espa EUROPEAN STABILISER PRODUCERS ASSOCIATION

Stabilisers – What's new?

Update December 2012

vinyl plus COMMITTED TO SUSTAINABLE DEVELOPMENT

www.stabilisers.eu

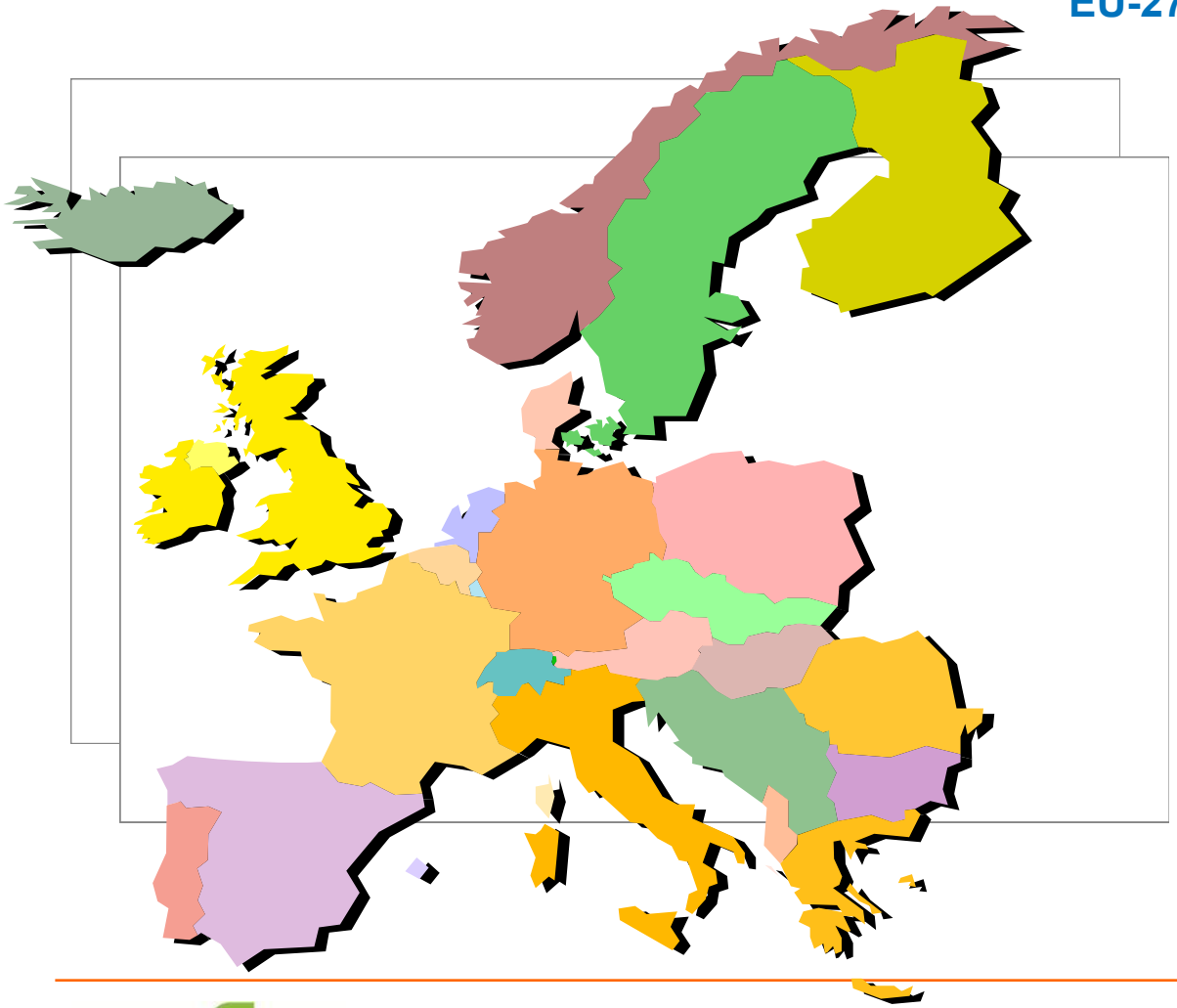
Outline

- About ESPA
- Lead stabilisers
- Calcium-based stabilisers
- Tin stabilisers
- Liquid mixed metal stabilisers
- Contribution to VinylPlus
- Conclusions

European Stabiliser Producers Association

- Pan-European trade association representing more than 95% of the PVC stabiliser industry across Europe
- Affiliated to Cefic - the European Chemical Industry Council
- Member of VinylPlus
- A unique organisation representing four sub-groups:
  - ECOSA – Calcium-based stabilisers (among which Ca-Zn and organic) for food contact & medical applications, plus all lead replacement systems
  - ETINSA – Tin stabilisers used primarily in rigid applications including food contact use
  - ELISA – Liquid stabilisers used in a wide range of flexible PVC, calendered sheets, flooring
  - ELSA – Lead-based stabilisers used primarily in pipes and profiles

2011 consumption by stabiliser category



EU-27 + Norway, Switzerland, Turkey

Stabiliser	Tons
Lead	28,595
Calcium based	93,933
Liquid MM	14,786
Tin	12,427
TOTAL	149,741

ESPA 2012: 13 Members

Lead-based stabilisers: phase-out

ESPA target

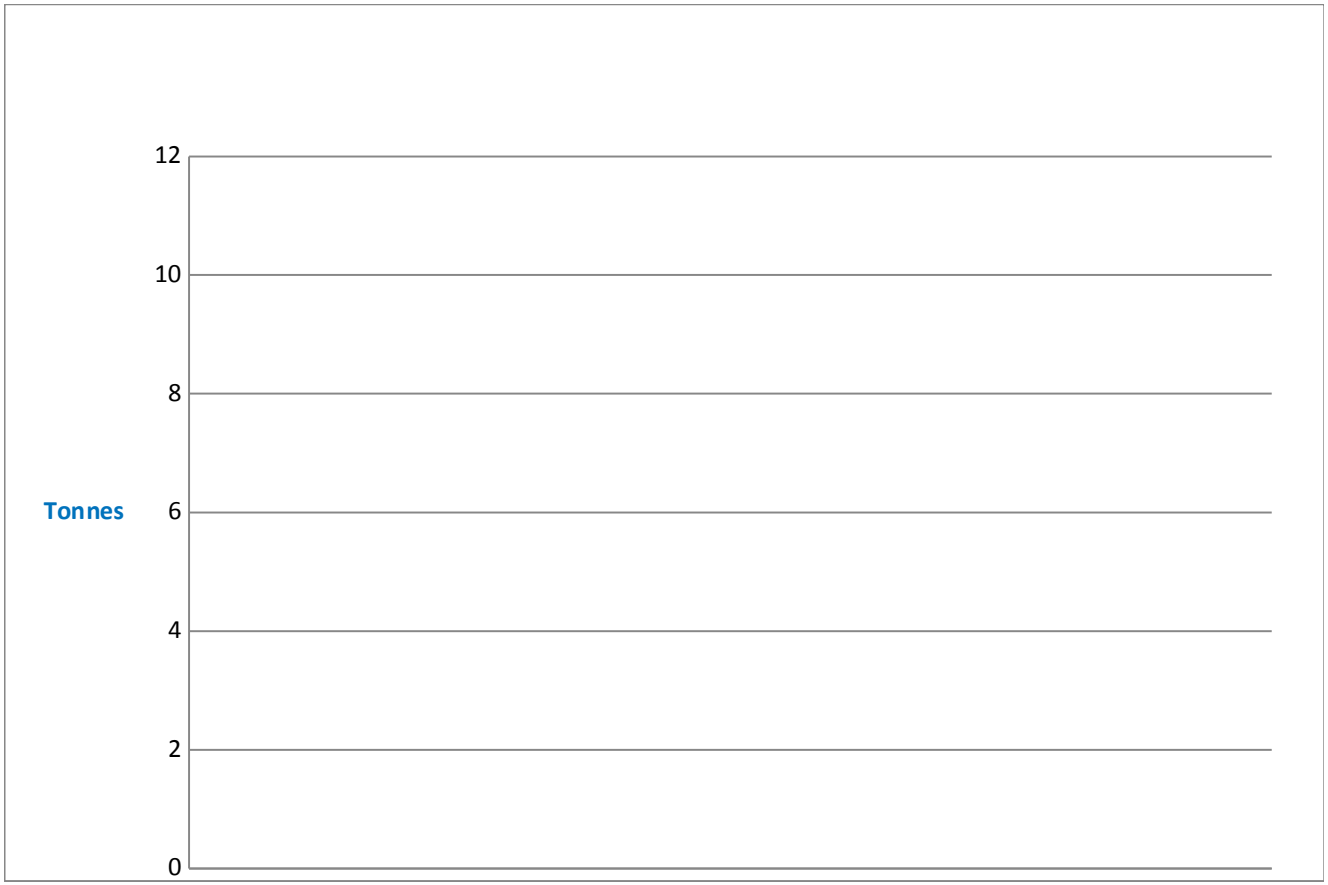
- To replace lead stabilisers by end 2015 in EU-27

ESPA achievements - end 2011

- Replacement of lead in EU-15 (2000 - 2011): Minus 82 %
- Replacement of lead in EU-27 (2007 - 2011): Minus 71 %
- Corresponding growth in calcium-based stabilisers (alternative to lead-based stabilisers) confirms this trend

Lead-based stabilisers: replacement trend

Stabilisers consumption (tonnes) in EU-27 + Norway, Switzerland, Turkey



Lead-based stabilisers and REACh

- All lead-based stabilisers with commercial relevance have been registered by December 2010
- Restrictions, current and upcoming
  - ECHA* has launched a public consultation for the identification of a series of substances as SVHC** ; among them are all the lead stabilisers which have been registered
  - Substances identified as SVHC become part of the *Candidate List.* The inclusion of a substance in this list triggers legal obligations (namely communication in the supply chain) for companies that manufacture, import or use the substances, either as such or in mixtures or articles
  - Substances on the *Candidate List* may become included in REACH Annex XIV , requiring an Authorization to use them after the "Sunset date "
  - It is unlikely that the Sunset date for lead stabilisers could occur before end 2015, date of the completion of the voluntary phase-out of lead stabilisers in the EU-27

*ECHA: European Chemical Agency ** SVHC: Substances of Very High Concern

Lead-based stabilisers and REACh

- Norway re-submitted last November to the WTO a proposal to ban products for consumer use containing lead. Such a ban could pose a barrier for the free circulation of articles made from recycled PVC, which is likely to contain legacy lead
- A study to model the evolution with time of the lead content in recycled PVC is going to be completed. It will provide reference levels for discussion of eventual additional proposals of restrictions
- This study will parallel the report on cadmium, an other legacy additive, which had been well received by the EU Commission and proved decisive in setting a maximum concentration in articles allowing the use of recycled PVC
- Sweden's chemical agency KEMI has completed an inquiry to restrict the presence of lead in several consumer products. This could restrict the use of recycled PVC. ELSA highlighted this issue in a joint VinylPlus letter to KEMI. Meanwhile Sweden has informed ECHA of its intention to submit a restriction proposal in January 2013.

Calcium-based stabilisers

- Calcium-based stabilisers (Ca-Zn and Ca organic) are principally used for:
  - food contact & medical applications
  - all lead replacement systems
- There are no known Reach registration issues for the main system components of this family of stabilisers
- Stabilisers of this group are of particular relevance within the scope of the VinylPlus Task Force "Sustainable Use of Additives"

Tin stabilisers

There are three families of tin stabilisers:

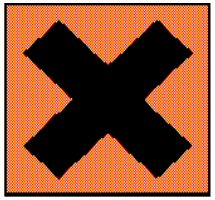
Methyltins | **Butyltins** | **Octyltins**

- Each family is further split in *mono-alkyl* and d*i-alkyl*
- The commercial substances do usually contain both *mono-* and *di-* in variable proportions and are named according to the major constituent
- The remaining groups attached to tin are **esters**, typically a thioglycolate (abbreviation: EHTG or EHMA)

REACh Registration

- Several tin stabilisers were already registered by December 2010 ("Tier 1")
- The Organotin REACh Consortium is progressing towards additional registrations due by June 2013 ("Tier 2")

Tin stabilisers: Classification & Labelling under CLP (GHS)

CMR classification : Comparison with GHS		
CMR (DSD*)	GHS	Signal Word
 Repro Cat 2	 Repro cat 1.B	**Danger**
 Repro Cat 3	 Repro cat 2	**Warning**

- à ***always specify to which legislation "cat. 2 " refers to avoid confusion.*** This is important because CMR cat. 2 (CLP) is not qualifying for Authorization.

**DSD = Directive 67/548 EEC (Dangerous Substances Directive)*

Tin stabilisers: CMR classifications

Stabiliser	CMR classifications (CLP) *	Remark
Methyltins, mono	Reprotoxic cat. 2	
Methyltins, di	Reprotoxic cat. 2	
Butyltins, mono	None	
Butyltins, di	Reprotoxic cat. 1b	Restrictions in Reach Annex XVII for dibutyl tins
Octyltins, mono	None	
Octyltins, di	DOT (EHTG)2: Reprotoxic cat. 1b proposed by ECHA**	Restrictions in Reach Annex XVII for dioctyl tins

** Cat. 1b (CLP) corresponds to cat. 2 under the previous classification under Directive 67/548 EEC (Dangerous Substances Directive, DSD)*

***Note that (re)classification of a substance (hazard-based aspect) does not change its toxicological profile (DNELs) nor its Risk Characterisation Ratio used to establish the Exposure Scenario (risk-based aspect)*

Tin Stabilisers: restrictions in REACh Annex XVII

Since 1 January 2012:

- **Dibutyltins** are restricted in all applications, with a few exemptions until 1st January 2015 , in particular for:
  - soft PVC profiles
  - PVC-coated fabrics for outdoor applications
  - outdoor rainwater pipes, gutters & fittings, covering for roofing & façades

- **Dioctyltins** are only restricted for supply / use by the general public in:
  - textile articles intended to come in contact with the skin
  - gloves
  - footwear intended to come into contact with the skin
  - wall and floor coverings

For details see Com. Regulation EU 276/2010 in Official Journal of 31 March 2010

Tin stabilisers: summary

- Many stabilisers of the organotins family have already been REACh registered and the Consortium is progressing towards additional registrations
- The *Restrictions* included in REACh Annex XVII provide Regulatory certainty: the dates by which the use of some organotins in specific applications have to be discontinued are known
- Under CLP the *scull and crossbones* label has been replaced by a less emotional pictogram for many tin stabilisers
- With the switch to CLP there is a risk of confusion concerning the CMR classification “cat. 2” Ž always specify to which legislation it does refer (*DSD or CLP)*
- Classification as CMR cat. 1 (a or b) is one of the criteria used in the identification of Substances of Very High Concern (SVHC)

Liquid Mixed Metal Stabilisers

- used principally for flexible PVC, calendered sheets and flooring
- have been almost totally reformulated over the last years owing to REACh and re-classification of some components
- the Liquid Mixed Metal Consortium is on schedule to complete the REACh registrations due in 2013

The VinylPlus programme

- VinylPlus continues and expands the successful Vinyl 2010 programme

- It is built around 4 + 1 challenges Ž

People, Planet, Prosperity

The vinyl industry's contribution to sustainability

The VinylPlus programme

- Several Task Forces (TF) have been set-up to achieve the challenges
- ESPA is active in all the TF:
  - Sustainable use of additives
  - Sustainable footprint (greenhouse gas, water, energy, etc.)
  - Renewable raw materials
  - Controlled loop (Recycling)
  - Energy reduction

Sustainable use of Additives

- VinylPlus Additives Task Force (TF)
  - Covers a very large number (~ 200) of widely different substances: fillers, flame retardants, impact modifiers, lubricants, pigments, plasticisers, stabilisers, etc.
- The TF defined 5 criteria for the sustainable use of additives:
  1) The successful implementation of REACH
  2) Commitment to research innovative solutions
  3) To document that the additives are safe to use in their specific applications
  4) To conduct Life Cycle Assessment (LCA) based on common standards and including the use phase of the articles and recycling
  5) The additives must be *fit for purpose* and meet the socio-economic requirements

Conclusions

- PVC stabilisers are present in a PVC compound at a low percentage only but they are crucial ingredients without which PVC cannot be processed
- ESPA members are continuously adapting the stabilisers to address the new regulatory constraints
- ESPA is contributing in a decisive way to address the challenge of sustainability of PVC through the Voluntary phase out of lead-based stabilisers and through its contribution to the VinylPlus Task Forces
- ESPA members are constantly devoting important resources to R&D, in order to provide the market with the most sustainable additives, in line with the VinylPlus criteria
- This allows ESPA members to continue to supply performant and REACh-compliant solutions to the PVC chain

More info on stabilisers: ESPA website

ESPA launched a new website
www.stabilisers.eu

Ž providing up-to-date information on stabilisers & applications

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Thank you for your attention

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