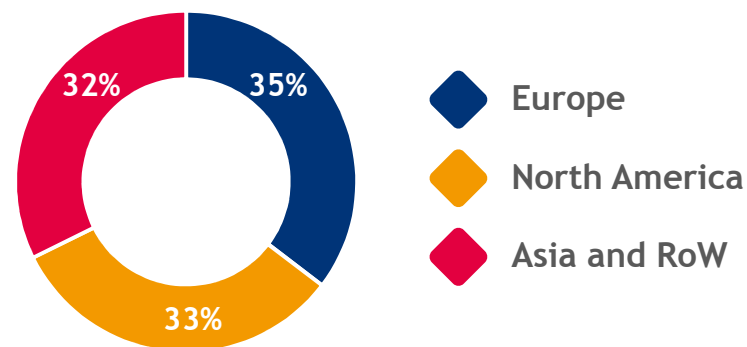


# ARKEMA'S THIOCHEMICALS AT A GLANCE

## 2014 SALES




## 2014 SALES BY REGION




## KEY SUCCESS FACTORS

- ▶ #1 worldwide in H<sub>2</sub>S derivatives
  - Niche market: 0.8 mt
  - Main competitor: Chevron Phillips Chemicals
- ▶ Unique state-of-the-art technology developed over more than 30 years
- ▶ Only player with global footprint and competitive world-scale units in 3 main regions
- ▶ Differentiated offer with customized service (Careflex®, gas odorizers)
- ▶ Long term partnerships with global industry leaders


## GLOBAL PRESENCE

- 
  - ▶ Beaumont
  - ▶ Houston

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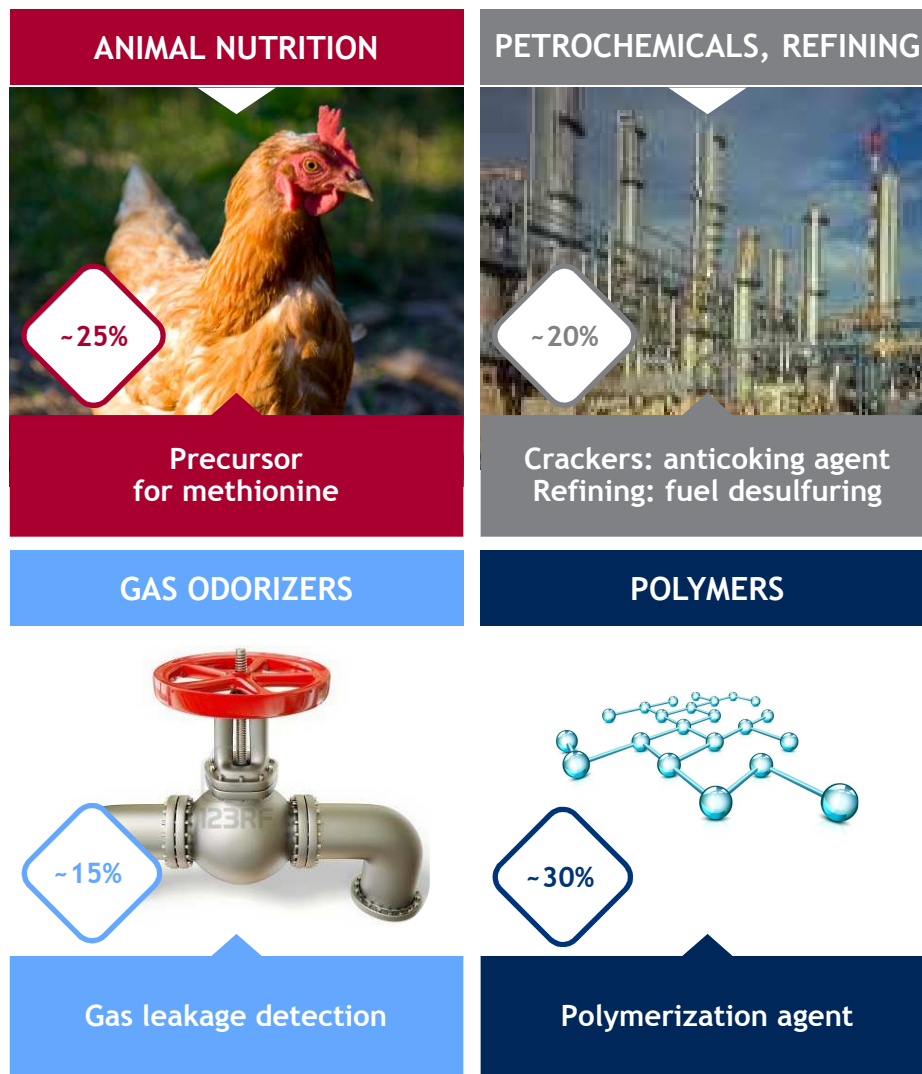
- 
  - ▶ Lacq

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  - ▶ Kerteh - New (1Q'15)

\* 2014 proforma sales including Bostik and using new reporting

# STRONG COMBINATION OF HIGH-GROWTH AND RESILIENT NICHES



◇ Demand by main end-markets for H<sub>2</sub>S derivatives

## Major growth drivers

- ▶ High growth in animal nutrition supported by increasing standards of living in emerging countries, notably Asia
- ▶ Critical solutions for key applications offering strong earnings resilience:
  - Petrochemicals: higher efficiency
  - Refining: regulatory drive
  - Gaz odorizers: safety
- ▶ Emergence of Asia as a key market with superior growth
- ▶ Increasing need for innovative solutions

**Expected growth: 4 to 5% CAGR**

# THIOCHEMICALS STRATEGY

## ACCELERATE GROWTH

### Successfully execute

on the ramp-up of our new platform in Asia in line with our plans

### Support the growing demand

for sulfur derivatives

### Expand our specialty

product portfolio and sales through innovation and customized solutions

### Further enhance

technology leadership and permanently focus on operational excellence (commercial and manufacturing)

# LEVERAGE OUR NEW ASIAN PLATFORM



## Proven ability to manage complex projects

- ▶ Greenfield project
- ▶ In a new country for Arkema
- ▶ With a new partner
- ▶ On a new process
- ▶ Excellent quality of products beyond our expectations
- A major technical success

## Now focused on the successful ramp-up

- ▶ Good market conditions supporting successful start
- ▶ Well-balanced platform
  - MeSH for CJ's bio-methionine
  - DMDS for the Group's traditional markets of petrochemicals and refining
- ▶ Full capacity after 3 years

## Confident in the prospects for the platform

- ▶ Confirm potential of US\$120 m sales (at full capacity)
- ▶ Further thoughts underway

# INCREASING OUR VALUE PROPOSAL TO OUR CUSTOMERS

## CARELFLEX® FOR GASOLINE AND DIESEL DE-SULFURATION



## ODORFLEX® FOR GAS LEAKAGE DETECTION



A comprehensive product offering for our customers

- ▶ With a global efficient technical support to best use our products
- ▶ 3 world-scale units in each region of the world

Offering customized services

- ▶ Developing customer intimacy
- ▶ Delivering high-quality services to inject our products
- ▶ Dedicated team of specialists in each region

Support our customers in their own product development

- ▶ Offering them innovative solutions to develop new applications
- ▶ Our technology leadership at their service

A strong partner for our customers

# PERMANENT FOCUS ON TECHNOLOGY LEADERSHIP AND OPERATIONAL EXCELLENCE

## TECHNOLOGY LEADERSHIP

- ▶ New processes
  - MeSH for bio-methionine in Malaysia
- ▶ New Thiochemicals products
- ▶ New applications
  - Paladin® for soil fumigation

**PALADIN**<sup>®</sup>  
BY ARKEMA



- ▶ Proven ability to execute major investment projects (Kerteh, Lacq, Beaumont)

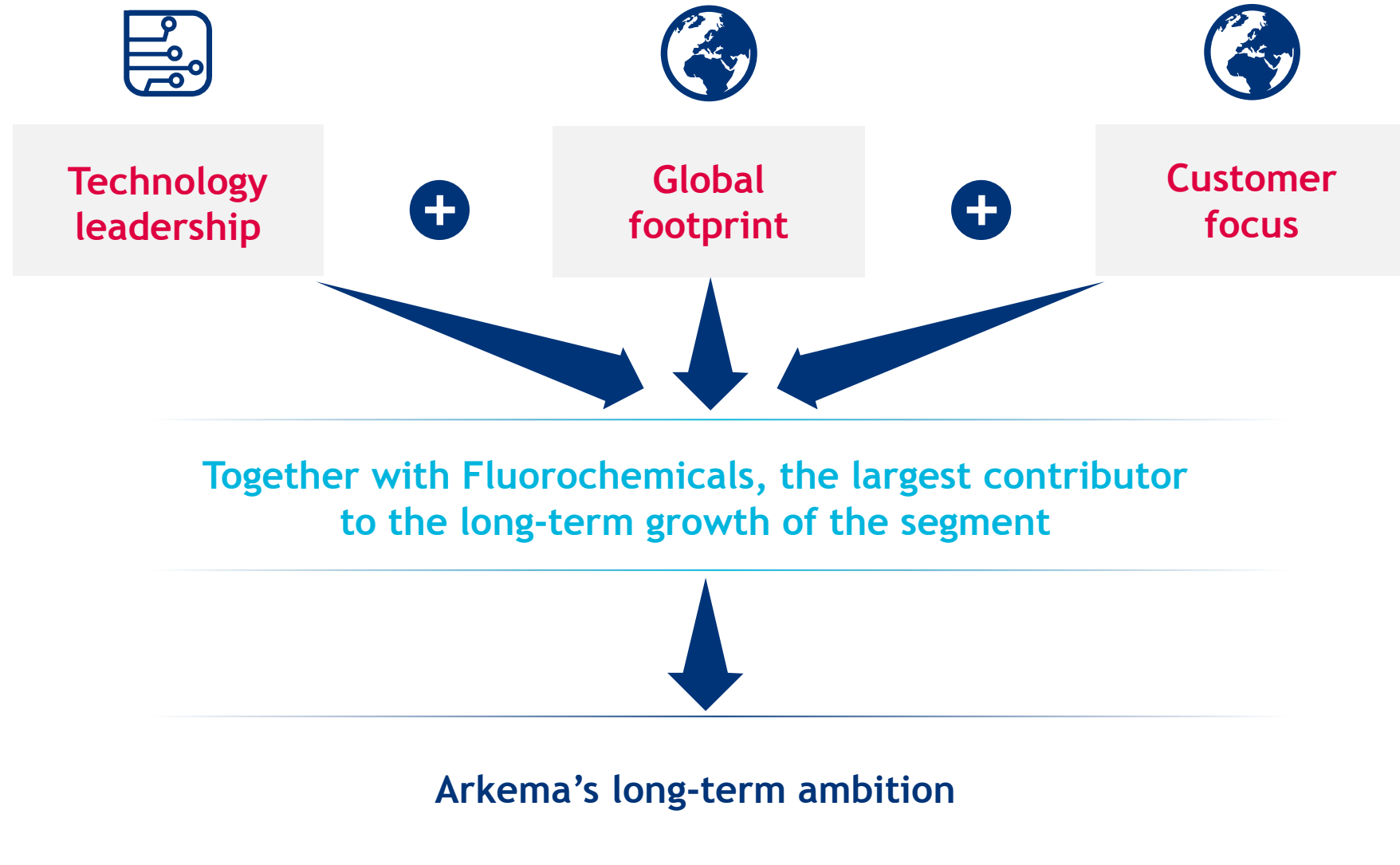
50 years of expertise

## OPERATIONAL EXCELLENCE

- ▶ Manufacturing excellence
  - Energy efficiency and yield optimization
  - Streamlined organizations
  - Long term competitive access to H<sub>2</sub>S (Lacq 2014, France)
- ▶ Commercial excellence
  - Differentiated offer with customized services
  - Take advantage of “Ambition” roll-out to improve satisfaction of customers and reinforce working capital management

#1 worldwide

# WRAP UP



# DISCLAIMER

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The information disclosed in this document may contain forward-looking statements with respect to the financial condition, results of operations, business and strategy of Arkema. Such statements are based on management's current views and assumptions that could ultimately prove inaccurate and are subject to material risk factors such as among others, changes in raw material prices, currency fluctuations, implementation pace of cost-reduction projects and changes in general economic and business conditions. These risk factors are further developed in the reference document.

Arkema does not assume any liability to update such forward-looking statements whether as a result of any new information or any unexpected event or otherwise.

Further information on factors which could affect Arkema's financial results is provided in the documents filed with the French *Autorité des marchés financiers*.

Financial information for 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006 and 2005 is extracted from the consolidated financial statements of Arkema. Quarterly financial information is not audited.

The business segment information is presented in accordance with Arkema's internal reporting system used by the management.

The definition of the main performance indicators used can be found in the reference document filed with the French *Autorité des Marchés Financiers* and available on [www.finance.arkema.com](http://www.finance.arkema.com)