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EUROPEAN STABILISER PRODUCERS ASSOCIATION

About PVC stabilisers and Sustainability PVC Cables 2014 Workshop

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European Stabiliser Producers Association

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

European Stabiliser Producers Association

- 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



Sustainability: how to define it?

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

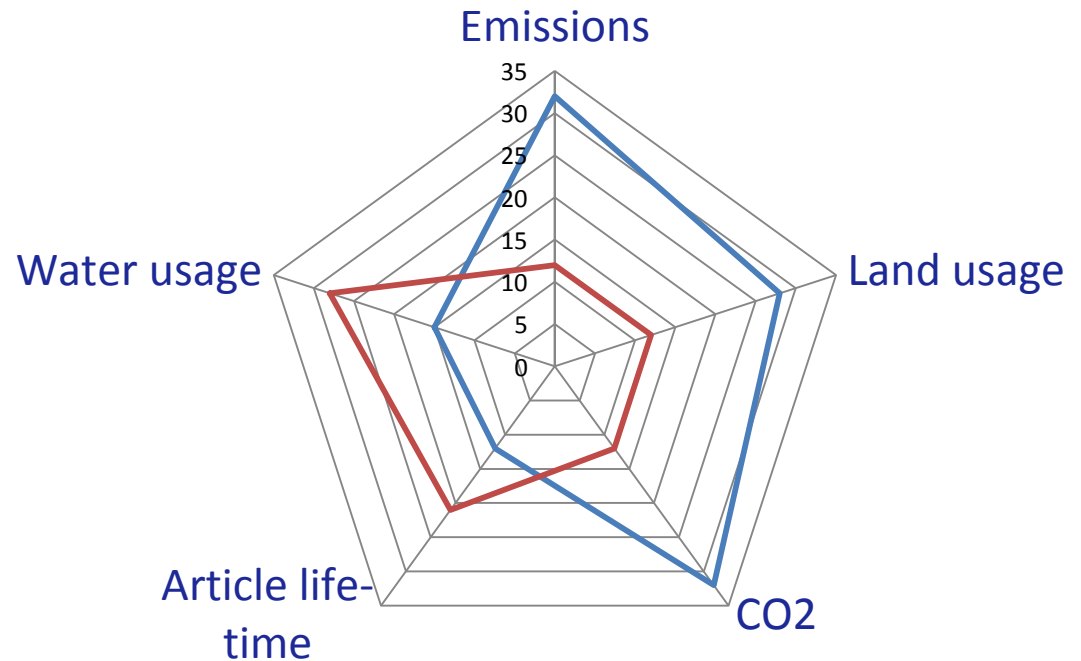
«To allow to meet the needs of the present without compromising the ability of future generations to meet their own needs»

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

- 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

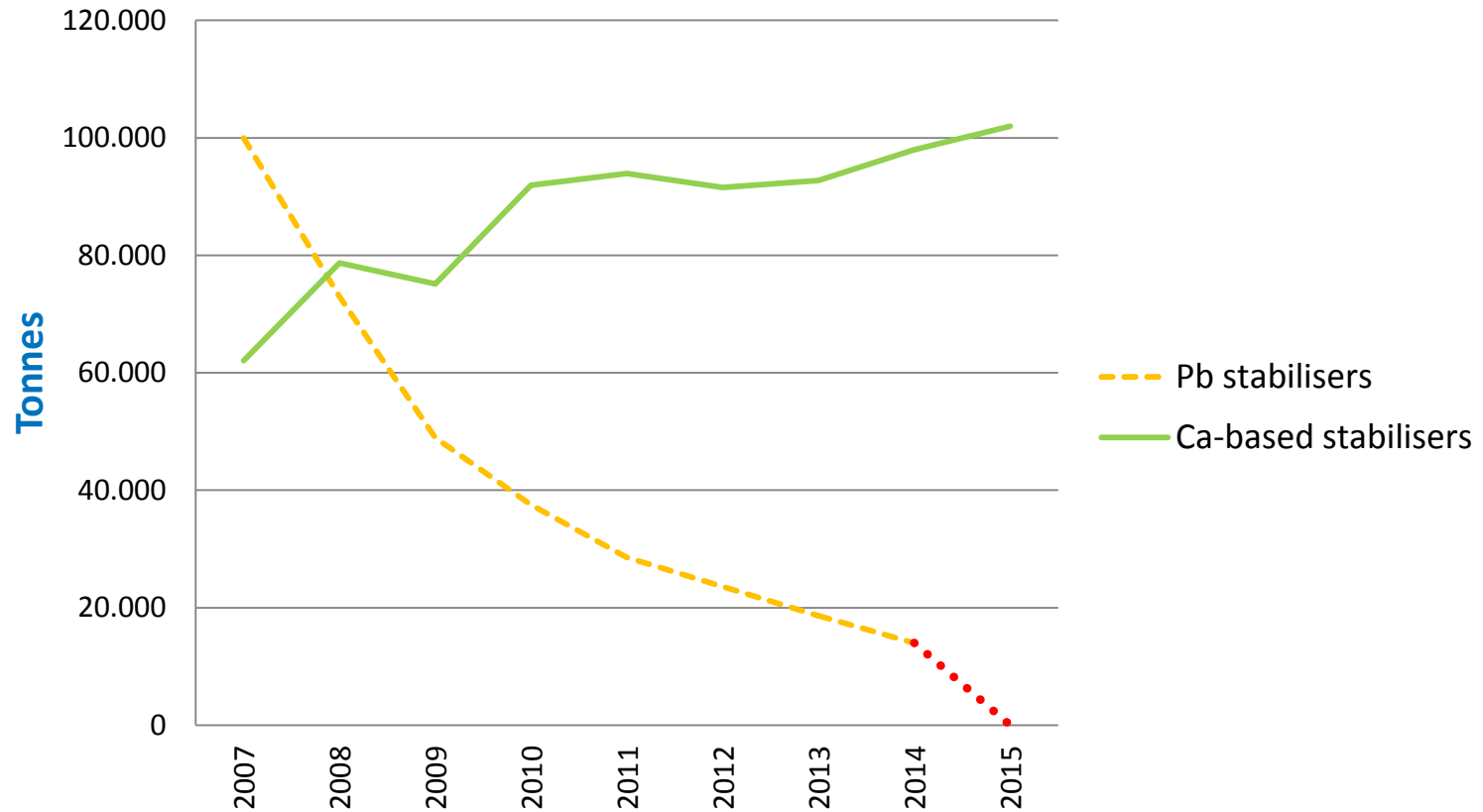
- Whilst part of the evolution can be linked to technical progresses a substantial part was driven by sustainability considerations and regulatory pressure.
- **Cadmium salts**, used for outdoor applications like window frames, were substituted completely in the EU-15 already in 2001 and in the EU-27 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

- 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

VinylPlus is the new ten-year Voluntary Commitment of the European PVC industry – 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

The TNS System Conditions[©]

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.

Thank you for your attention



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