



Banned Substances

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PURPOSE

This Standard provides Avaya Inc.'s minimum, mandatory list of chemicals and substances banned from use in Avaya Inc. products, packaging, operations or facilities in order to protect the environment, employees and customers from exposure to these potentially harmful chemicals or substances. These substances may not be present in either pure form or in mixtures with other substances.

This Avaya standard is based on existing global environmental legislation restricting or banning the use of designated substances in the markets where Avaya's products are sold, and in which Avaya locations are present. This standard serves to ensure our compliance with these mandatory requirements. It includes known ozone depleting substances, persistent organic pollutants, and allergenic, bio-accumulative, carcinogenic, and toxic substances.

APPLICABILITY

The Avaya EH&S Worldwide Standards shall apply to the Avaya extended EH&S community, including all facilities, operations, associates, suppliers, contract manufacturers, and repair vendors that perform and/or are responsible for the activities affected by the Standards, worldwide. A copy of this Standard shall be referenced in and attached with all Avaya supplier, Original Design Manufacturer (ODM), Original Equipment Manufacturer (OEM), Contract Manufacturer (CM), and repair vendors contracts henceforth to ensure compliance of Avaya's products with these requirements.

Where any national, federal, provincial, state, or local codes, laws, rules or regulations impose more stringent requirements than those cited in these Standards, those stricter requirements shall apply.

REQUIREMENTS

Products

The following substances shall not be used as a component of, or in the manufacture of, any Avaya Inc. product:

- Asbestos (CAS# 1332-21-4) and asbestos-containing materials
- chlorofluorocarbons (CFCs) & selected chlorinated hydrocarbons
- hydrobromofluorocarbons (HBFCs)
- hydrochlorofluorocarbons (HCFCs)
- halons
- lead pigments
- polychlorinated biphenyls (PCBs) (CAS# 27323-18-8)
- polybrominated biphenyls (PBBs)
- polybrominated diphenylethers (PBDEs), including penta, octa, and deca-BDE
- diethylene glycol dimethyl ether (CAS# 111-96-6)
- diethylene glycol monomethyl ether (CAS# 111-77-3)
- ethylene glycol monomethyl ether (CAS# 109-86-4)

- ethylene glycol monomethyl ether acetate (CAS# 110-49-6)
- ethylene glycol monoethyl ether acetate (CAS# 111-15-9)
- triethylene glycol dimethyl ether (CAS# 112-49-2)
- mercury (CAS# 7439-97-6) and mercury compounds (CAS# N458)
- polyvinyl chloride (PVC) (CAS# 9002-86-2)
- methyl bromide (CAS# 74-83-9)
- bromochloromethane (CAS# 74-97-5)
- ozone depleting substances
- hexabromodiphenyl ether (CAS# 36483-60-0) & heptabromodiphenyl ether (CAS# 189084-68-2)*
- tetrabromodiphenyl ether (CAS# 40088-47-9) & pentabromodiphenyl ether (CAS# 32534-81-9) *
- pentachlorobenzene (PeCB) (CAS# 608-93-5)
- phthalates*
- polychlorinated naphthalenes (PCNs)
- short-chain chlorinated paraffins (C10-C13)
- nanomaterials

Note: Although not currently banned or restricted, nanomaterials are being proposed for regulation and reporting in the United States, EU Member States, and other global regions. To ensure compliance with developing regulations and requirements surrounding these materials, nanomaterials or products containing them should not be utilized or incorporated into Avaya product designs without advance approval from the Global Compliance Team.



EXCEPTIONS*:

1. An exemption is available to use hexabromodiphenyl ether & heptabromodiphenylether in articles if the intention to use them is registered with the Secretariat of the Stockholm Convention, and the concentration does not exceed the limit of the import, sale, use, or manufacture territory.
2. An exemption is available to use tetrabromodiphenyl ether & pentabromodiphenylether in articles if the intention to use them is registered with the Secretariat of the Stockholm Convention, and the concentration does not exceed the limit of the import, sale, use, or manufacture territory.
3. Phthalates at $\leq 0.1\%$ by mass in products that may be used by children.

Dyes, Pigments and Stabilizers

The following substances shall not be used as a dye, pigment or stabilizer in any plastic, paint or lacquer, or as a plating material in any Avaya product:

- cadmium (CAS# 7440-43-9) and cadmium compounds
- chromium (VI) compounds (CAS# 7646-79-9)
- lead (CAS# 7439-92-1) and lead compounds
- 2h-benzotriazole-2-yl-4,6-di-tert-butylphenol (CAS# 3846-71-7)
- Tributyltin (TBT) (CAS# 56573-85-4) and its compounds
- Triphenyltin (TPT) and its compounds



EXCEPTION: Lead pigments may be used when lead or lead compounds are already a necessary and integral component of a plastic formulation, required to impart the necessary characteristics and properties to the plastic, **AND** the addition of the lead pigment(s) does not increase the total lead content of the plastic by more than 50%, **AND** no appropriate non-lead, non-cadmium substitutes exist.

Packaging

The following substances shall not be intentionally added to any packaging materials, nor used in the manufacture of packaging materials, (including wood pallets) used by Avaya Inc. to ship its products to its customers, or in packaging materials used for products purchased by Avaya:

- asbestos (CAS# 1332-21-4) and asbestos-containing materials
- arsenic and its compounds
- cadmium (CAS# 7440-43-9) and cadmium compounds
- chlorofluorocarbons (CFCs) & selected chlorinated hydrocarbons
- creosotes (CAS# 8001-58-9)
- dimethyl (e)-butenedioate (dimethylfumarate or DMF) (CAS# 624-49-7) (Used in desiccant bags)
- formaldehyde (CAS# 50-00-0)
- hydrochlorofluorocarbons (HCFCs)
- hexavalent chromium (CAS# 15930-94-6)
- lead (CAS# 7439-92-1)
- lindane (CAS# 58-89-9) (pesticide in pallets)
- mercury (CAS# 7439-96-5)
- methyl bromide (CAS# 74-83-9)*
- polyvinyl chloride (PVC) (CAS# 9002-86-2)



NOTE:

1. The sum of the concentrations of cadmium, hexavalent chromium, lead and mercury present as incidental or background contamination shall not exceed 100 parts per million (ppm) in any packaging or packaging component.
2. Certain regulated quarantine and pre-shipment applications using methyl bromide are exempt until 2015. Contact Avaya Global EH&S for information if use of methyl bromide is desired.

Maintenance and Repair of Products

The following substances shall not be used in the maintenance or repair of Avaya products at any Avaya and/or contract repair facility:

- chlorofluorocarbons (CFCs) and selected chlorinated hydrocarbons
- hydrobromofluorocarbons (HBFCs)
- hydrochlorofluorocarbons (HCFCs)
- methylene chloride (CAS# 75-09-2)
- bromochloromethane (CAS# 74-97-5)
- polychlorinated terphenyls (PCTs) (CAS# 61788-33-8)
- polychlorinated naphthalenes (PCNs)
- tetrachloroethylene (CAS 127-18-4)



EXCEPTION: CFCs and HCFCs may be used as refrigerants for chillers or refrigeration systems that are original, integral components of existing production equipment

(e.g., cooling system refrigerant for an existing vapor degreaser), and in the servicing of refrigeration and air conditioning equipment per the current version of the Montreal Protocol.

Facilities and Operations

The following substances shall not be used in any Avaya facility or operation:

- aldrin (CAS# 309-00-2)
- alpha hexachlorocyclohexane (alpha-HCH) (CAS# 319-84-6)
- beta hexachlorocyclohexane (β -HCH) (CAS# 319-85-7)
- chlordane (CAS# 57-74-9)
- chlordecone (or Kepone[™]) (CAS# 143-50-0)
- dieldrin (CAS# 60-57-1)
- endrin (CAS# 72-20-8)
- heptachlor (CAS# 76-44-8)
- hexavalent chromium-containing water treatment chemicals
- lindane (CAS# 58-89-9)
- methyl bromide (CAS# 74-83-9)
- methyl chloroform /1,1,1-trichloroethane (CAS# 71-55-6)
- methylene chloride (CAS# 75-09-2)
- mirex (CAS# 2385-85-5)
- n-bromopropane (CAS# 106-94-5)
- Nonylphenol (CAS# 25154-52-3)
- Nonylphenol ethoxylate (Nonylphenolpolyglycoethers) (CAS# 9016-45-9)
- pentachlorobenzene (PeCB) (CAS# 608-93-5)
- polychlorinated biphenyls (PCBs) (CAS# 1336-36-3)
- polychlorinated terphenyls (PCTs) (CAS# 61788-33-8)
- polychlorinated naphthalenes (PCNs)
- tetrachloroethylene (CAS# 127-18-4)
- trichloroethylene (CAS# 79-01-6)
- trichlorobenzene (CAS# 120-82-1)
- toxaphene (CAS# 8001-35-2)

The following substances shall not be added to any Avaya facility:

- asbestos (CAS# 1332-21-4) and asbestos-containing materials
- polychlorinated biphenyls (PCBs) (CAS# 1336-36-3)



EXCEPTION: CFCs and HCFCs may be used as refrigerants for chillers or refrigeration systems that are original, integral components of existing production equipment (e.g., cooling system refrigerant for an existing vapor degreaser), and in the servicing of refrigeration and air conditioning equipment per the current version of the Montreal Protocol.

Alternative Substances

Substitutes for any of the substances listed herein must be environmentally-friendlier than those substances they are replacing. Any substitutions must be approved by Avaya prior to use.

DEFINITIONS AND ACRONYMS

The following definitions and acronyms apply to this document, in addition to the general definitions listed in AWS-WS.

EH&S - Environment, Health, and Safety

Avaya Product - is a product manufactured by Avaya Inc. or for Avaya Inc. by any outside supplier or original equipment manufacturer (OEM).

Packaging - includes any box, container, pail, wrapper, cushioning, tape, inks, colorants or other material used to contain, protect, store and transport a product prior to its use by the ultimate consumer.

CAS Number - is the registry number assigned to a chemical or chemical compound by Chemical Abstracts Services, Columbus, OH, USA.

Ozone Depleting Substances – compounds that contribute to stratospheric ozone depletion. ODSs include carbon tetrachloride, CFCs, HBFCs, HCFCs, halons, methyl bromide, and methyl chloroform (Class I Substances); and HCFCs (Class II Substances).

Chlorofluorocarbons (CFCs) - includes the following chemicals and all of their isomers:

Name	Chemical Name	CAS Number
CFC 11	Trichlorofluoromethane	75-69-4
CFC 12	Dichlorodifluoromethane	75-71-8
CFC 13	Chlorotrifluoromethane	75-72-9
CFC 111	Fluoropentachloroethane	954-56-3
CFC 112	1,1,2,2-Tetrachloro 1,2-difluoroethane	76-12-0
CFC 113	Trichlorotrifluoroethane	76-13-1
CFC 114	Dichlorotetrafluoroethane	76-14-2
CFC 115	Monchloropentafluoroethane	76-15-3
CFC 211	1,1,1,2,2,3,3-Heptachloro 3-fluoropropane	422-78-6
CFC 212	1,1,1,2,2,2-Hexachloro 2,2-difluoropropane	3182-26-1
CFC 213	1,1,1,2,2-Pentachloro 2,2,3-trifluoropropane	2354-06-5
CFC 214	1,1,1,3-Tetrachloro 2,2,3,3-tetrafluoropropane	29255-31-0
CFC 215	1,1,1-Trichloro 2,2,3,3,3-pentafluoropropane	4259-43-2
CFC 216	1,2-Dichloro 1,1,2,3,3,3-hexafluoropropane	661-97-2
CFC 217	1-Chloro 1,1,2,2,3,3,3-heptafluoropropane	442-86-6

Selected Chlorinated Hydrocarbons - include carbon tetrachloride (CAS# 56-23-5), methyl chloroform/1,1,1 trichloroethane (CAS# 71-55-6) and all isomers of the below chemicals:

Chemical Name	CAS Number
Bromochloromethane	74-97-5
Carbon tetrachloride	56-23-5
Methyl chloroform / 1,1,1 trichloroethane	71-55-6
Methylene chloride	75-09-2
Tetrachloroethylene	127-18-4
Trichloroethylene	79-01-6

Halons - includes the following chemicals and all of their isomers:

Name	Chemical Name	CAS Number
Halon 1211	Bromochlorodifluoromethane	353-59-3
Halon 1301	Bromotrifluoromethane	75-63-8
Halon 2402	Dibromotetrafluoromethane	124-73-2

Hydrobromofluorocarbons (HBFCs) - includes the following chemicals and all of their isomers:

Name	Chemical Name	CAS Number
CH ₂ Br ₂	Dibromofluoromethane	
HBFC-22B1 (CH ₂ FBr)	Bromodifluoromethane	
CH ₂ FBr	Bromofluoromethane	
C ₂ H ₂ FBr ₄	Tetrabromofluoroethane	
C ₂ H ₂ F ₂ Br ₃	Tribromodifluoroethane	
C ₂ H ₂ F ₃ Br ₂	Dibromotrifluoroethane	
C ₂ H ₂ F ₄ Br	Bromotetrafluoroethane	
C ₂ H ₂ F ₂ Br ₃	Tribromofluoroethane	
C ₂ H ₂ F ₂ Br ₂	Dibromodifluoroethane	
C ₂ H ₂ F ₃ Br	Bromotrifluoroethane	
C ₂ H ₃ FBr ₂	Dibromofluoroethane	
C ₂ H ₃ F ₂ Br	Bromodifluoroethane	
C ₂ H ₄ FBr	Bromofluoroethane	
C ₃ H ₂ FBr ₆	Hexabromofluoropropane	
C ₃ H ₂ F ₂ Br ₅	Pentabromodifluoropropane	
C ₃ H ₂ F ₃ Br ₄	Tetrabromotrifluoropropane	
C ₃ H ₂ F ₄ Br ₃	Tribromotetrafluoropropane	

C3HF5Br2	Dibromopentafluoropropane	
C3HF6Br	Bromohexafluoropropane	
C3H2FBr5	Pentabromofluoropropane	
C3H2F2Br4	Tetrabromodifluoropropane	
C3H2F3Br3	Tribromotrifluoropropane	
C3H2F4Br2	Dibromotetrafluoropropane	
C3H2F5Br	Bromopentafluoropropane	
C3H3FBr4	Tetrabromofluoropropane	
C3H3F2Br3	Tribromodifluoropropane	
C3H3F3Br2	Dibromotrifluoropropane	
C3H3F4Br	Bromotetrafluoropropane	
C3H4FBr3	Tribromofluoropropane	
C3H4F2Br2	Dibromodifluoropropane	
C3H4F3Br	Bromotrifluoropropane	
C3H5FBr2	Dibromofluoropropane	
C3H5F2Br	Bromodifluoropropane	
C3H6FBr	Bromofluoropropane	

Hydrochlorofluorocarbons (HCFCs) - includes the following chemicals and all of their isomers:

Name	Chemical Name	CAS Number
HCFC 21	Dichlorofluoromethane	75-43-4
HCFC 22	Monochlorodifluoromethane	75-45-6
HCFC 31	Monochlorofluoromethane	593-70-4
HCFC 121	Tetrachlorofluoroethane	354-14-3
HCFC 122	Trichlorodifluoroethane	354-21-2
HCFC 123	Dichlorotrifluoroethane	306-83-2
HCFC 124	Monochlorotetrafluoroethane	2837-89-0
HCFC 131	Trichlorofluoroethane	359-28-4
HCFC 132b	Dichlorodifluoroethane	1649-08-7
HCFC 133a	Monochlorotrifluoroethane	75-88-7
HCFC 141b	Dichlorofluoroethane	1717-00-6
HCFC 142b	Monochlorodifluoroethane	75-68-3
HCFC 221	Hexachlorofluoropropane	422-26-4
HCFC 222	Pentachlorodifluoropropane	422-49-1

HCFC 223	Tetrachlorotrifluoropropane	422-52-6
HCFC 224	Trichlorotetrafluoropropane	422-54-8
HCFC 225ca	Dichloropentafluoropropane	422-56-0
HCFC 225cb	Dichloropentafluoropropane	507-55-1
HCFC 226	Monochlorohexafluoropropane	431-87-8
HCFC 231	Pentachlorofluoropropane	421-94-3
HCFC 232	Tetrachlorodifluoropropane	460-89-9
HCFC 233	Trichlorotrifluoropropane	7125-84-0
HCFC 234	Dichlorotetrafluoropropane	425-94-5
HCFC 235	Monochloropentafluoropropane	460-92-4
HCFC 241	Tetrachlorofluoropropane	666-27-3
HCFC 242	Trichlorodifluoropropane	460-63-9
HCFC 243	Dichlorotrifluoropropane	460-69-5
HCFC 244	Monochlorotetrafluoropropane	
HCFC 251	Monochlorotetrafluoropropane	421-41-0
HCFC 252	Dichlorodifluoropropane	819-00-1
HCFC 253	Monochlorotrifluoropropane	460-35-5
HCFC 261	Dichlorofluoropropane	420-97-3
HCFC 262	Monochlorodifluoropropane	421-02-03
HCFC 271	Monochlorofluoropropane	430-55-7

Polybrominated biphenyls (PBBs) - includes the following substances and their isomers

Chemical Name	CAS Number
Decabromobiphenyl	(CAS# 13654-09-6);
decabromodiphenyl ether	(CAS# 1163-19-5);
hexabromobiphenyl	(CAS# 59080-40-9);
hexabromo-1,1'-biphenyl	(CAS# 36355-01-8);
hexabromodiphenyl ether	(CAS# 36483-60-0);
nonabromodiphenyl ether	(CAS# 63936-56-1);
octabromobiphenyl	(CAS# 27858-07-7);
octabromobiphenyl	(CAS# 61288-13-9);
octabromodiphenyl ether	(CAS# 32536-52-0);
<i>p</i> -bromodiphenyl ether	(CAS# 101-55-3);
<i>p,p'</i> -dibromodiphenyl ether	(CAS# 2050-47-7);
pentabromodiphenyl ether	(CAS# 32534-81-9);

polybrominated biphenyl	(CAS# 59536-65-1);
polybrominated biphenyl mixture	(CAS# 67774-32-7);
tetrabromodiphenyl ether	(CAS# 40088-47-9);
tribromodiphenyl ether	(CAS# 49690-94-0)

Triphenyltin (TPTs) compounds - includes the following:

Chemical Name	CAS Number
Triphenyltin acetate	(CAS# 900-95-8);
Triphenyltin chloride	(CAS# 639-58-7);
Triphenyltin fluoride	(CAS# 379-52-2);
Triphenyltin hydroxide	(CAS# 76-87-9);

REFERENCES

The documents listed below may be useful as tools and references and can be found using the following Web site link and login information:

1. The European Union Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
2. European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.
3. The Montreal Protocol, Revision 7, (Beijing, 1999).
4. The Stockholm Convention on Persistent Organic Pollutants (POPs), (Stockholm, 22 May 2001).
5. The Stockholm Convention website:
<http://chm.pops.int/Convention/ThePOPs/tabid/673/language/en-GB/Default.aspx>
6. The US Environmental Protection Agency (US EPA) – Ozone Layer Depletion – Science website: <http://www.epa.gov/ozone/science/ods/classone.html>