

List of SSMC Banned Materials with Restriction to Use

Internal

Products (materials, parts, (semi-)finished goods, subassemblies) and Packaging delivered to and used in SSMC products must be free of "Hazardous Substances" at levels above our established threshold levels.

Category A: Prohibited Substances

The intentional use of following substances is prohibited for all applications. SSMC does not allow its intentional use under the conditions as set by our objectives and scope. SSMC accepts impurities of substances in naturally occurring amount and/or amounts generated via synthesis which cannot be avoided and where removal is not feasible.

S/N	Substance	CAS #	SSMC Threshold (ppm)	Scope
A1	Amines - Specific	NA	100	All materials
A2	Aniline and its salts	NA	100	All materials
A3	Antimony Trioxide	1309-64-4	1000	All materials
A4	Asbestos and its compounds	1332-21-4 Several	Intentionally added	Wafer and bump process raw materials, packaging materials
A5	Azo-Based Materials	NA	Intentionally added	Wafer and bump process raw materials, packaging materials
A6	Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene (BNST)	68921-45-9	Non-use	All materials
A7	Benzidine compounds and salts	NA	30	All materials
A8	Beryllium	7440-41-7 Several	1000	All materials
A9	Biocides - Specific	NA	0.01	All materials
A10	Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	1000	Wafer and bump process raw materials, packaging materials, product shipping packaging materials
A11	Butyl benzyl phthalate (BBP)	85-68-7	1000	Wafer and bump process raw materials, packaging materials, product shipping packaging materials

List of SSMC Banned Materials with Restriction to Use

Internal

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A12	Cadmium and its compounds	7440-43-9	5	All materials
A13	Chlorinated Hydrocarbons (CHCs) (C chain < 10 C)	NA	0.1	All materials
A14	Chlorinated Paraffins (C chain > 10 C)	NA	0.1	All materials
A15	Chlorofluorocarbons (CFCs)	NA	0.1	All materials
A16	Chromium VI and its compounds	NA	100	All materials
A17	Class I and II Ozone Depleting Substances	Several	0.1	All materials
A18	Cyanide compounds - Specific	NA	0.1	All materials
A19	Dibutyl phthalate (DBP)	84-74-2	1000	Wafer and bump process raw materials, packaging materials, product shipping packaging materials
A20	Diisobutyl phthalate (DIBP)	84-69-5	1000	Wafer and bump process raw materials, packaging materials, product shipping packaging materials
A21	Dibutyltin (DBT)	1002-53-5 several	1000	All materials
A22	Dioctyltin (DOT)	1002-53-5 several	1000	All materials
A23	Dimethylfumarate (DMFu)	624-49-7	0.1	All materials
A24	Dioxins and Furans	NA	0.1	All materials
A25	Expanded Polystyrene	NA	Not Used	All materials
A26	Formaldehydetoluene	50-00-0	300	All materials
A27	Glycol Ethers and Acetates - Specific	NA	1	All materials

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S/N	Substance	CAS #	SSMC Threshold (ppm)	Scope
A28.1	Halogen Free (Chlorine)	7782-50-5 Several	900	All materials
A28.2	Halogen Free (Bromine)	7726-95-6 Several	900	All materials
A28.3	Halogen Free (Chlorine + Bromine)	7726-95-6 7782-50-5 Several	1500	All materials
A29	Halogenated Benzenes	NA	10	All materials
A30	Halogenated Compounds - Specific	NA	100	All materials
A31	Halogenated Dioxins and Furans	NA	0.001	All materials
A32.1	Halogenated Diphenyl Methanes	76253-60-6 81161-70-8 99688-47-8	1000	All materials
A32.2	Halogenated Diphenyl Methanes (Br / Cl)	76253-60-6 81161-70-8 99688-47-8	900	All materials
A33	Halons	NA	0.1	All materials
A34	Hexabromocyclododecane (HBCDD)	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	Non-use	All materials
A35	Hexavalent Chromium (Cr(VI), Cr6+) Hexavalent Chromium compounds	18540-29-9	500	All materials
A36	Hydrobromofluorocarbons (HBFCs)	NA	0.1	All materials
A37	Hydrochlorofluorocarbons (HCFCs)	NA	0.1	All materials

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Internal

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A38	Hydrofluorocarbons (HFCs)	NA	0.1	All materials
A39	Illegally sourced wood and wild plant material & Endangered Flora and Fauna	NA	Not Used	All materials
A40	Inorganic compounds - Specific	NA	100	All materials
A41	Isocyanates - Specific	NA	100	All materials
A42	Lacey Act and EU Timber Regulation	NA	Non-use	All materials
A43	Lead and its compounds	NA	20	Non-metallic materials Except: Lead applications exempt by EU Directive 2011/65/EU (RoHS), or EU Directive 2000/53/EC (ELV), and their amendments
A44	Mercury and its compounds	7439-97-6	2	All materials
A45	Methyl-phenol compounds	95-48-7 106-44-5 108-39-4 1319-77-3	10	All materials
A46	Nitride separating substances	NA	100	All materials
A47	Nitrosamines - Specific	NA	0.1	All materials
A48	Non-Halogenated Organic Compounds - Specific	NA	0.1	All materials
A49	Nonyl Phenols (NPs) & Octyl Phenols (OPs) and their ethoxylates (NPEs & OPEs)	NA	0.1	All materials
A50	Organic Tin compounds - Specific	NA	0.1	All materials

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A51	Ozone Depleting Chemicals (ODC)	NA	No intentional use	All manufacturing processes
A52	Pentachlorophenol salts, esters and compounds	NA	5	All materials
A53	Perchlorates	7601-89-0 7778-74-7 7790-98-9 7791-03-09 10034-81-8	0.1	All materials
A54	Perfluorocarbon compounds (PFCs)	NA	1	All materials
A55	Perfluorooctanoic acid (PFOA)	335-67-1	Intentionally added	Wafer and bump process raw materials, packaging materials
A56	Perfluorooctyl sulfonates (PFOS)	1763-23-1 Several	Intentionally added	Wafer and bump process raw materials, packaging materials
A57	Phenols - Specific	NA	10	All materials
A58	Phosphorus compounds - Specific	NA	100	All materials
A59	Phthalates - Specific	NA	100	All materials
A60	PolyBrominated Biphenyls (PBBs)	59536-65-1 Several	10	All materials
A61	PolyBrominated DiphenylEthers (PBDEs)	1163-19-5 Several	10	All materials
A62	PolyBrominated Terphenyls (PBTs)	NA	0.1	All materials
A63	Polychlorinated Biphenyls (PCB's)	1336-36-3	Intentionally added	Wafer and bump process raw materials, packaging materials
A64	PolyChlorinated DiphenylEthers (PCDEs)	NA	0.1	All materials
A65	PolyChlorinated Naphthalenes (PCN)	70776-03-3	0.1	All materials

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A66	PolyChlorinated Terphenyls (PCT)	61788-33-8	0.1	All materials
A67.1	Polyvinyl chloride (PVC)	Several	Intentionally added	Packaging materials, product shipping packaging materials
A67.2	Polyvinyl Chloride (PVC) (Cl)	9002-86-2	900	All materials
A68	Radioactive Substances	Several	Intentionally added	Wafer and bump process raw materials, packaging materials
A69	REACH Annex XVII (Check the ECHA website for the individual restrictions at https://echa.europa.eu/substances-restricted-under-reach)	NA	As applicable	All materials
A70	Selenium and its compounds	NA	100	All materials
A71	Sulfur (S)	7704-34-9	20	Product package
A72	Tar Oils and Creosotes	NA	5	All materials
A73.1	Tetrabromobisphenyl A (TBBA, TBBPA) (Br)	79-94-7	900	All materials
A73.2	Tetrabromobisphenyl A (TBBA, TBBPA) (Cl + Br)	NA	1500	All materials
A74	Tributyl Tin, Triphenyl Tin and oxides	688-73-3 668-34-8 Several	Intentionally added	Wafer and bump process raw materials, packaging materials
A75	Trichloroethylene	NA	Intentionally added	Wafer and bump process raw materials, packaging materials
A76	TVOC (toluene, benzene, formaldehyde, phosphine) (108-88-3 71-43-2 50-00-0 7803-51-2	10000	All materials
A77	Uncategorized prohibited substances	NA	1000	All materials

Category B: Restricted Substances

The intentional use of following substances is restricted. SSMC allows its intentional use only for specific applications under the conditions as set by our objectives and scope. SSMC accepts impurities of substances in naturally occurring amount and/or amounts generated via synthesis which cannot be avoided and where removal is not feasible.

S/N	Substance	CAS #	SSMC Threshold (ppm)	Scope
B1	Aldehydes	NA	0.05	Wood Packaging Materials
B2	Antimony Oxides	NA	900	Antimony Oxide Free Materials
B3	Arsenic	7440-38-2	2	Wood products
B4.1	Arsenic compounds	7440-38-2 Several	50	All other materials except semiconductors (substrates and dopants) and metal alloys
B4.2	Arsenic compounds	7440-38-2 Several	1000	Metals only
B5	Benzene	71-43-2	Non-use	Cleaning agents, degreasers, demolder solutions in all manufacturing processes
B6	Beryllium Dust and Fumes (Breathing Zone)	7440-41-7	0.001	Connector contacts, EMI finger (beryllium-copper alloys), transceivers (beryllium oxide)
B7	Bisphenol A	2080-05-07	10	All new materials
B8	Chlorinated Organic Solvents	7782-50-5 Several	Non-use	Cleaning agents, degreasers, demolder solutions in all manufacturing processes
B9	Chlorine Chlorinated compounds (Must be Elemental Chlorine Free (ECF), Totally Chlorine Free (TCF) or Process Chlorine Free (PCF))	NA	Non-use	Fiber-based packaging
B10	Cobalt and its compounds	NA	100	All applications in direct and prolonged skin contact. Printed Circuit Boards (PCBs) laminates.

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S/N	Substance	CAS #	SSMC Threshold (ppm)	Scope
B11	Cyanide compounds	NA	10	Packaging Materials
B12	Halogenated compounds	NA	900	Halogen-Free Materials
B13	Heavy Metals (Cd + Cr (VI) + Hg + Pb)	7440-43-9 18540-29-9 7439-97-6 7439-92-1	100	Packaging
B14	Lead and its compounds	7439-92-1	100	All metallic materials Except: Lead applications exempt by EU Directive 2011/65/EU (RoHS), or EU Directive 2000/53/EC (ELV), and their amendments
B15	Methylhexahydrophthalic anhydride	25550-51-0	1000	All new materials
B16	Natural Rubber (Latex)	NA	100	All materials Except: Photodiodes
B17	n-Hexane	110-54-3	Non-use	Cleaning agents, degreasers, demolder solutions in all manufacturing processes
B18.1	Nickel and its compounds	7440-02-0 Several	100	All applications in direct and prolonged skin contact. Printed Circuit Boards (PCBs). For nickel in surface preparations of products intended to come into direct and prolonged contact with the skin: Nickel ion release rate < 0.28 µg/cm ² /week using test method EN1811:2011.
B18.2	Nickel and its compounds	7440-02-0	0.28 µg/cm ² /week leach rate	Parts with direct and prolonged skin contact

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Internal

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B19	N-methylpyrrolidone (NMP)	872-50-4	Non-use	Cleaning agents, degreasers, demolder solutions in all manufacturing processes
B20	n-Propyl Bromide (nPB)	106-94-5	Non-use	Cleaning agents, degreasers, demolder solutions in all manufacturing processes
B21.1	Polycyclic Aromatic Hydrocarbons (PAHs) (Individually)	Several	1	External materials
B21.2	Polycyclic Aromatic Hydrocarbons (PAHs) (Sum of total PAHs)	Several	10	External materials
B21.3	Polycyclic Aromatic Hydrocarbons (PAH; PCAH) - Specific	Several	0.1	All Materials Except: Naturally occurring impurities of less than 100 ppm
B22	REACH Candidate List of SVHCs	NA	1000	All Materials
B23	Small Mineral and Ceramic Fibers	NA	0.1	All Materials Except: Glass Reinforced Plastics (GRP's) in Printed Circuit Boards and Die Encapsulations.
B24	Substances that may cause skin sensitization	NA	1000	Printed Circuit Boards laminates Packaging Materials - All applications in direct and prolonged skin contact Except: Rosin (Colophony)
B25	Toluene	108-88-3	Non-use	Cleaning agents, degreasers, demolder solutions in all manufacturing processes

Category C: Declarable Substances

The intentional use of following substances is declarable. SSMC allows its intentional use only for specific applications under the conditions as set by our objectives and scope. SSMC accepts impurities of substances in naturally occurring amount and/or amounts generated via synthesis which cannot be avoided and where removal is not feasible.

S/N	Substance	CAS #	SSMC Threshold (ppm)	Scope
C1	Acrylates	NA	100	All materials
C2	Acrylonitrile compounds	NA	100	All materials
C3	Additive Phosphorous Flame Retardants	7723-14-0 Several	1000	Plastics, printed circuit boards
C4	Aldehydes Product materials	NA	100	Product materials
C5	Aliphatic Amines	NA	100	All materials
C6	Aluminum and its compounds	NA	100	All materials
C7	Aminoethyl ethanolamine	111-41-1	Detectable levels	Paints, lacquers, varnishes, textiles, corrosion inhibitors
C8	Anhydrides	NA	100	All materials
C9	Antimony and its compounds	7440-36-0 Several	100	All materials
C10	Aromatic amines and their salts	NA	100	All materials
C11	Aromatic hydrocarbon compounds	NA	100	All materials
C12	Azo compounds	NA	100	All materials
C13	Barium and its compounds	NA	100	All materials
C14.1	Benzene (In wet formulation)	71-43-2	100	Solvents in paints, coatings, inks, adhesives, primers
C14.2	Benzene (Content)	71-43-2	Detectable levels	All manufacturing processes

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C15	Biocides https://echa.europa.eu/regulations/biocidal-products-regulation/understanding-bpr	Several	Detectable levels. Treated articles must use biocides that are approved or under review	Additive in polymers, leather, other coated materials
C16	Bismuth and its compounds	NA	100	All materials
C17	Bisphenol F Bisphenol S	620-92-8 2467-02-09 1333-16-0 1980-09-01	100	Adhesives, plastics, epoxy resin
C18	Boron and its compounds	NA	100	All materials
C19	Brominated Flame Retardants (excluding banned groups)	Na	100	All materials
C20	Brominated Organic Solvents (Content)	Na	Detectable levels	All manufacturing processes
C21	Calcium and its compounds	NA	100	All materials
C22.1	Chlorinated Organic Solvents (In wet formulation)	NA	1000	Solvents in paints, coatings, inks, adhesives, primers
C22.2	Chlorinated Organic Solvents (Content)	NA	Detectable levels	All manufacturing processes
C23	Chromium and Chromium III compounds	NA	100	All materials
C24	Clay	NA	100	All materials
C25.1	Cobalt and its Compounds	7440-48-4	1000	Moisture indicator, additive in rubber, cobalt alloys
C25.2	Copper and its compounds	NA	100	All materials
C26	Cyanide compounds Product materials 100 ppm	NA	100	Product materials

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S/N	Substance	CAS #	SSMC Threshold (ppm)	Scope
C27	Diphenylamines, Substituted (SDPA)	NA	Detectable levels	Antioxidants used in adhesives, resins, polymer coatings, paper products
C28	Endocrine Disrupting Chemicals (EDCs)	NA	Detectable levels	All materials
C29	Epoxy Resins	NA	100	All materials
C30	Ferrosilicon and its compounds	NA	100	All materials
C31	Germanium and its compounds	NA	100	All materials
C32	Glycidyl ethers	NA	100	All materials
C33	Gold and its compounds	NA	100	All materials
C34	Guanidine compounds	NA	100	All materials
C35	Halogenated Inorganic Compounds	NA	100	All materials
C36	Halogenated Organic Compounds	NA	100	All materials
C37	IEC 62474 Substances http://std.iec.ch/iec62474	NA	Various, as required by standard	All materials
C38	Imidazole compounds	NA	100	All materials
C39	Indium and its compounds	NA	100	All materials
C40	Inorganic compounds	NA	100	All materials
C41	Inorganic Silicon compounds	NA	100	All materials
C42	Iron and its compounds	NA	100	All materials
C43	Isocyanates	NA	100	All materials
C44	Isothiazolinones	NA	100	All materials
C45	Magnesium and its compounds	NA	100	All materials

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S/N	Substance	CAS #	SSMC Threshold (ppm)	Scope
C46	Manganese and its compounds	NA	100	All materials
C47	Molybdenum and its compounds	NA	100	All materials
C48.1	Nanomaterials	Several	Detectable levels	Silver nanoparticles, carbon nanotubes and graphene, nano-scale cerium dioxide, nano titanium dioxide, nano-scale iron, nanometer-sized copper particles
C48.2	Nanomaterials	NA	100	All materials
C49	n-Hexane (Content)	110-54-3	Detectable levels	All manufacturing processes
C50	Nitrates and Nitrites	NA	100	All materials
C51	Nitrosamines	NA	100	All materials
C52	N-methylpyrrolidone (NMP) (Content)	872-50-4	Detectable levels	All manufacturing processes
C53.1	n-Propyl Bromide (nPB)	106-94-5	100	Cleaning solvent and used as an intermediate in the synthesis of quaternary ammonium compounds. Also used as a solvent in adhesive sprays
C53.2	n-Propyl Bromide (nPB) (Content)	106-94-5	Detectable levels	All manufacturing processes
C54	Organic compounds	NA	100	All materials
C55	Organic Phosphorus compounds	NA	100	All materials
C56	Organic Silicon compounds	NA	100	All materials
C57	Organic Tin	NA	100	All materials
C58	Palladium and its compounds	NA	100	All materials

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C59	Parts/Components utilizing RoHS exemptions https://ec.europa.eu/environment/topics/waste-and-recycling/rohs-directive_en	NA	Individual substance thresholds as per the RoHS directive	Parts/Components utilizing RoHS exemptions
C60	Per- and Polyfluoroalkyl Substances (PFAS)	NA	Detectable levels	Surfactant, impregnation agent in textiles
C61	Phenols and Phenolic Resins	NA	100	All materials
C62	Phosphorus compounds	NA	100	All materials
C63	Phthalates	68515-48-0 28553-12-0 68515-49-1 26761-40-0 117-84-0 84-75-3 117-82-8 605-50-5 776297-69-9 131-18-0	100	All materials
C64	Platinum and its compounds	NA	100	All materials
C65	Polymers	NA	100	All materials
C66	Proposition 65 list of chemicals https://oehha.ca.gov/proposition-65/proposition-65-list	NA	Detectable levels	All materials
C67	PVC and vinyl chloride monomer	NA	100	Packaging Materials
C68	Rare Earth Metals and its compounds	NA	100	All materials
C69	Rosins	NA	100	All materials
C70	Ruthenium and its compounds	NA	100	All materials

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S/N	Substance	CAS #	SSMC Threshold (ppm)	Scope
C71	Silver and its compounds	NA	100	All materials
C72	Strontium and its compounds	NA	100	All materials
C73	Tantalum and its compounds	NA	100	All materials
C74	Tellurium and its compounds	NA	100	All materials
C75	Thallium and its compounds	NA	100	All materials
C76	Tin and its compounds	NA	100	All materials
C77	Titanium and its compounds	NA	100	All materials
C78.1	phen (In wet formulation)	108-88-3	1000	Solvents in paints, coatings, inks, adhesives, primers
C78.2	Toluene (Content)	108-88-3	Detectable levels	All manufacturing processes
C79	Tungsten and its compounds	NA	100	All materials
C80	Vanadium and its compounds	NA	100	All materials
C81	Volatile Organic Compounds (VOCs)	Several	Report detectable levels. Vendors must meet all applicable VOC regulations in the areas in which they are operating	Paints, coatings, inks, adhesives, primers, cleaners, degreasers
C82	Washington State's List of Chemicals of High Concern to Children (CHCC) https://apps.leg.wa.gov/wac/default.aspx?cite=173-334-130	NA	Practical quantification limit (PQL) if added intentionally 100 ppm if present as a contaminant	All materials
C83	Zinc and its compounds	NA	100	All materials
C84	Zirconium and its compounds	NA	100	All materials

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C85	NEA List of Controlled Hazardous Substances https://www.nea.gov.sg/docs/default-source/hs/table-1.pdf	NA	Detectable levels	All materials