

A modern, multi-story house with large glass windows and wooden siding. The house is built on a hillside. Inside the house, people are visible: a group of people on the upper floor and a person sitting on the lower floor. The house has a contemporary design with a mix of wood and glass.

# Vinyls

## Supporting demographic needs and well-being aspirations

Jacques van Rijckevorsel

*Group General Manager,  
Plastics sector*



April 24, 2012

# Vinyls at a glance

Present in three continents with state-of-the-art competitive plants

## 2011 Net Sales

€ 2,435m

## 2011 REBITDA

€ 218m

**HQ: Strategy,  
Olefins and RD&T**

## Operations

### Europe: Solvin

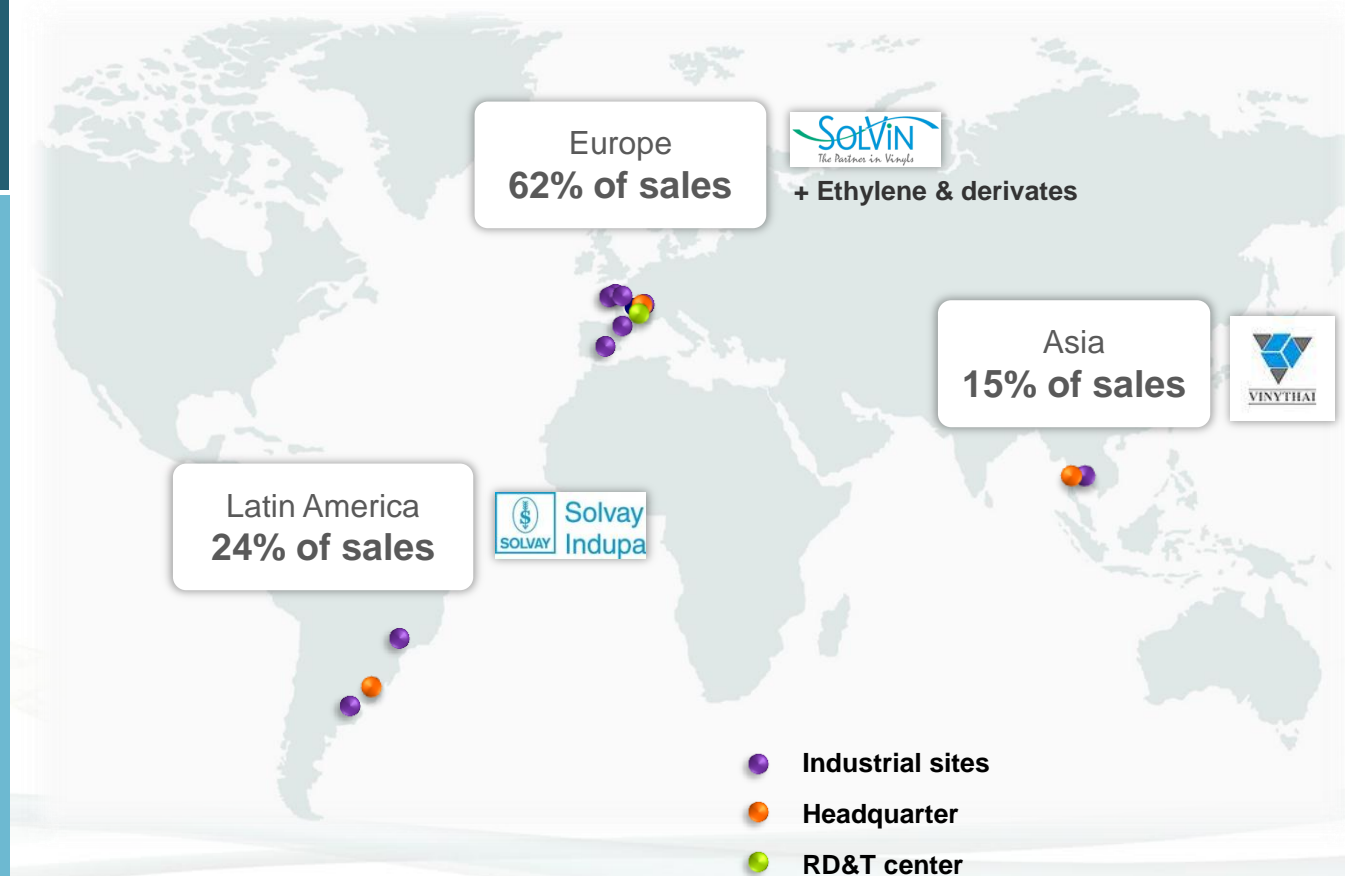
- 6 industrial sites
- 1,400 employees
- JV with BASF

### Latin America: Solvay Indupa

- 2 industrial sites
- 700 employees

### Asia: Vinythai

- 1 industrial site
- 460 employees



# AGENDA

- 1 • **PVC market landscape**
- 2 • **Competitive dynamics**
- 3 • **Mid-cycle results & prospects for Solvay**



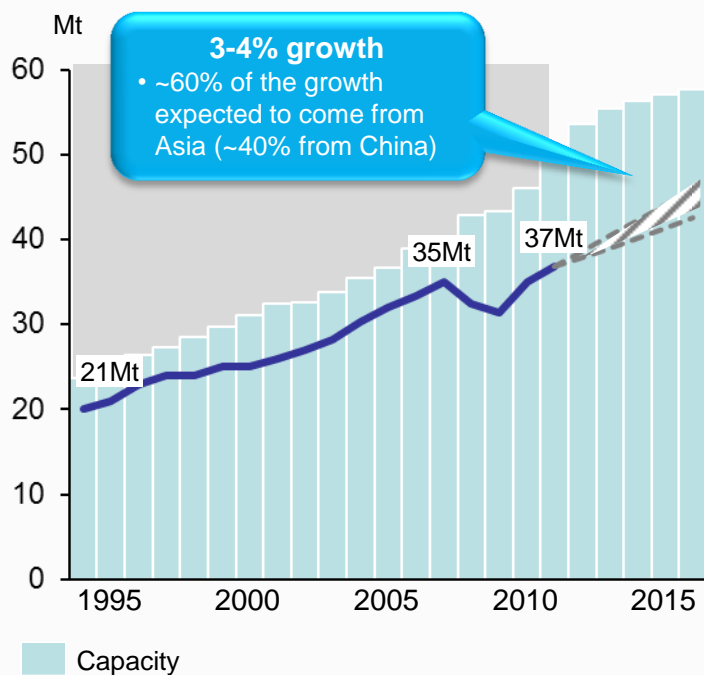
# 1 • PVC market landscape



# PVC market to recover progressively after the 2009 crisis

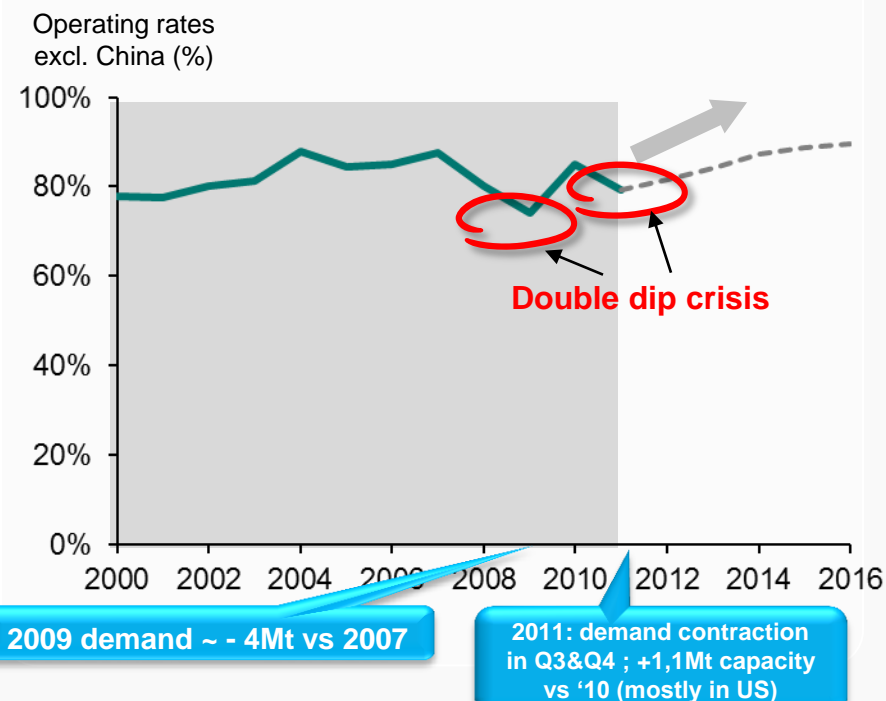
PVC market expected to recover with 3-4% annual **growth**, after '09 crisis

PVC market growth & capacities 1994-2016





















Sector expected to recover with pre-crisis **operating rates**

PVC industry operating rates (excl. China<sup>1</sup>)



1. 60% operating rates in China, in a highly fragmented market (~100 producers) with high proportion of sites based on carbide route  
Source: CMAI 2012, Solvay estimates

# Market growth driven by sustainable megatrends

Key megatrends		Segment	Demand by mkt segment ('11)	CAGR '00-'11	Outlook '11-'16
 <b>Water management</b>  <b>Energy efficiency</b>  <b>Resource efficiency</b>  <b>Health &amp; well being</b>  <b>Access to better life conditions</b>  <b>Construction market development</b>  <b>Growing population</b>		 <b>Pipes</b>		<b>4.9%</b>	 <b>4-5%</b>
		 <b>Profiles</b>		<b>3.0%</b>	 <b>2-3%</b>
		 <b>Film &amp; sheets</b>		<b>3.6%</b>	 <b>3-4%</b>
		 <b>Others</b>		<b>0.3%<sup>1</sup></b>	 <b>2-3%</b>

1. Explained by decrease of specific applications (e.g. Bottles)  
 Source: CMAI 2012, Solvay estimates

# PVC MARKET LANDSCAPE

Growth driven by emerging markets. W Europe & North America to recover progressively

## Regions

## Historical demand growth

## Outlook

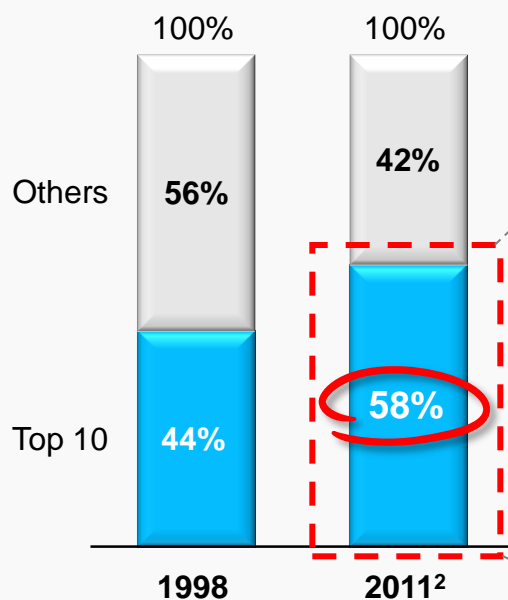
	Evolution '04-'11	Delta '04-'11	Demand in '11	CAGR '04-'11	CAGR '11-'16
China		+6.0Mt	13.1 Mt	9.2%	3-4%
Asia (excl. China)		+0.9Mt	6.9 Mt	2.0%	4-5%
Middle East and Africa		+1.2Mt	3.0 Mt	7.6%	4-5%
S. America		+0.8Mt	2.1 Mt	7.0%	3-4%
<sup>(1)</sup> CIS & Baltics		+0.8Mt	1.3 Mt	13.3%	4-5%
Western & Central Europe		-1.2Mt	5.2 Mt	-2.9%	2-3%
N. America		-2.8Mt	4.6 Mt	-6.5%	2-3%
Global		+5.8Mt	36.2Mt	2.5%	3-4%

1. Rusvinyl, start-up expected mid-2013 Source: CMAI 2012, Solvay estimates



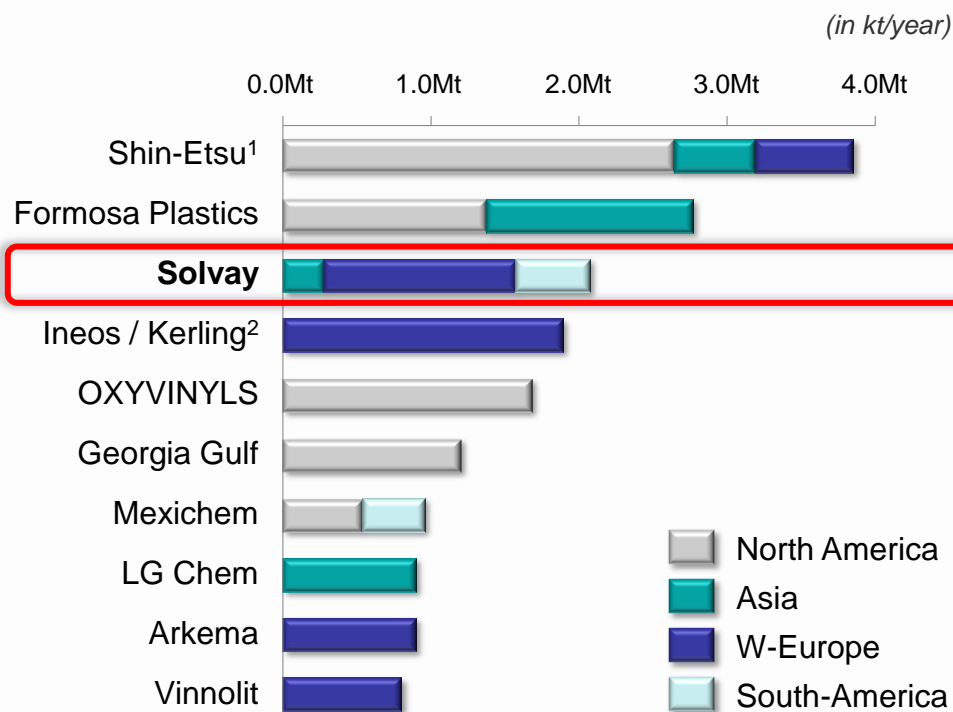
Consolidating industry, with Solvay #3 player with large presence across 3 regions

PVC capacity share of Top-10 producers (excl. China)



Note: represents ~60% of WW capacity (rest = China)

PVC capacity of top 10 WW producers in 2011 (excl. China)



1. Includes Shintech and CIRES 2. Including LVM  
Source: CMAI 2012, Solvay



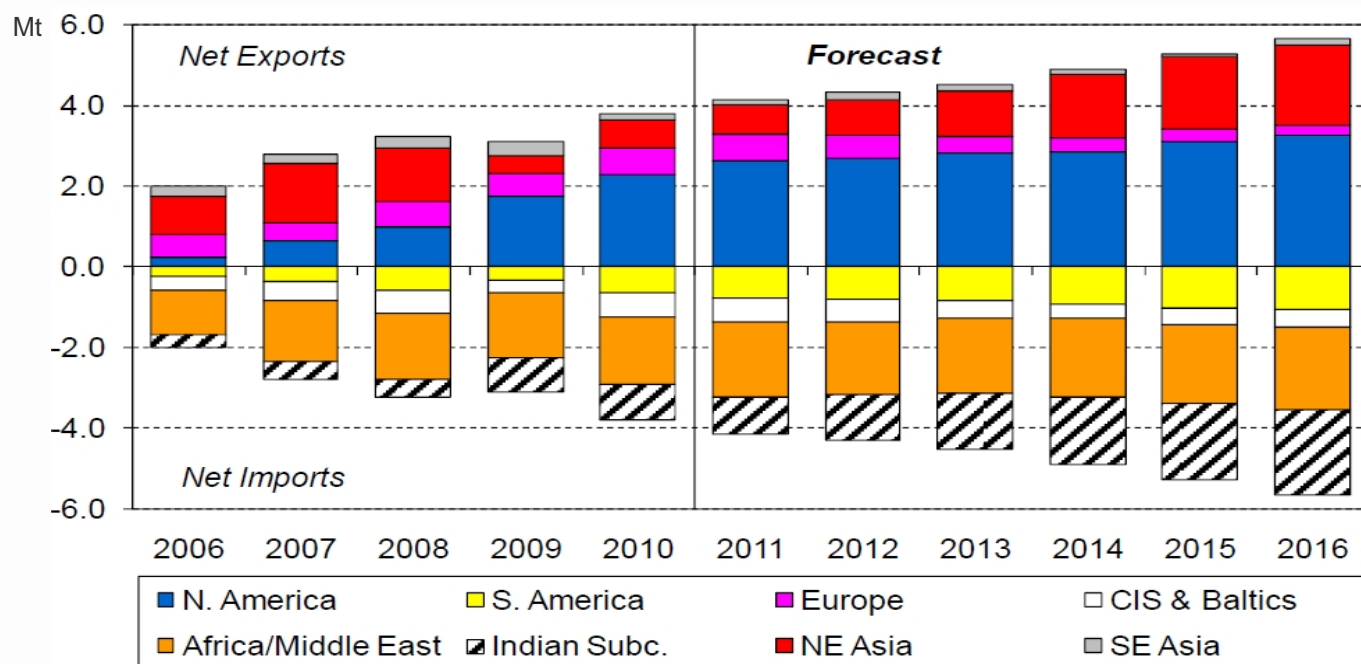
## 2. Competitive dynamics



# The PVC multi-regional market

**North America and North East Asia are and will remain main structural exporters**

## PVC trade forecasted evolution



**2011**  
**Net inter-regional exports 12%**

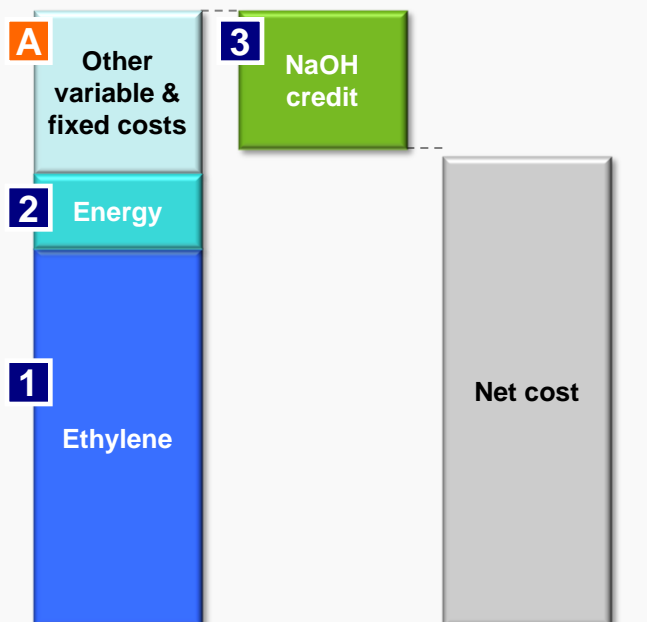
**2016**  
**13%**

# Inter-regional and intra-regional competitiveness drivers

Ethylene sourcing as main driver for inter-regional; scale & technology for intra-regional

## PVC cost structure

Typical cost structure for a Chlorine-integrated<sup>1</sup> PVC producer



## Key competitiveness drivers



Ethylene sourcing

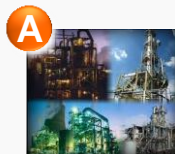


Energy costs



NaOH markets

Key drivers of **inter-regional** competitiveness



Scale & technology

Key driver of **intra-regional** competitiveness

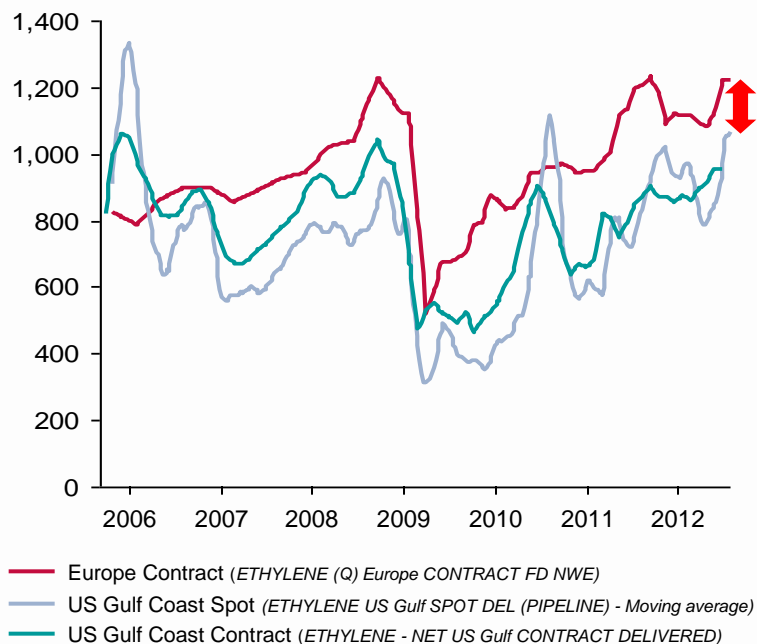
Shale gases in North America

1. UE – VCM - PVC

# US shale gas advantage expected to be limited to current PVC capacities

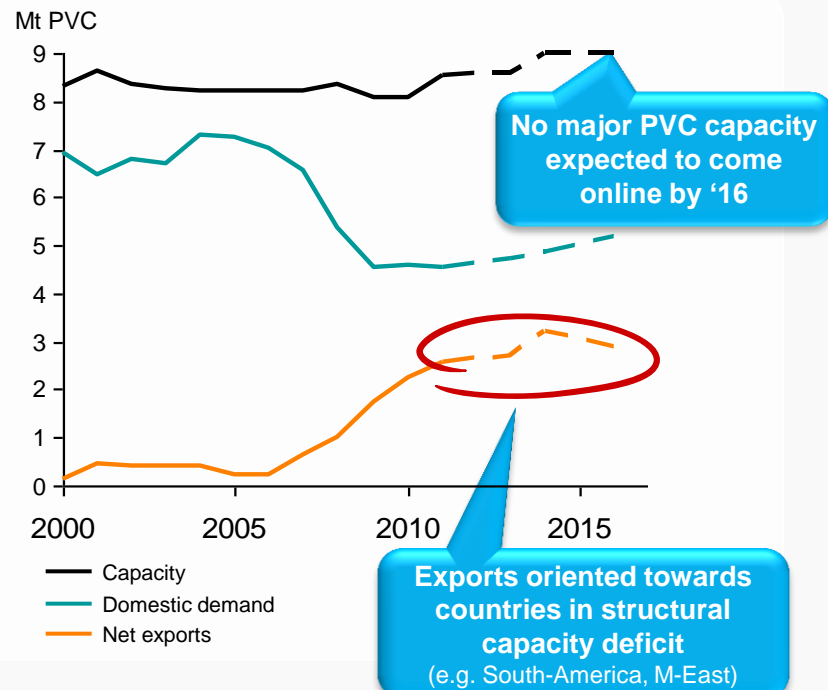
Shale gases providing US with ethylene sourcing competitive advantage ...

**Evolution of Ethylene prices in US and Europe**  
(in € per metric ton)



... but exports expected to be capped

**North America Supply demand equilibrium '00 – '16**



Source: ICIS pricing

Source: CMAI 2012 (announced projects), Solvay estimates

# 3 . Mid-cycle results & prospects for Solvay



April 24, 2012

Solvay, very well positioned with key drivers for intra-regional competitiveness

## Solvay has key regional competitive advantages

### Plant size

**Solvay plants size well above average**

### Plant integration

**Fully integrated value chains**

- Chlorine, VCM and PVC
- ClH recycling

### Technology

**Highly reliable production units**

- Strong technical know-how and expertise
- Cross-fertilization through efficient w/w networking

### Product mix

**High product diversification**

- PVC specialties like emulsion, micro suspension, copolymers,...

### Feedstock sourcing

**Partnership with ethylene producers**

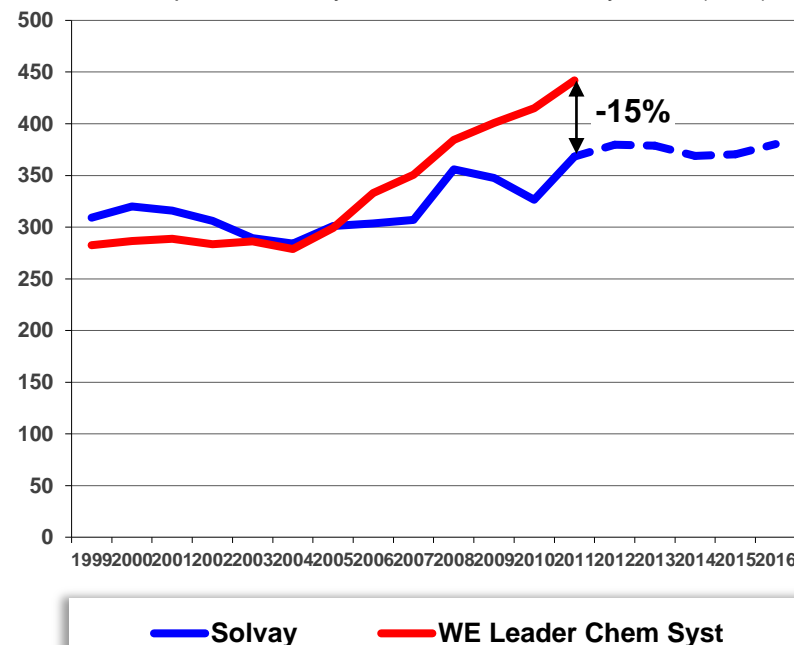
- In Europe, Thailand, Russia

**Electricity integration**

- Exceltium (Fr), Blue Sky (Be), Solalban (Arg), cogeneration

## Solvay with clear competitive advantages

**Integrated PVC & NaOH production cash costs comparison Solvay & WE leader Chem Systems (eur/t)**

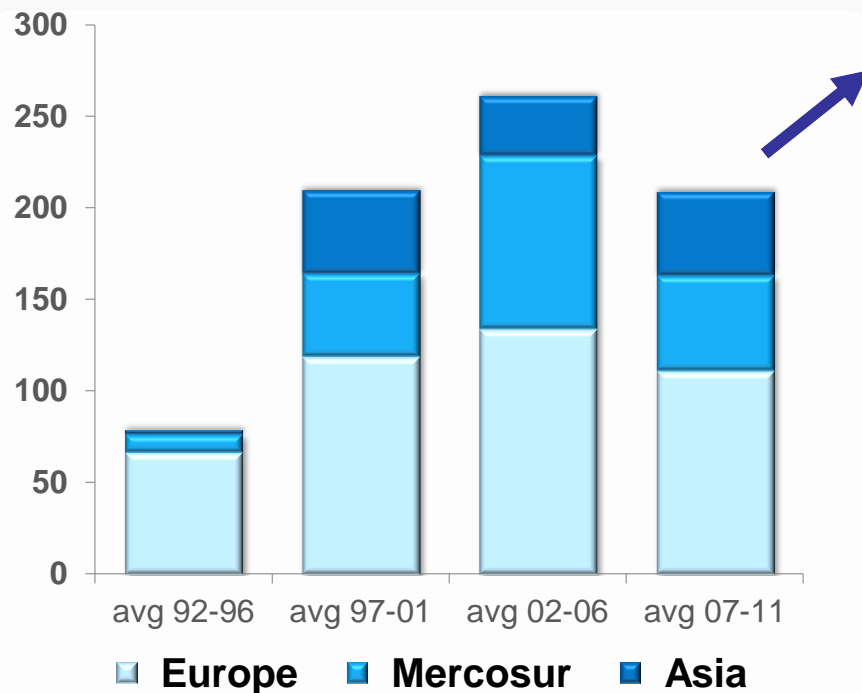


# MID-CYCLE RESULTS & PROSPECTS FOR SOLVAY

Growing REBITDA and geographical diversification of Solvay enhancing resilience across the cycles

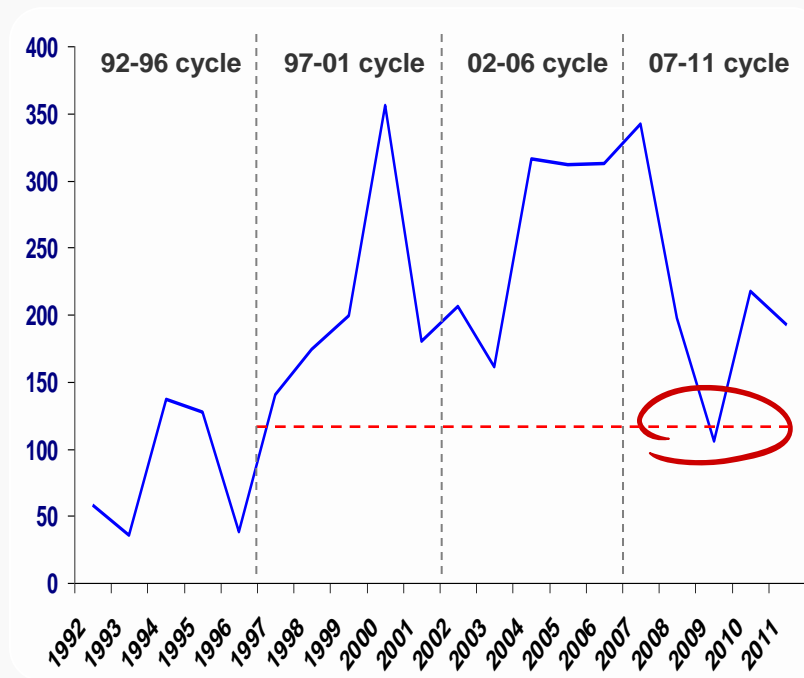
Solvay with strong REBITDA over previous cycles, with increasing diversity

Average yearly Solvay REBITDA across the cycles  
(in M€)<sup>1</sup>



Last cycle affected by '09 which has been a real crisis

REBITDA evolution Solvay Vinyls  
(in M€)<sup>1</sup>



1. At (constant) 100% consolidation perimeter



## Strategic priorities

**Solvay: actively pursuing competitiveness improvements and profitability**

**Continued and consistent operational excellence programs**

### Manufacturing excellence

- Energy savings
- Overall Equipment Efficiency (OEE) improvement
- Fixed costs optimization

### Commercial excellence

- Portfolio and pricing optimization
- Commercial & administrative cost reduction

**Mid term - Rusvinyl**



The largest Russian  
vertical integrated  
petrochemical company

Second largest PVC  
European  
producer



Excellent understanding  
of local conditions  
Ensuring ethylene supply

Leading PVC technology  
Operational excellence  
Vinyls business  
achievements

**Strong Partnership to enter the Russian  
fast-growing and importing PVC market**

# Challenging industry, recovery to come

## A challenging market with some bright spots

PVC industry currently presenting important **structural challenges ...**

... but **demand slowly recovering** after 2009 unprecedented crisis

... and in Europe, **industry consolidation inevitable**, although it **might take time**

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## Solvay well positioned for a new cycle

... and committed to achieve **best-in-class operational excellence**

# REGAINING STRATEGIC FLEXIBILITY

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