

Royal Philips Electronics List of Relevant Substances in Products

This list is additional to the list of restricted substances in products. Use of these substances is allowed, but the content of these substances must be reported above the declaration threshold as specified in this list.

This or newer versions of the present list can be found at Philips website:

www.philips.com/about/sustainability/howwework/ourproductsandprocesses/chemicalsubstances.page

A: Relevant Substances in all applications (products, parts etc.)

Relevant Substances	Declaration threshold ppm (mg/kg) ¹
Antimony and Antimony compounds	1000
Arsenic and Arsenic compounds	1000
Barium and Barium compounds	1000
Bismuth and Bismuth compounds	1000
Bisphenol-A (see remark a and b) <ul style="list-style-type: none"> • Non-consumer products • Consumer products 	1000 50
Chlorinated and brominated organic compounds, other than mentioned in the Royal Philips Electronics List of Restricted Substances in products, e.g. PVC and bromine containing flame retardants (e.g. TBBPA, polychloronaphthalenes).	1000
Indium and Indium compounds	1000
Hexabromocyclododecane (HBCDD)	1000
Hexavalent Chromium (Cr 6+) and Cr (6+) compounds (see remark c)	1000
Lead and Lead compounds (see remark c and d)	1000
Magnesium	1000
Organic compounds as residual material in plastics (e.g. monomers and solvents such as acrylonitril, butadiene, epichlorohydrine, vinylchloride, isocyanate, toluene, xylene)	1000
Phenol, nonylphenol, nonylphenol ethoxylates and other phenolic compounds	1000
Phthalates (see remark e): <ul style="list-style-type: none"> • Bis(2-ethylhexyl)phthalate (DEHP) • Dibutyl phthalate (DBP) • Benzyl butyl phthalate (BBP) • di-"isononyl" phthalate (DINP) • di-"isodecyl" phthalate (DIDP) • di-n-octyl phthalate (DNOP) 	1000
Precious metals and their compounds: Gold, Palladium, Silver, Platinum	1000
Radioactive substances (see remark f)	Intentionally added
Selenium and Selenium compounds	1000
Short-chain chlorinated paraffins (SCCP) and Medium-chain chlorinated paraffins (MCCP) (Alkanes, C10-13 and C14-C17)	1000
Tantalum	1000
Tellurium and Tellurium compounds	1000
Thallium and Thallium compounds	1000
Trimethylphosphate and triphenylphosphine and other phosphor based flame retardants	1000

Most substances are placed on this list because of health risks in their use and/or processing. Magnesium and Bismuth are placed on this list because they limit copper recycling. Indium is placed on the list because of its scarcity. Precious metals and Tantalum are placed on this list, because they are important drivers for recycling and they have a high environmental and possibly social impact in mining.

- a. For Medical Devices no threshold value is given by Health Canada.
- b. Proposed restriction limit for consumer products in Norway: 50 ppm.

1. Content of substances with a concentration above these levels should be declared on component level. Substances are measured in homogeneous materials. (See Also Annex 3)

- c. Because these substances will be legally restricted for use in **Medical** Equipment in 01-01-2014 and are exempted in specific applications by legislation (e.g. lead soldering for automotive products, exemptions under ROHS), they have been added to this List for reporting purposes only. Hence, all uses of chemicals that are exempted by legislation including the European RoHS Directive also need to be reported here.
- d. The percentage of components and solder, which contain lead, needs to be reported for printed wiring board applications in **Medical Devices**.
- e. DEHP, BBP and DBP are also in Table B of Philips relevant substance list; all six phthalates are restricted in Philips in particular applications, see Royal Philips Electronics List of Restricted Substances at www.philips.com/about/sustainability/howwework/ourproductsandprocesses/chemicalsubstances.page
- f. Report in Megabecquerel (MBq) for each substance (e.g. Iodine 131, Krypton 85).

B: REACH Substances of Very High Concern in all applications (products, parts, etc.)

REACH Substances of Very High Concern ²	CAS number	Declaration threshold ppm (0.1% w/w) per article ³
1. Candidate list substances (status October 28, 2008)		
4,4'-Diaminodiphenylmethane (4,4'-Methylene-dianiline, MDA);	101-77-9	1000
Alkanes, C10-13, chloro- (Short Chain Chlorinated Paraffins) (see remark g)	85535-84-8	1000
Anthracene	120-12-7	1000
Diarsenic pentaoxide	1303-28-2	1000
Diarsenic trioxide	1327-53-3	1000
Benzyl butyl phthalate (BBP; see remark e)	85-68-7	1000
Bis (2-ethylhexyl)phthalate (DEHP) (see remark e)	117-81-7	1000
Bis(tributyltin)oxide (see remark g)	56-35-9	1000
Dibutyl phthalate (DBP; see remark e)	84-74-2	1000
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α - HBCDD, β -HBCDD, γ - HBCDD)	25637-99-4	1000
Lead hydrogen arsenate	7784-40-9	1000
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	1000
Cobalt dichloride	7646-79-9	1000
Sodium dichromate	7789-12-0	1000
Triethyl arsenate	15606-95-8	1000
2. Substances proposed to be submitted to the candidate list (current intentions; status January 1, 2009)		
Coal tar (various)	92061-94-4 90640-86-1 91995-42-5 91995-52-7 65996-93-2	1000
tris(2-chloroethyl)phosphate	115-96-8	1000
Arsenic and its salts (see Table A)	7440-38-2	1000

- g. Also in Table C and restricted in Philips in particular applications, see Royal Philips Electronics List of Restricted Substances at www.philips.com/about/sustainability/howwework/ourproductsandprocesses/chemicalsubstances.page

2. See also http://echa.europa.eu/chem_data/candidate_list_table_en.asp

3. Content of substances with a concentration above these levels should be declared on article level. (See also Annex 3) An article means an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition (REACH definition).

C: Substances identified as persistent, bioaccumulative, and inherently toxic to non-human organisms and believed to be in commercial use in Canada; batch VI substances⁴

Substances (see remark h)	CAS number	Declaration threshold ppm per article. ³
2-Naphthalenol, 1-[[4-(phenylazo)phenyl]azo]-	85-86-9	Intentionally added
2-Naphthalenol, 1-[(2-methoxyphenyl)azo]-	1229-55-6*	Intentionally added
2,7-Naphthalenedisulfonic acid, 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)-, disodium salt	1937-37-7*	Intentionally added
2-Naphthalenol, 1-[(2,4-dimethylphenyl)azo]-	3118-97-6*	Intentionally added
Phenol, 4-[[4-(phenylazo)phenyl]azo]-	6250-23-3*	Intentionally added
Phenol, 4-[[4-(phenylazo)-1-naphthalenyl]azo]-	6253-10-7*	Intentionally added
Phenol, 2-methyl-4-[[4-(phenylazo)phenyl]azo]-	6300-37-4*	Intentionally added
2,7-Naphthalenedisulfonic acid, 3-[[2,2'-dimethyl-4'-[[4-[[4-methylphenyl)sulfonyl]oxy]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-4-hydroxy-, disodium salt	6358-57-2	Intentionally added
1-Naphthalenol, 4-[[4-ethoxyphenyl]azo]-	6535-42-8	Intentionally added
Butanamide, 2,2'-[(3,3'-dimethoxy[1,1'-biphenyl]-4,4'-diyl)bis(azo)]bis[N-(2-methylphenyl)-3-oxo-	7147-42-4*	Intentionally added
Phenol, 4-[[2-methoxy-4-[(4-nitrophenyl)azo]phenyl]azo]	19800-42-1	Intentionally added
Phenol, 4,4'-[1,4-phenylenebis(azo)]bis-	21811-64-3*	Intentionally added
Phenol, 4-[[2-methoxy-4-[(2-methoxyphenyl)azo]-5-methylphenyl]azo]-	93805-00-6*	Intentionally added
Methane, chloro	74-87-3	Intentionally added
Benzene, (chloromethyl)	100-44-7	Intentionally added
1-Propene, 3-chloro-	107-05-1	Intentionally added
1,2-Benzenedicarboxylic acid, bis(2-methoxyethyl) ester	117-82-8	Intentionally added
1,2-Benzenedicarboxylic acid, di-C ₇₋₁₁ -branched and linear alkyl esters	68515-42-4	Intentionally added
1,2-Benzenedicarboxylic acid, diundecyl ester	3648-20-2	Intentionally added
1,2-Benzenedicarboxylic acid, diheptyl ester, branched and linear	68515-44-6	Intentionally added
1,2-Benzenedicarboxylic acid, dinonyl ester, branched and linear	68515-45-7	Intentionally added
1,2-Benzenedicarboxylic acid, heptyl nonyl ester, branched and linear	111381-89-6	Intentionally added
1,2-Benzenedicarboxylic acid, heptyl undecyl ester, branched and linear	111381-90-9	Intentionally added
1,2-Benzenedicarboxylic acid, nonyl undecyl ester, branched and linear	111381-91-0	Intentionally added

h. Declaration is not needed for Philips Healthcare and Lighting

3. Content of substances with a concentration above these levels should be declared on article level. (See also Annex 3) An article means an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition (REACH definition).

4. See also: <http://www.chemicalsubstanceschimiques.gc.ca/en/>

D. Substances proposed restricted in Consumer products in Norway

Substances (see remark i)	CAS number	Declaration threshold ppm (mg/kg) ¹
Lead and lead compounds	See Annex 2, Philips restricted substance lists	100
Musk xylene	81-15-2	500
Perfluorinated compound PFOA	335-67-1	50
Triclosan (2,4,4'-trichloro 2'-hydroxy diphenyl ether)	3380-34-5	10

- i. Other substances also restricted in consumer products in Norway, which already are mentioned elsewhere in the Philips restricted and relevant lists are:
- Arsenic and arsenic and their compounds 0.1% by weight (see Table A, Philips relevant substance list)
 - Bisphenol A 0.005% by weight (see Table A, Philips relevant substance list)
 - Brominated flame retardant HBCDD 0.1% by weight (see Table B, Philips relevant substance list)
 - Cadmium and cadmium compounds 0.01% by weight (see Table A, Philips restricted substance list)
 - Chlorinated paraffins 0.1% by weight (see Table B, Philips relevant substance list and Table C Philips restricted substance list)
 - Pentachlorophenol 0.1% by weight (see Table A, Philips restricted substance list)

Declaration only needed for consumer products.

1. Content of substances with a concentration above these levels should be declared on component level. Substances are measured in homogeneous materials. (See also Annex 3)

ANNEX 1 – Revision History

Date Revision	Short Explanation
1-1-2009	<ul style="list-style-type: none"> • Phthalates, Phenols and phenolic compounds, Bisphenol-A, short and medium chain chlorinated paraffins and Tantalum were added to Table A. These substances are candidates for new ROHS legislation or are restricted in certain applications in the Philips restricted substance list. • Dates for EU-ROHS were changed for Medical Devices. • REACH SVHCs were added as Table B. • Health Canada batch VI substances were added as Table C. • Norway ROHS substances for consumer products were added as Table D. • Annex 1 is added with the revision history. • Annex 2 is added with a declaration Table for Philips Electronics Relevant Substances. • Annex 3 is added with an explanation on homogeneous and article product declaration.

ANNEX 2 – Declaration Table for Philips Electronics Relevant Substances**ROYAL PHILIPS LIST OF RELEVANT SUBSTANCES IN PRODUCTS**

Philips Requirements	Do you meet the Philips Requirements? (Yes or No)	If “No”, indicate Relevant Substance content in homogeneous material (ppm) or article level by part number <i>(see remark j)</i>
Products delivered to Philips do NOT contain Relevant Substances above Threshold/Declaration Level		

- j. See Tables A-D for declaration thresholds on homogeneous material level and article level. See also Annex 3 for an explanation of declaration on homogeneous material level and article level.

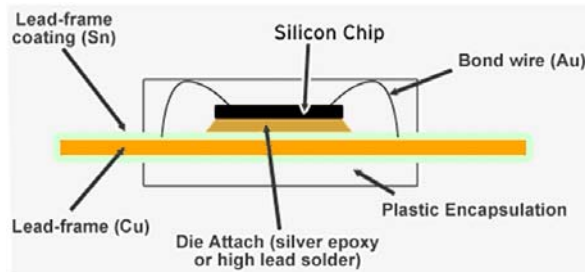
ANNEX 3 – Explanation of difference between declaration on homogeneous material level and article level**“Homogeneous material” (EU RoHS) versus
“Article level” (EU REACH)**

Figure 1: material break down of a integrated Circuit (IC)

Substance X <0,1% at Homogenous Material level:

- Plastic Encapsulation < 0,1%
- Lead frame < 0,1%
- Lead frame coating < 0,1%
- Die Attach < 0,1%
- etc.

Substance X <0,1% at Article level:

Lead frame coating + Silicon chip + Bond wire + Die attach + Plastic encapsulation + etc. < 0,1%

Note that some materials within the article may contain higher levels (>0.1%), but the total content of the complete article should be taken into consideration to calculate overall concentration of substance X in this article