



## A working example of a Voluntary Commitment partnership for the Sustainable Development of an industry

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### Part 1

An illustration of why sustainable development is important for PVC

### Part 2

A demonstration of how an industry value chain can work as a partnership for sustainable development



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## Part 1

### An illustration of the value of PVC as a material



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## If it didn't already exist, we would have to invent PVC

PVC is ubiquitous because of its intrinsically useful  
qualities:

- Very low cost to produce
- Durable, strong, lightweight, versatile
- Applications save resources and energy
- Promotes prosperity, quality of life and dynamism  
in society



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## For example: PVC Pipes – an environmental lifeline

- Piping systems may be considered as high technology 'lifelines' in a complex world
- Safe and eco-efficient transportation of drinking and irrigation water is an environmental necessity for mankind
- Materials and applications must therefore be compliant with stringent requirements in terms of health and safety



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## LCA's for PVC pipes are positive

PVC is an eco-efficient material:

- Lightness (energy saving in transportation)
- Exceptional smoothness (safety: resist bio-film formation better than for most other pipes, helping to provide consistent water quality; liquids can flow at high speed as a consequence they need less pumping effort - saving energy)



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## Corroded pipe wastes not only water but also *energy*

- 8.3 trillion liters (2.2 tril. gallons) of water are lost annually in US
- Pumping water represents 70-90% of water utility operating costs and may account for 7% of total US energy consumption.



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## Corroded pipe wastes not only water but also *energy*

- Deteriorated pipes hydraulically inefficient, adding to energy demand
- Poor hydraulics + leakage in older piping may double-triple the energy required to pump water compared to new systems



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## PVC pipes - may never wear out!

- PVC pipe lifetimes are at least 100 years
- Unlike other polymers PVC is efficiently recyclable, its inherent material properties remain intact when reformed



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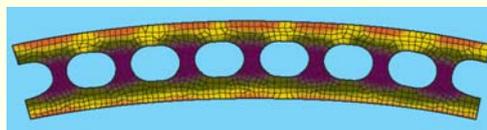
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## PVC pipes - ongoing innovation

Alveolar pipe structures



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## PVC pipes - ongoing innovation

### Alveolar PVC pipes

- the alveoli included in the pipes walls make the pipe lighter maintaining the technical performances. It means less consumption of raw materials, easier transportation and possibility of using alveoli as site for cables, optical fibres or sensors. Sensors may transform piping systems in to smart nets where damages and leakages can be immediately found



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## PVC pipes - ongoing innovation

### Oriented PVC (O-PVC)

- a molecular structure oriented in two directions



Foto



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## PVC pipes - ongoing innovation

### Oriented PVC (O-PVC)

- Oriented PVC (O-PVC) pipes: the molecular structure is oriented in two directions (axial and circumferential). This structure improves the mechanical performances and the resistance of pipes (less ruptures, lower maintenance).

Foto



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## PVC pipes - ongoing innovation

### Expanded pipes

- Multilayer pipes for agriculture. This structure allows a higher resistance whilst reducing the weight.



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## PVC pipes - a sustainable solution

So PVC in pipe applications is good candidate for sustainable development:

- Durability (100 years + if correctly installed)
- Good mechanical properties in terms of creep , viscoelasticity, and fatigue (durability, low maintenance)
- Low leakage of the systems over time (preserving water resources)
- Long term resistance to chemical aging
- More economic to install and operate



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## PVC pipes - an industry working as a team

Whilst respecting loyal and fair competition, the European PVC pipes industry is jointly committed to improving the sustainability of the material and its products:

- E.g. lead stabilisers replacement in drinking pipes
- TEPPFA recycling schemes
- Constitution of PVC4pipes association to exchange knowledge and best practice



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## Part 2

A demonstration of how an industry value chain can work as a partnership for sustainable development



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## The Sustainable Development of the European PVC Industry

The PVC Industry in Europe

- Over 23,000 companies
- 530,000 employees
- Turnover more than 74 billion Euro



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## Vinyl 2010

Vinyl 2010 was established by the associations representing the PVC industry in Europe:



the European Council of Vinyl Manufacturers



the European Plastics Converters



the European Stabilisers Producers Association



the European Council for Plasticisers and Intermediates



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## Vinyl 2010 goals

Vinyl 2010 is the European PVC industry's Voluntary Commitment to:

- Minimize environmental impact of productions
- Responsibly use additives (plasticizers & stabilizers)
- Minimize environmental impact of products at the end-of-life
- Continue to increase overall scientific knowledge
- Set up management and financial schemes



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## Vinyl 2010 approach

- Vinyl 2010 covers complete life cycle
- 'Cradle to cradle' approach – involving the entire upstream and downstream chain
  - Raw-materials
  - Additives
  - Converters



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## Vinyl 2010 approach

### A commitment to transparency

- Aim for maximum dialogue and involvement with stakeholders and policy makers
- Independent **Monitoring Committee**, bringing together representatives from:
  - the European Parliament
  - the European Commission
  - Trade Unions
  - Consumers' Associations
- Working hard to include environmental NGOs



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## Finance and management

### Management and financial schemes

- More than € 34.8 million of investments over the last 7 years (~54.38 million USD)
- Project funding of € 7.7 million in 2007 (~12 million USD)
- Annual Progress Report



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## Key achievements 2000-2007

- Cadmium stabilisers phased out in EU-15 (2001)
- Bisphenol A phased out of PVC production in all ECVI member companies (2001)
- 25% recycling of pipes, windows and waterproofing membranes (2003)
- Risk assessment on lead stabilisers published (2004)
- 15% reduction in lead stabiliser use achieved ahead of time (2005)
- External verification of ECVI S-PVC and E-PVC production charters (2002 and 2005 respectively)



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## Key achievements 2000-2007

- Phthalate risk assessments completed (2005) and published (2006)
- Lead stabiliser phase-out in 2015 extended to EU-27 (2007)
- Cadmium stabiliser phase-out extended to and completed in EU-25 (2006) and EU-27 (2007)
- Recycled tonnages increased exponentially: 14,255 tonnes in 2004, 38,793 tonnes in 2005, 82,812 tonnes in 2006 and 149,463 in 2007



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## Vinyl 2010: education

- First Vinyl 2010 Sustainable Development Essay Competition (Nov. 2007)
- Involved young Europeans in the SD debate
- Have a fresh point of view on strategies
- Establish relationships with other SD experts



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## Vinyl 2010: education

- The issue: 'Are sustainable development and economic growth mutually exclusive?'
- Entries from all over the Europe
- Independent Judging Panel of European sustainable development experts



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## Vinyl 2010: education

- The full set of entries published in a book
- Partnerships with academics and environmental media



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## Vinyl 2010: education

- The Vinyl Game, a new computer game launched in April 2008
- Players are challenged to manage a virtual PVC industry in a sustainable way



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## Vinyl 2010: education

- A way to involve our stakeholders and help them to better understand both the complexity of the PVC industry and how a Voluntary Commitment approach like Vinyl 2010 can strategically address the challenge of sustainable development for a whole product value chain



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## Vinyl 2010: education

*'I am really interested in sustainable business practices and this affects my consumer choices. Yet during the game, when faced with investment decisions, against a ticking clock, I managed to score a sustainability rating of only 14%. Obviously, I have some learning to do about what makes good business sense and how to create a sustainable industry.'*

*Katie LaZelle, 26 years  
European Parliament*



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## Future Challenges / Next Steps

- Achieve the Voluntary Commitment targets by 2010
- Extend Vinyl 2010 approach beyond 2010, with the aim of the PVC industry being very much part of a sustainable future for society
- Extend the European sustainable development model to the global PVC industry



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## Conclusions

- PVC is a widely used and proven material, with many useful intrinsic qualities, that is already making an important contribution to eco-efficiency in society (– PVC pipes are a good example). It has good potential to play a role in a more sustainable future.
- Vinyl 2010 demonstrates an effective industry partnership model for the sustainable development of a whole value chain



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