



ON Semiconductor is committed to restricting the use of substances known to be hazardous to human health and the environment.

Based upon information collected from ON Semiconductor's supply chain, manufacturing facilities and affiliates worldwide, below is a list of some of the more prevalent substances that the company declares are not present or intentionally added to ON Semiconductor products. Included in the list are regulations or directives that ON Semiconductor products are compliant to.

Asbestos

Beryllium

Mica

Graphite (CAS No 7782-42-5)

Ozone Depleting Substances

Phosphorus

Phthalates⁴

California Proposition 65⁹

Canadian Environmental Protection Act 1999¹

International Electrochemical Commission's (IEC) Definition of Halogen-Free²

Norwegian Product Regulations and the Norwegian Product Control Act

Organostannic (organotin) Compounds (Annex XVII to REACH)³

POP's (Persistent Organic Pollutants - EC Regulation No. 850/2004)

REACH (Registration, Evaluation, Authorization and Restriction of Chemical substances)⁵

RoHS Directive – Amended⁶

China RoHS⁷

REACH Candidate list of Substances of Very High Concern (SVHC)⁸

EU Regulation No 528/2012 for Biocides

Latex

End of Life Vehicles Directive 2000/53/EC

Radionuclide Substances¹⁰



¹ The Company hereby declares that substances listed in the Canadian Environmental Protection Act 1999 are restricted from ON Semiconductor products. The toxic substances of concern include:

Substance
Hexabromocyclododecane (HBCDD)
Perfluorooctanoic acid, its salts, and its precursors (PFOA)
Long-chain perfluorocarboxylic acids, its salts, and their precursors (LC-PFCAs)
Polybrominated diphenyl ethers (PBDEs)
Perfluorooctane sulfonate, its salts and its precursors (PFOS)

² ON Semiconductor products that are labeled as Halogen Free are RoHS-compliant and the homogenous materials in those products do not contain the substances listed in the table below in concentrations greater than the listed maximum limit value (halogen concentration limits are consistent with those defined in IEC 61249-2-21).

Substance	Maximum Limit
Bromine	900 ppm
Chlorine	900 ppm
Total Bromine + Chlorine	1500 ppm
Antimony Trioxide	900 ppm

³ The Company hereby declares that Dibutyltin, Dioctyltin and Tri-substitued Organostannic compounds are restricted from ON Semiconductor products. The substances of concern include:

Substance	CAS numbers
Dibutyltin Oxide	818-08-6
Dibutyltin diacetate	1067-33-0
Dibutyltin dilaurate	77-58-7
Dibutyltin maleate	78-04-06
Dioctyltin oxide	870-08-6
Dioctyltin dilaurate	3648-18-8
Tributyltin bromide	1461-23-0
Bis(Tributyltin) oxide (TBTO)	56-35-9
Tributyltin acetate	56-36-0
Tributyltin laurate	3090-36-6
Tributyltin fluoride	1983-10-4
Triphenyltin	668-34-8
Triphenyltin chloride	639-58-7
Triphenyltin hydroxide	76-87-9
Triphenyltin acetate	900-95-8
Triphenyltin fluoride	379-52-2
Triphenyltin fluoride (fentin fluoride)	1803-12-9
Triphenyltin fluoride (fentin fluoride)	18380-71-7



⁴ Phthalates listed in the table below are not intentionally used in the manufacture of products marketed under the ON Semiconductor brand:

Substance	CAS numbers
Bis(2-Ethylhexyl) Phthalate (DEHP)	117-81-7
Bis (2-methoxyethyl) phthalate (DMEP)	117-82-8
Dibutyl Phthalate (DBP)	84-74-2, 201-557-4
Benzyl Butyl Phthalate (BBP)	85-68-7
Diethyl phthalate (DEP)	84-66-2
Dimethyl phthalate (DMP)	113-11-3
Diisobutyl Phthalate (DIBP)	84-69-5
Diisononyl phthalate (DINP)	28553-12-0, 68515-48-0
Di-n-isodecyl phthalate (DIDP)	26761-40-0, 68515-49-1
Di-n-hexyl phthalate (DnHP)	84-75-3
Di-n-octyl phthalate (DNOP)	117-84-0
1,2 Benzenedicarboxylic acid, di-C6-8 branched alkyl esters, C7-rich	71888-89-6
1,2 Benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters	68515-42-4
Bis(2-methoxyethyl) phthalate	605-50-5
1,2 Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0
N-pentyl-isopentylphthalate	776297-69-9
Dipentyl phthalate	131-18-0



⁵ European Union Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) was entered into force on June 1, 2007. ON Semiconductor agrees with the purpose of REACH, which is to ensure a high level of protection of human health and the environment. ON Semiconductor is compliant with all applicable requirements of REACH and upon request will provide information regarding the chemical composition of its products.

ON Semiconductor is neither a manufacturer or importer of mixtures into EEA and therefore the registration requirements of REACH do not apply to us. It is expected that any electronic materials manufacturer that uses mixtures from EEA in their products will ensure compliance with REACH registration requirements.

Product (articles) manufacturers or importers into EEA are obligated under article 33 of REACH to inform recipients of any articles that contain chemicals on the Substances of Very High Concern (SVHC) candidate list above a 0.1% concentration (by weight per article). If this contains substances on the REACH SVHC candidate list (as published by the ECHA on the following publication dates) in concentrations greater than 0.1%, the SVHC will be listed in the Homogenous Material Declaration Composition listed above:

October 28, 2008; January 13, 2010; March 30, 2010; June 18, 2010; December 15, 2010; June 20, 2011; December 19, 2011; June 18, 2012*; December 19, 2012; June 20, 2013; December 16, 2013; June 16, 2014; December 17, 2014; June 15, 2015; December 17, 2015; June 20, 2016; January 12, 2017; July 7, 2017; January 15, 2018; June 27, 2018, January 15, 2019.

Products manufactured by ON Semiconductor are compliant with the 'Conditions of Restriction' listed in REACH, Annex XVII.

ON Semiconductor continues to monitor the developments of REACH and is committed to meeting our responsibilities as an environmentally-responsible company. Please refer to the web site below for additional information regarding SVHC:

[ECHA European Chemical Agency](#)

* Diboron trioxide was added to REACH Annex XIV as a Substance of Very High Concern(SVHC) on June 18, 2012 and Lead monoxide (lead oxide) was added on December 19, 2012. ON Semiconductor products in glass encapsulated packages may list Diboron trioxide and/or lead oxide as a constituent material in the glass encapsulation, in a concentration greater than 0.1%; REACH classifies; glass as a substance of unknown or variable composition, complex reaction products or biological matter (UVCB) containing the elements silica, calcium, sodium, potassium, magnesium and other cautions bonded together with oxygen. In glass, these elements are bonded into a non crystalline molecular structure with completely different properties than the starting material. Therefore Diboron trioxide and lead oxide is not present in the finished ON Semiconductor product and does not require notification of the presents of a SVHC.

**Lead, which was added to the REACH Annex XIV as a Substance of Very High Concern(SVHC) on June 27, 2018, may be contained in some of ON SEMICONDUCTOR products. In such cases the lead is RoHS exempted with 7a (lead in high melting temperature type die attach solders), 7c (lead in glass or ceramic) or 15a (Lead in solders to complete a viable electrical connection between the semiconductor die and carrier within integrated circuit flip chip packages).



⁶ ON Semiconductor products and the homogenous materials in the products are compliant with the Commission Delegated Directive (EU) 2015/863 of 31 March 2015, amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards to the list of restricted substances (RoHS). Specifically, products manufactured by ON Semiconductor do not contain the substances listed in the table below in concentrations greater than the listed maximum limit value.

Substance	Maximum Limit (ppm)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr ⁶⁺)	1000
Poly Brominated Biphenyls (PBB)	1000
Poly Brominated Diphenyl ethers (PBDE)	1000
Bis(2-ethylhexyl) phthalate (DEHP) (0,1 %)	1000
Butyl benzyl phthalate (BBP)	1000
Dibutyl phthalate (DBP)	1000
Diisobutyl phthalate (DIBP)	1000

Maximum limit does not apply to applications for which exemptions have been granted by the RoHS directive Recast.

⁷ With the possible exception of lead ON Semiconductor product and all homogeneous materials in the product comply with the China RoHS standard SJ/T 11364.

⁸ For ON Semiconductor's full statement on the SVHC list go to http://www.onsemi.com/site/pdf/REACH_statement.pdf.

⁹ As part of ON Semiconductor's product stewardship, we continuously monitor the safety, health and environmental regulations' impact on the usage of products we manufacture.

California Proposition 65 is known as the Safer Drinking Water and Toxic Enforcement Act of 1986. In 2016, the proposition was amended requiring businesses to provide Clear and Reasonable warnings to people in the State of California about chemicals known to cause cancer, birth defects or other reproductive issues. The warning requirement is based on exposure and not chemical total content. It is, therefore, possible for a product to meet federal standards but still require a clear and reasonable warning.

Certain ON SEMICONDUCTOR's products and evaluation kits may contain one or more chemicals listed in California Proposition 65. These chemicals are embedded in the homogeneous material and are not intended to expose any person during normal product use. Accordingly, the Prop 65 "clear and reasonable" warnings requirements do not apply to ON SEMICONDUCTOR products and evaluation kits.

ON Semiconductor Take-back and Recycle Program provides ON Semiconductor customers with an environmentally responsible solution for the return, recycling and disposal of its products, including its evaluation printed circuit boards. This measure is offered to customers in order to prevent the environment from the possible release of chemicals after the end –of – life of our products.

Material composition declarations of ON SEMICONDUCTOR manufactured products are available at www.onsemi.com/PowerSolutions/MaterialComposition.do



¹⁰Radionuclide substances listed in the table below are not intentionally used in the manufacture of products marketed under the ON Semiconductor brand:

Substance	CAS Number
Cesium	7440-46-2
Cobalt	7440-48-4
Iodine	7553-56-2
Plutonium	7440-07-5
Radium	7440-14-4
Radon	10043-92-2
Strontium	7440-24-6
Thorium	7440-29-1
Uranium	7440-61-1



The signature below is of the Company staff with delegated product chemical substance compliance and has responsibility to verify that to the best of our knowledge the statements above are valid and accurate.

A handwritten signature in blue ink, appearing to read "J. Vavro".

Date: September 25, 2019

Jozef Vavro
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ENVIRONMENTAL DISCLAIMER

The content of this document is based upon information collected from ON Semiconductor's supply chain, manufacturing facilities and affiliates worldwide. Providing for limitations below, ON Semiconductor certifies that the information provided in this document is correct as of the date indicated on this page.

ON Semiconductor has implemented systems to ensure our products are compliant to environmental regulations and laws worldwide. However, not all materials in ON Semiconductor's products may have been independently verified regarding substance content. In the event of any issues arising from information in this document, the warranty section of ON Semiconductor's standard terms and conditions of sale shall apply, unless alternate contracts have been agreed upon in writing by both parties.