
SESSION 2 : REVIEW OF STABILISER SYSTEMS

5.1 CADMIUM SYSTEMS WITH RESPECT TO RECYCLING

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**INTER-INDUSTRY WORKSHOP
ON PVC AND STABILIZERS**

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CADMIUM SYSTEMS

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CADMIUM STABILIZERS USED IN PVC

Cadmium stabilizers are used for PVC stabilization :

- **IN LIQUID FORM**
(Cd - 2 ethylhexanoate)
- **IN SOLID FORM**
(Cd - stearate, laurate)

Liquid stabilizers have been used primarily in flexible PVC.

Solid stabilizers have been used primarily in the rigid profile area.

EVOLUTION OF THE STABILIZER SYSTEMS

● FOR FLEXIBLE APPLICATIONS:

Ba / Cd / Zn

↓

Ba / Zn

↓

Ca / Zn

● FOR RIGID APPLICATIONS :

Ba / Cd

↓

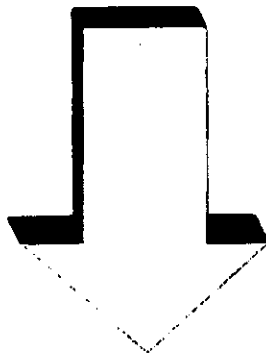
Ba / Cd / Pb

↓

Pb

EVOLUTION WAS TRIGGERED BY RESTRICTIVE LEGISLATION

- in ● **SWEDEN**
- **DENMARK**
- **HOLLAND**
- **SWITZERLAND**



EU DIRECTIVE 91/338

EU DIRECTIVE 91/338

BACKGROUND :

In 1991, the European Union (EU) adopted Directive 91/338 to harmonise restrictions on the use of certain cadmium products, including cadmium pigments, within the Community. The Directive was to be implemented progressively in phases according to the availability of substitutes for cadmium pigments.

The Directive is now due for review.

EU DIRECTIVE 91/338

The current provisions of the Directive are:

- **From 31st December 1992 cadmium were not to be used to give colour to a list of plastics for which a substitute was deemed to be feasible.**

e.g. PVC, LDPE...

- **From 31st December 1992 cadmium was not to be used as stabilizer for finished products from polymers or copolymers of vinyl chloride (except Cd as stabilizer in PVC window and door frames).**

- **From 31st December 1995 Cadmium pigments may not be used in a further group of plastics in which it was anticipated it may be possible to demonstrate satisfactory substitution by that date**

e.g. PP, PET

- **Cd pigments could be used in all other plastics where substitution is currently envisaged to be impractical.**

EU DIRECTIVE 91/338

Directive currently under review :

A number of EC meetings (Jul-Dec 95) called for following agenda :

- **Further phase-out of Cd as pigment for other plastics :**

e.g. **HDPE, ABS**
- **Facilitate recycling end-of life plastics containing Cd.**
- **Lower the Cd threshold below 0.01 % (100 ppm).**
- **Address Cd as stabilizers for PVC window frames.**

EU DIRECTIVE 91/338

To-date situation appears to be the following:

- **Further phase-out of Cd in other plastics : will not be addressed.**
- **Facilitate recycling end-of life plastics containing Cd : was addressed by the converting industry - DGIII and DG XI are looking at this issue.**
- **Lower Cd threshold value : will not be addressed.**
- **Phase-out of Cd in stabilizers for PVC window and door frames : EC considers risk assessments necessary for extension and for substitutes - will consequently not be addressed in new Directive.**

Directive will apply for 3 years with new review in 1998.

ELSA POSITION ON THE USE BAN DIRECTIVE ON CADMIUM

- **Industry acknowledge the requirement of the council resolution to substitute were feasible (whilst noting the lack of any full risk assessment for this particular use as is now required under the EU's programme on new and existing substances).**
- **Industry has spent resources and money in substituting cadmium in its uses as a PVC stabilizer → Only major use : window and other profiles used in construction.**
- **Profiles originally Ba/Cd stabilized shifted to Ba/Cd/Pb systems and more recently to Pb systems.**

- **Removal of cadmium from all stabilizers therefore seems practicable.**

- **This offer was made in the understanding that companies still using Cd can :**
 - * **confirm that they can move to all lead systems,**
 - * **detail time scales needed for certification of changed product.**