



**espa**

EUROPEAN STABILISER PRODUCERS ASSOCIATION

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## About PVC Stabilisers and Sustainability PVC Cables 2014 Workshop

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Dr. Alain Cavallero

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- About ESPA
- Sustainability: definition, measure and other considerations
- Sustainability and Regulatory measures
- Evolution of formulations
- Together with VinylPlus towards more sustainability
- Summary and outlook

# European Stabiliser Producers Association

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- Pan-European trade association representing more than 95% of the PVC stabiliser industry across Europe ([www.stabilisers.eu](http://www.stabilisers.eu))
- Affiliated to Cefic - the European Chemical Industry Council
- Member of VinylPlus ([www.vinylplus.eu](http://www.vinylplus.eu))

# European Stabiliser Producers Association

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- A unique organisation representing four chemistries of stabilisers:
  - **Calcium-based stabilisers** (including Ca-Zn and organic) for food contact & medical applications, plus all lead replacement systems
  - **Tin-based stabilisers** used primarily in rigid applications including food contact use
  - **Liquid stabilisers** used in a wide range of flexible PVC
  - **Lead-based stabilisers**, used principally in pipes and outdoor profiles

# ESPA 2014: 11 Members

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# Sustainability: how to define it?

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## **High level definition** ([World Commission on Environment and Development](#))

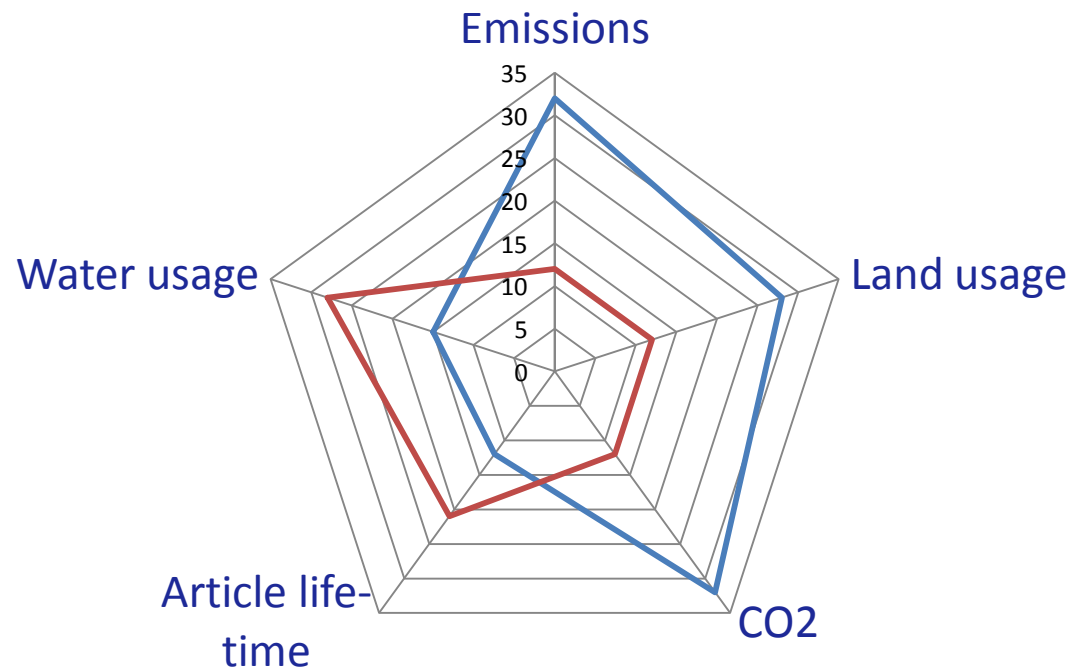
«To allow to meet the needs of the present without compromising the ability of future generations to meet their own needs»

## **Sustainable chemistry** (OECD definition)

“Promoting the design, manufacture and use of efficient, **effective, safe and more environmentally benign chemical products** and processes.  
... maximise resource efficiency, ... minimisation of waste at all stages of a product life-cycle, and the **development of products that are durable and can be re-used and recycled**”

# Assessing Sustainability

- The above-mentioned OECD definition comprises various, widely different indicators
- A “spider diagramme” is appropriate to reflect this complexity



# Sustainable use of additives

- Stabilisers are used at a low percentage in a PVC compound. However their role is crucial to maintain the properties of the finished article, e.g. a cable:
  - heat / weathering resistance
  - colour stability for sheathing applications
  - good electrical characteristics
- ➔ ensure an extended service life of the cable
- ➔ contribute to save the “grey energy” associated to the premature replacement of a cable
- Hence for stabilisers it is particularly relevant to consider the whole life-cycle of the article





# Classification, REACH and Sustainability

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- The classification of a chemical is related to its properties («hazard» → “*a lion is a dangerous animal*”)
- Classification does not take into account how the risk of using a Dangerous substance is managed (“*a lion in a cage poses no risk*”)
- REACH is built on both Risk and Hazard approaches:
  - Risk-based approach → Exposure Scenario for classified substances
  - Hazard-based approach → SVHC-Candidate List/Authorization list
  - Substances on the Candidate & Authorisation lists become «non-sustainable» in terms of their future but it could be debated in certain cases whether, in their use, they are really “non-sustainable” with respect to the definition of Sustainability

# Evolution of stabilisers formulations

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- Whilst part of the evolution can be linked to technical progresses a substantial part was driven by sustainability considerations and regulatory pressure.
- **Cadmium salts**, used for outdoor applications like window frames, were substituted completely in the EU-15 already in 2001 and in the EU-27 in 2007, following a voluntary commitment of the industry (Vinyl 2010).
- **Bisphenol-A** has been subject to controversy since many years ; in March 2014 ECHA's Risk Assessment Committee adopted the opinion to classify BPA with Reprotoxic Category 1B. Stabilisers manufacturers have developed and made available alternative formulations since many years.

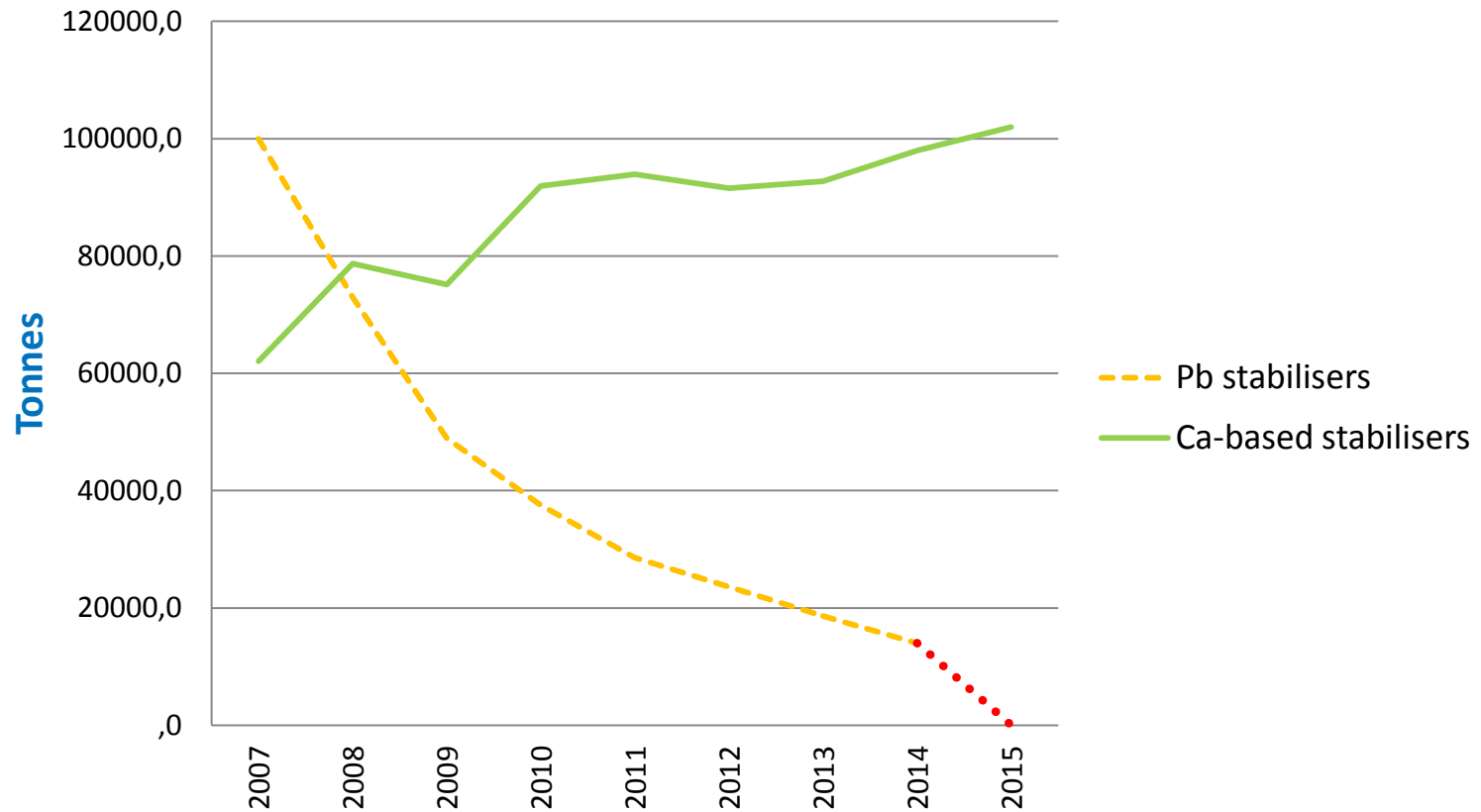
# Lead-based stabilisers substitution

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- Lead and its compounds have been regulated since a long time and the Risk Management Measures applied ensure adequate protection of the Human health and Environment.
- Around 2000 however it became clear that the use of lead-based PVC stabilisers was not scoring high for sustainability and that additional regulatory measures/restrictions on the uses would likely be enacted.
- Therefore the manufacturers of lead-based stabilisers and their downstream users made a Voluntary Commitment (part of the Vinyl 2010 programme – now VinylPlus) to substitute those lead-based stabilisers in the EU-28 by the end of 2015.
- In parallel the RoHS Directive restricted lead in electrical equipment
- At the end of 2013 more than 81% of the initial quantity of lead-based stabilisers used in the EU 27 in 2007 has already been substituted and the replacement is expected to exceed 85 % at the end of 2014 (next slide).

# Lead-based stabilisers replacement

Stabilisers Consumption Data in the EU-28



# Together towards more sustainability

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**VinylPlus** is the new ten-year Voluntary Commitment of the European PVC industry – [www.vinylplus.eu](http://www.vinylplus.eu)

- cross-stakeholders: manufacturers (resin and additives), downstream users (converters and products associations), NGO
- builds upon the achievements of the Vinyl 2010 programme, of which ESPA members were co-founders
- tackles the sustainability challenges for PVC on the basis of the **sustainability principles of *The Natural Step*** - [www.naturalstep.org](http://www.naturalstep.org)

# The TNS System Conditions<sup>©</sup>

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**In the sustainable society, nature is not subject to systematically increasing...**

- 1... concentrations of substances extracted from the Earth's crust
- 2....concentrations of substances produced by society
- 3... degradation by physical means

**and, in that society**

4... people are not subject to conditions that systemically undermine their capacity to meet their needs

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**The TNS System Conditions are a way to translate the Sustainability definition into actions. Being high-level principles they do address the issue globally:**

- **Human health aspects**
- **Environmental aspects**
- **Societal aspects**

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- Integration of the sustainability principles in planning the future of chemicals reduces the risk of hitting regulatory barriers at a later stage.
  - Stabilisers are crucial to maintain the properties of articles throughout their entire life. Hence the use phase, including recycling, has to be taken into account when assessing their sustainability.
  - Measuring sustainability is key to foster progress ; however data must be interpreted carefully when comparing different (stabiliser) systems.
  - ESPA members are devoting important resources to R&D to supply REACH-compliant and performing solutions to the PVC chain.
  - The European PVC industry, represented by *VinylPlus*, is progressing constantly on the sustainability scale. Its effort exerts an influence on markets beyond the EU boundaries and continent.

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Thank you for your attention



Dr. Alain Cavallero: [aca@cefic.be](mailto:aca@cefic.be)    [www.stabilisers.eu](http://www.stabilisers.eu)