



**espa**

EUROPEAN STABILISER PRODUCERS ASSOCIATION

---

# Stabilisers – What's new?

Update June 2015

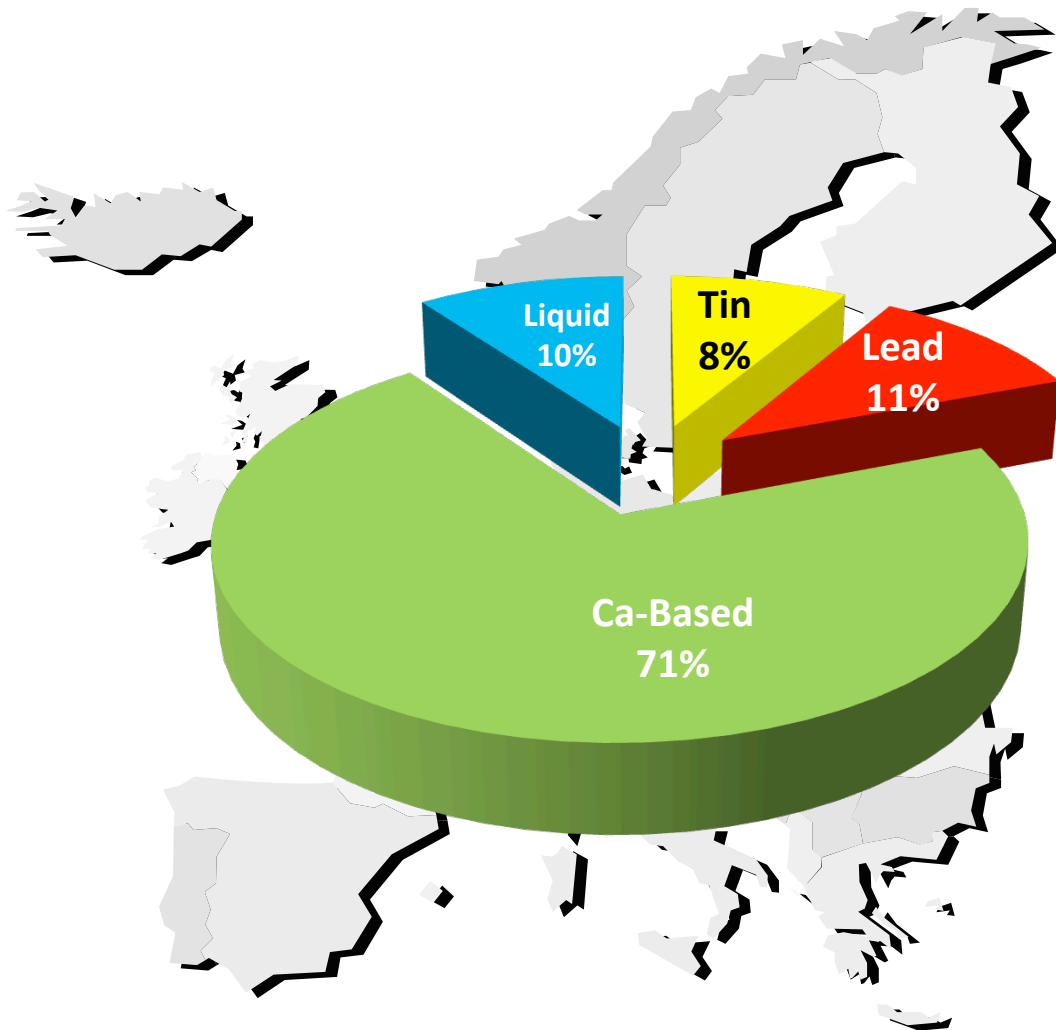
# Outline

---

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

- ***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** ([www.vinylplus.eu](http://www.vinylplus.eu))***
- ***A unique organisation representing four chemistries of stabilisers:***
  - ***ECOSA – Calcium-based stabilisers (including Ca-Zn and organic) for food contact & medical applications, plus all lead replacement systems***
  - ***ETINSA – Tin-based 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 principally in pipes and profiles***

# 2014 consumption by stabiliser category



## EU-28

Type	kt/annum
■ Lead	14
■ Calcium based	92
■ Liquid MM	13
■ Tin	11
TOTAL*	130

*\* as formulated stabilisers placed on the market by ESPA members*

# ESPA 2015: 11 Members



# Lead-based stabilisers substitution

## ESPA target

- *To replace lead stabilisers by end 2015 in EU-28*

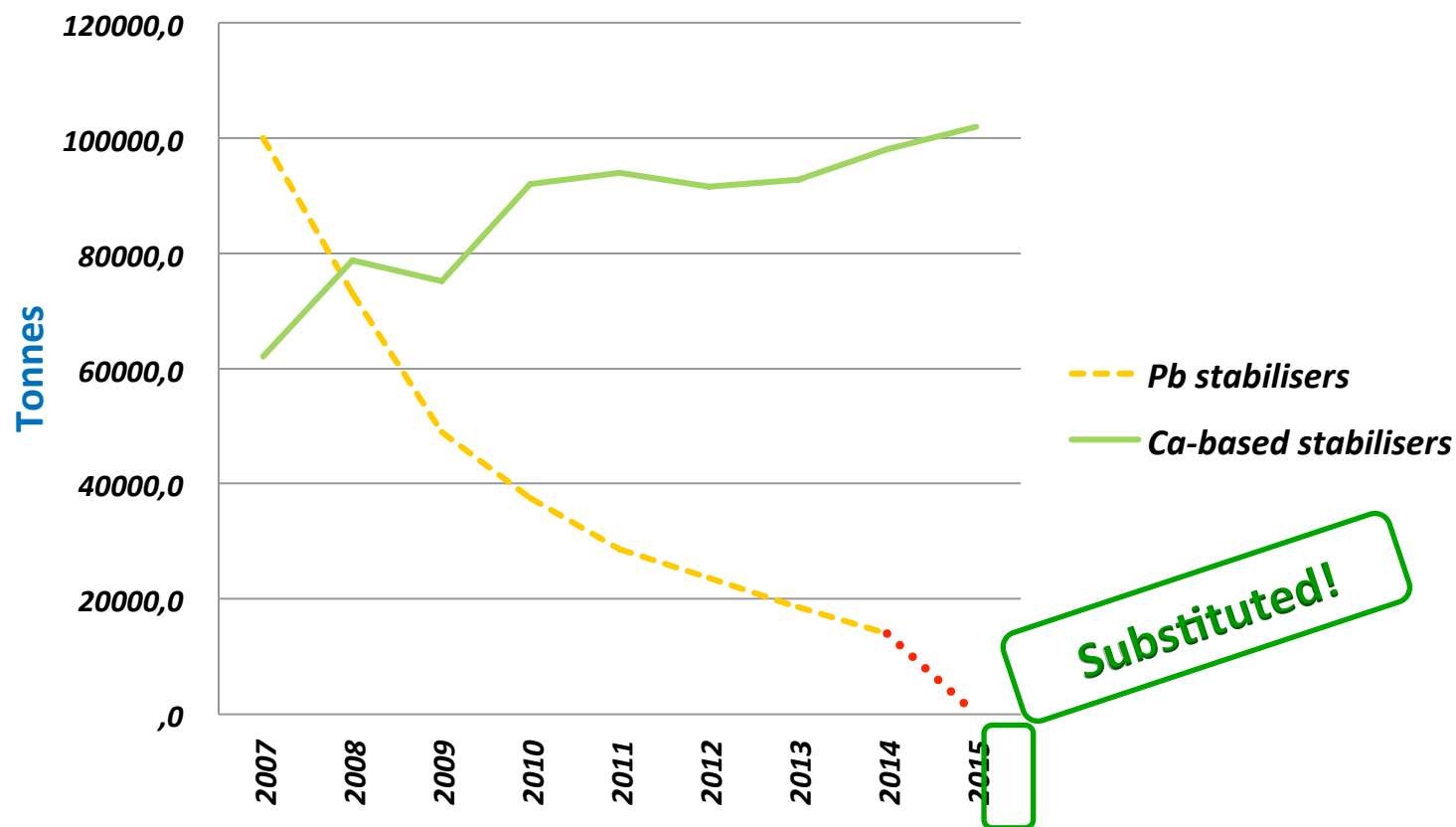
## ESPA achievement - end 2014

- *Replacement of lead-based stabilisers in EU-28: **Minus 86%** over the period 2007 – 2014*
- *The corresponding growth in calcium-based stabilisers (alternative to lead-based stabilisers) confirms this trend*



# Lead-based stabilisers substitution

Stabilisers Sales in the EU-28 by ESPA Members



- **All lead-based stabilisers with commercial relevance have been registered by December 2010.**
- **Inclusion in the REACH Candidate List:**
  - **In December 2012, all the lead stabilisers were identified as SVHC\* and included in the REACH Candidate List (CL), strictly on the basis of their CMR\*\* classification.**
  - **Inclusion in the CL triggers the obligations to communicate some information in the supply chain (REACH Art. 33)**
  - **Substances on the CL can be prioritized for Authorisation**

\* **SVHC: Substances of Very High Concern**

\*\* **CMR: Carcinogenic, Mutagenic, Reprotoxic**



- **REACH draft Authorisation list:**
  - ***In December 2014 the ECHA organized a Public Consultation for inclusion of several lead oxides in the draft Authorisation list. Among them two are also used as stabilisers:***
    - *pentalead tetraoxide sulphate (CAS N° 12065-90-6)*
    - *tetralead trioxide sulfate (CAS N° 12202-17-4)*
  - ***Considering the timing of the process for inclusion in the Authorisation list, it is unlikely that any substance currently on the Candidate List could be included in the Authorisation list with a sunset date earlier than end 2015.***
  - ***Hence the Authorisation process should have no impact on the substitution of lead-based stabilisers which will be completed in the EU-28 by the end of 2015, under the Voluntary Agreement.***

# Lead-based stabilisers: Restriction in consumer articles

---

- **Scope:** *articles available to consumers and which*
  - *could be placed in the mouth by children*
  - *contain more than 0,05% weight of lead*
- **Status:**
  - *Expected to enter into force by mid-2015*
  - *Will be included in REACH Annex XVII*
- **Relevance for PVC:**
  - *No issue with virgin PVC articles, which will not contain lead-based stabilisers*
  - *Building and construction articles are generally out of scope*

- ***The Circular Economy package, adopted by the European Union, does encourage recycling instead of landfill.***
- **Recycling targets include:**
  - ***80% recycling for packaging (glass, paper, metal & plastic) by 2030***
  - ***Ban on landfilling of all recyclable & biodegradable waste by 2025***
- ***PVC is increasingly recycled and gets a strong impulse from the VinylPlus programme (see slides 18 to 20).***
- ***ESPA and VinylPlus are studying the migration of legacy additives\* (including lead) from the PVC matrix to demonstrate that they pose no risk for the use of articles made thereof.***

*\* Legacy additives: substances whose use in PVC products has been discontinued but that are contained in recycled PVC.*

- ***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” (see slide 20)***

There are three families of tin stabilisers:

**Methyltins**

**Butyltins**





**Octyltins**

- *Each family is further split in mono-alkyl and di-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

- *Most tin-based stabilisers were already registered by December 2010 (“Tier 1”) and June 2013 (“Tier 2”) through the Organotin REACH Consortium*

# Tin-based stabilisers: Classification & Labelling under CLP (GHS)

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

→ *always specify to which legislation “cat. 2” refers to avoid confusion. This is important because CMR cat. 2 (CLP) is not qualifying for the Authorisation route.*

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

# Tin-based stabilisers: CMR classifications

Stabiliser	CMR classifications (CLP) *	Remark
<i>Methyltins, mono</i>	<i>Reprotoxic cat. 2</i>	
<i>Methyltins, di</i>	<i>Reprotoxic cat. 2</i>	
<i>Butyltins, mono</i>	<i>None</i>	
<i>Butyltins, di</i>	<i>Reprotoxic cat. 1B</i>	<i>Restrictions in REACH Annex XVII for dibutyl tins</i>
<i>Octyltins, mono</i>	<i>None</i>	
<i>Octyltins, di</i>	<i>DOT (EHTG)2: Reprotoxic cat. 1B</i>	<i>Restrictions in REACH Annex XVII for dioctyl tins</i>

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

# *Tin-based stabilisers: restrictions in REACH Annex XVII*

---

- ***Dibutyltins are restricted in all applications since 1<sup>st</sup> January 2015.***
- ***Diocyltins 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 REACH Annex XVII / Com. Regulation EU 276/2010 in Official Journal of 31<sup>st</sup> March 2010*



- 
- 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 has completed the REACH registrations due in 2013 and is pursuing the work for the remaining ones for Tier 3**

# The VinylPlus Programme

- VinylPlus: the new ten-year Voluntary Commitment of the European PVC industry ([www.vinylplus.eu](http://www.vinylplus.eu))
- VinylPlus continues and expands the successful Vinyl 2010 programme founded in 2000 by ESPA and other actors in the PVC supply chain.
- Derived from the framework set-up by TNS\*
- It is built around 4 + 1 challenges →



\*TNS: The Natural Step – a non profit organisation founded in 1989 - [www.naturalstep.org](http://www.naturalstep.org)

# *The VinylPlus programme*

---

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

- 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.*
- TNS criteria: *a sound framework addressing the global aspect*
  - *indicates WHAT to measure, but ..... provides little info on HOW to measure*
- Existing schemes (e.g. Environmental Product Declarations – EPDs):
  - *Do provide clear methods on HOW to measure performance vs criteria*
  - *Do usually not cover ALL the aspects of the TNS criteria*
- NGOs expect to see the global picture addressed, not bits and pieces.
- Downstream users/customers are developing additional, well-established EPDs.
- The Additives Task Force *is developing an « EPDplus » scheme to address the aspects not covered in the existing EPD.*

- ***PVC stabilisers are present in a PVC compound at a low percentage only but they are crucial ingredients to produce articles and maintain their properties throughout their entire life cycle.***
- ***ESPA members are continuously adapting the stabilisers to address the new regulatory constraints, including REACH.***
- ***ESPA is contributing in a decisive way to address the challenge of sustainability of PVC through the Voluntary substitution of lead-based stabilisers and through its contribution to the VinylPlus Task Forces.***
- ***ESPA members are devoting important resources to R&D to supply performing solutions to the PVC chain.***

### APPLICATIONS

### FITTINGS

[Read More](#)

The stabiliser producers committed to substitute lead-based stabilisers in EU-28 by the end of 2015.

#### LEAD STABILISERS SUBSTITUTION

In the context of the Voluntary Commitment of the European PVC industry, VinylPlus, the stabiliser producers, ESPA, together with the downstream users, committed to substitute lead-based stabilisers in PVC in EU-28 by the end of 2015. Lead stabilisers are replaced by calcium-based stabilisers, which are used as an alternative.

**DAYS REMAINING TO COMPLETE THE COMMITMENT**

195 : 09 : 39 : 5<sup>6</sup><sub>7</sub>  
Days Hours Min. Sec.

[Read more](#)

#### APPLICATIONS

Stabilisers are added to PVC to allow its processing and to improve its resistance to external factors such as heat and sunlight (ultraviolet rays). Main applications are pipes and fittings, wire and cables, foamed sheets and profiles, rigid and semi-rigid films (packaging), construction sheets, flexible PVC, medical appliances, consumer goods (shoe soles, rubber boots, car interiors, ...) and coatings & flooring (tarpaulins, tents, gym floors, ...).

#### HIGHLIGHTS

5 JUNE 2015

VinylPlus Progress Report 2015 - Executive Summary

4 MAY 2015

VinylPlus Progress Report 2015

24 APRIL 2015

The Journey to a Lead-Free Stabilisers Industry in Europe

2 APRIL 2015

Stabilisers - What's new?

[Read more](#)

---

# Thank you for your attention



**Contact:** *Dr. Alain Cavallero, ESPA Secretary General – [aca@cefic.be](mailto:aca@cefic.be)*