



European Semiconductor Industry Association

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1. Contact Information

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2. Area of Activity –

Industry Association

Please find attached a submission from the European Semiconductor Industry Association to the Oko-institut questionnaire.

3. Please indicate which substance the information provided in this document concerns:

The substances crossed below are semiconductor industry critical.

Substance	
Diisobutylphthalate (DiBP)	
Di-(2-ethylhexyl)phthalate (DEHP)	
Benzyl butyl phthalate (BBP)	
Di-n-butylphthalate (DBP)	
Hexabromocyclododecane (HBCDD)	
Dibromo-neopentyl-glycol	
2,3-dibromo-1-propanol (Dibromo-propanol)	
Tris(2-chloroethyl) phosphate (TCEP)	
Diethyl phthalate (DEP)	
MCCP (medium chained chlorinated paraffins), C14 – C17: alkanes, C14-17, chloro;	
Antimontrioxid	X
Tetrabromobisphenol A	X
Polyvinylchloride (PVC)	
Nickel sulphate	
Nickel bis(sulfamidate); Nickel sulfamate	X
Beryllium metal	X
Beryllium oxide (BeO)	X
Indium phosphide	X

ESIA is an Industry Association of:

ECCA : European Electronic Component manufacturers' Association

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Di-arsenic pentoxide; (i.e. Arsenic pentoxide; Arsenic oxide)	
Di-arsenic trioxide	
Cobalt dichloride	
Cobalt sulphate	
Cobalt metal	X
Nonylphenol*	

4. Applications in which substance is in use

a. Please provide information concerning products and applications in which the substance indicated in Question 3 is in use.

RoHS relates to the substances contained in the electronic and electrical equipment (EEE). ESIA responses are based on the table of 24 substances and what is contained in the end semiconductor device otherwise known as 'microchip' that goes into the EEE.

PVC: is not a substance used in semiconductor devices. It can be an issue for electronic industry (systems)

Antimony Trioxide and TBBPA are used as a flame retardant in the resin for semiconductor manufacturing and remain in final semiconductor device.

Beryllium oxide, indium phosphate and cobalt metal are used as primary constituent of the semiconductor device.

Beryllium metal are used in wires as an alloy element. Nickel sulfamate is used in plating.

b. In your answer please specify if application is relevant to EEE products and applications or not.

Substances are relevant to RoHS (electrical and electronic equipment) EEE products and applications.

c. Please elaborate if substitution of the substance indicated in Question 3 is already underway in some of these applications, and where relevant elaborate which chemical or technological alternatives may be relevant for this purpose.

These substances identified in answer to Q3 are semiconductor industry critical for applications.

Antimony Trioxide and TBBPA are already being removed, where possible, through the halogen free program aiming at reducing antimony trioxide and brominated flame retardants. The halogen free program is a voluntary and recognized program within the EEE industry. Where substitutions are not performed yet, it is linked to critical technology limits and reliability requirements.

Beryllium oxide, beryllium metal, indium phosphate and cobalt metal possess specific physical properties able to confer peculiar characteristics to the semiconductor devices, therefore they are essential cannot be substituted without changing the semiconductor behaviour.

5. Quantities ranges in which the substance is in use

a. Please provide information as to the ranges of quantities in which the substance indicated in Question 3 is applied in general and in the EEE sector.

Volume remains very difficult to ascertain for an end user industry sector. Generally quantities used in semiconductor devices are very low for the majority of the substances.

The semiconductor industry should not be categorised or confused with the wider electronic manufacturing or electronic equipment sectors. The semiconductor sector manufactures semiconductor devices (microchips). This sector is not the same as the much larger electronics sector or the electronic equipment manufacturing sector and it is not possible to use the terms or reference information interchangeably.

b. If substitution has begun or is expected to begin shortly, please estimate how the trend of use is expected to change over the coming years.

Low halogen products should eliminate PVC use at system level in the coming years.

For the Low halogen products (not containing TBBPA or subsequently Antimony Trioxide) although this is the current approach for new product designs, there exists some technologies that cannot be converted due to reliability / product performance requirements.

6. Further information and comments

a. The substance profiles made available on the consultation page have been pre-pared as a summary of the publicly available information reviewed so far. If relevant, please provide further information in this regard.

b. Please provide further information and documents that you believe to have additional relevance for this review, as well as references where relevant to support your statements. In case parts of your contribution are confidential, please clearly mark relevant text excerpts or provide your contribution in two versions (public /confidential).