



Green Procurement Supplier Specification

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Revision History

Rev	Name	Change	Date
1	Troy Schulze	Initial Issue of Document	6/23/05
2	Troy Schulze	Sec. 2.0 - Deleted last sentence Sec. 3.2.1 - Added requirements for laboratory analysis, upon request by Skyworks Sec. 5.3.1: Added package recycling mark requirements for suppliers of packaging materials for Skyworks - For compliance with China RoHS requirements	1/17/07
3	Troy Schulze	Re-write to address the following: Remove references to obsoleted SQ04-0071. Replace with references to on-line supplier survey form. Added screenshots of GSS database and provide instructions NO CHANGES TO BANNED OR RESTRICTED SUBSTANCES MADE IN THIS REVISION.	10/15/07
4	Troy Schulze	Table 1: Banned Substance List - Modified to better align with JIG A and added PFOS. Table 2: Restricted Substance List - Modified to align with JIG B, IEC 61249-2-21 def. of Halogen Free, added Sb2O3 and phosphorus Added Table I: Compounds Potentially Degrading to PFOS in the Environment	4/23/08
5	Troy Schulze	Updated Banned Substance List - Table 1 - Added REACH Candidate List of SVHC's for Authorization Updated Restricted Substance List - Table 2 - Added Tantalum Updated Banned Substances in Product Packaging - Table 3 - Added REACH Candidate List of SVHC's for Authorization	7/28/09
6	Troy Schulze	6.0 - Modified retention times to match records retention requirements in SQ02-0004 (10 yrs).	2/11/10



7	Troy Schulze	Modified doc. format (as .pdf) Banned Substance List – Added most recent REACH substances Restricted Substance List – Clarified “red” for Phosphorus restriction Added references to SQ03-0337 – Supplier Sustainability spec. and removed EMS and other referenced requirements that are now contained in SQ03-0337.	4/5/10
8	Troy Schulze	Correction to footer (pages 2-21) which indicated the wrong document #.	5/26/10

1 Purpose and Scope

1.1 Purpose

This specification provides general requirements to suppliers and procurement teams as well as design teams regarding Skyworks Solutions' standard of **Banned and Restricted Substances** used in components supplied to Skyworks Solutions. This specification has been developed to fulfill the following requirements:

- To ensure suppliers, supplied materials, and Skyworks finished goods comply with legal and regulatory requirements
- To prevent specific substances from being used in Skyworks' products
- To provide Skyworks the necessary information to fully identify and declare the materials make-up of all Skyworks finished goods
- To reduce adverse impacts to the environment from the materials make-up of finished goods

1.2 Scope

The scope of this document is applicable to Materials Suppliers to Skyworks whose materials are for incorporation into Skyworks products. This includes:

- Semi or Fully assembled parts (e.g. module, functional units, board assemblies, and other assembled parts and accessories)
- Parts (e.g. electrical parts, mechanical parts, semiconductor devices, PWB-s)
- Indirect Materials (e.g. adhesives, adhesive tapes, labels and soldering materials) used in production or for products
- Packaging materials (e.g. trays, reels, sticks, bags, cushions, staples, sheets, wraps, tapes, labels, corrugated cardboard, wooden frames, pallet, vinyl ties, and inks or paints for printing)

For some specific applications (e.g. aerospace, military applications), portions of this document may be exempted only by **written** approval from Skyworks.

2 Acronyms / Terminology and Description / Definition

Product	The item that the respondent is supplying (e.g., assembly, subassembly, component, raw material).
Subpart	A sub-unit of a product.
Material	A material is made up of one or more substances (e.g., copper alloy is a material, which in turn is made up of a number of defined substances, copper, nickel, silver, etc.).
Substances	Substances are chemical elements and their compounds. CAS numbers are provided for these substances where known.
Intentionally added	Deliberate use in the formulation of a product or subpart where its continued presence is desired to provide a specific characteristic, appearance or quality. If listed materials or substances are contained in products or subparts purchased by supplier and are incorporated, such materials/substances must be disclosed .
Threshold level	Concentration level, which defines the limit, above which the presence of a substance or material in a product or subpart must be declared based on the requirements of this guide.
ppm	parts per million, unit of measurement for weight percentage. 1 ppm = 1 mg/kg = 0.0001 % by weight. The parts per million thresholds listed in this specification refer to

	the weight of the material in a homogeneous material, not the weight of the material in an entire system.
End-of-life management	Recycling processes such as precious metals, plastic or other material recovery etc.
Homogeneous material	A material that cannot be mechanically disjointed into different materials
Packaging	Materials used to prepare a product for shipment including Reels, bags, trays and inner and outer boxes.
Level 1 Materials	Materials that are used in the manufacture of finished products and directly affect the form, fit or function of the finished product.
Lead Free	Refer to Skyworks controlled definition in SQ04-0073 - Skyworks Definition of Pb-Free (available internally and on the Skyworks external website)
Green	Refer to Skyworks controlled definition in SQ04-0074 - Skyworks Definition of Green (available internally and on the Skyworks external website)
GSS Database	Green Supplier Survey Database. Provides supplier access to the Skyworks Green Procurement Supplier Specification and the on-line Green Supplier Survey.

3 Associated Documents

Access to Skyworks documentation is enabled through our supplier portal. The documents listed below contain requirements that become part of the contractual agreement between the supplier and Skyworks.

Link to Skyworks website: <http://www.skyworksinc.com>

3.1 Skyworks Documents

- SQ02-0020 -- Supplier Quality Manual
- SQ03-0138 – Supplier Qualification and Monitoring
- SQ03-0337 – Supplier Sustainability Specification
- SQ03-0185 -- Green Supplier Survey , Customer Survey, and DfE Process
- SQ04-0073 -- Skyworks Definition of Pb-Free
- SQ04-0074 -- Skyworks Definition of Green

3.2 External References

- Joint Industry Guide (JIG) - JIG-101, April, 2005
- Directive 2002/95/EC of the European Parliament and the Council of 27 January 2003 titled The Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS).
- Directive 2002/96/EC of the European Parliament and the Council of 27 January 2003 titled The Waste Electrical and Electronic Equipment (WEEE).
- JEDEC Standard JESD 97 titled Marking, Symbols, and Labels for Identification of Lead (Pb) Free Assemblies, Components, and Devices; , May, 2004, JEDEC Solid State Technology Association
- 2006/122/EC (Amendment for the 30th time council Directive EU 76/769/EEC)
- Directive EC 1907/2006 - **R**egistration, **E**valuation, **A**uthorization and Restriction of **C**hemical Substances (REACH)

4 Responsibilities

4.1 Skyworks' Responsibilities

This specification shall be provided to all applicable suppliers according to the Skyworks internal requirements as established in **SQ03-0138 - Supplier Qualification and Monitoring**. General Supplier requirements related to Environmental Programs and Green Procurement (along with standard Quality and other requirements) are communicated via the **Supplier Quality Manual (SQ02-0020)** and the **Supplier Sustainability Specification (SQ03-0337)** and are evaluated using **SQ04-0005 - Skyworks Supplier Survey and Audit Questionnaire**. Applicable Suppliers (as described in Sec. 5.2 below) are required to adhere to the materials restrictions as referenced in this document and provide Skyworks with completed materials declaration information using the Skyworks on-line **Green Supplier Survey (GSS)**.

(Note: some customers of Skyworks may have additional requirements on materials or substances not reflected in this document, that are handled on an individual basis. These requirements will be communicated to suppliers as applicable.)

4.2 Supplier Responsibilities

Adherence to the requirements as specified in **Section 5** of this doc.

5 Supplier Requirements

5.1 Sustainability Requirements

Skyworks has an established Sustainability **Specification – SQ03-0337**. All Level 1 Suppliers (as defined by the **Skyworks Supplier Quality Manual – SQ02-0020**) shall conform to the requirements of the Sustainability Specification. Refer to SQ03-0337 for details and requirements.

5.2 Management System

Skyworks requires its suppliers maintain a management system to manage all requirements of this specification. Suppliers must have established their own Banned and Restricted substance lists meeting, at a minimum, the substance requirements within this specification. Upon request by Skyworks, Suppliers must provide documented proof showing the source of all materials content data provided to Skyworks.

5.3 Skyworks Banned Substances

Table 1 is the Skyworks **Banned Substances List**. It identifies the substances that are banned from the use in Products at or above the referenced threshold values. If international law or Skyworks establishes new substances or thresholds for banned materials or if there is a change in Skyworks customer's requirements, the substances and threshold levels may be revised accordingly. When requested, Suppliers may be required to provide updated Material Declarations. Suppliers are required to certify products are free of all banned substances on the **Green Supplier Survey** (refer to Sec. 5.7).

Table 1 – Banned Substance List

Material / Substance	Threshold Level ²	Cas #	Source
Asbestos	Intentionally added	-	JIG A
Certain Azocolourants and Azodyes ¹	Intentionally added (see Directive 76/769/EEC for applicability)	-	JIG A
Cadmium / Cadmium compounds	75 ppm or Intentionally added	-	RoHS, JIG A
Hexavalent Chromium /Hexavalent Chromium Compounds	1,000 ppm or Intentionally added	-	RoHS, JIG A

Lead / Lead Compounds	1,000 ppm or Intentionally added 300 ppm (PVC cables only)	-	RoHS, JIG A
Mercury / Mercury Compounds	1,000 ppm or Intentionally added	-	RoHS, JIG A
Ozone Depleting Substances (CFCs, HCFCs, HBFCs, carbon tetrachloride, etc.)	Class I: Intentionally added Class II: HCFCs: 1,000 ppm	-	JIG A
Polybrominated Biphenyls (PBBs)	1,000 ppm or Intentionally added	-	RoHS, JIG A
Polybrominated Diphenylethers (PBDEs)	1,000 ppm or Intentionally added	-	RoHS, JIG A
Polychlorinated Biphenyls (PCBs)	Intentionally added	-	JIG A
Polychlorinated Napthalenes (more than 3 chlorine atoms)	Intentionally added	-	JIG A
Radioactive Substances	Intentionally added	-	JIG A
Certain Short Chain Chlorinated Pa- raffins (see JIG Annex F)	Intentionally added	-	JIG A
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	Intentionally added	-	JIG A
Tributyl Tin Oxide (TBTO)	Intentionally added	-	JIG A
2,4-Dinitrotoluene	1,000 ppm	204-450-0	SVHC ³
4,4'-Diaminodiphenylmethane (MDA)	1,000 ppm	202-974-4	SVHC ³
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	1,000 ppm	201-329-4	SVHC ³
Acrylamide	1,000 ppm	201-173-7	SVHC ³
Alcanes, C10-13, chloro (short chained chlorinated paraffins)	1,000 ppm	287-476-5	SVHC ³
Aluminosilicate refractory ceramic fibres	1,000 ppm	-	SVHC ³
Anthracene	1,000 ppm	204-371-1	SVHC ³
Anthracene oil	1,000 ppm	292-602-7	SVHC ³
Anthracene oil, anthracene paste	1,000 ppm	292-603-2	SVHC ³
Anthracene oil, anthracene paste, anthracene fraction	1,000 ppm	295-275-9	SVHC ³
Anthracene oil, anthracene paste, distn. lights	1,000 ppm	295-278-5	SVHC ³
Anthracene oil, anthracene-low	1,000 ppm	292-604-8	SVHC ³
Benzyl butyl phthalate (BBP)	1,000 ppm	201-622-7	SVHC ³
Bis (2-ethylhexyl) phthalate (DEHP)	1,000 ppm	204-211-0	SVHC ³

Bis (tributyltin) oxide (TBTO)	1,000 ppm	200-268-0	SVHC ³
Cobalt dichloride	1,000 ppm	231-589-4	SVHC ³
Diarsenic pentaoxide	1,000 ppm	215-116-9	SVHC ³
Diarsenic trioxide	1,000 ppm	215-481-4	SVHC ³
Dibutyl phthalate (DBP)	1,000 ppm	201-557-4	SVHC ³
Diisobutyl phthalate	1,000 ppm	201-553-2	SVHC ³
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified	1,000 ppm	247-148-4 221-695-9 134237-50-6 134237-51-7 134237-52-8	SVHC ³
Lead chromate	1,000 ppm	231-846-0	SVHC ³
Lead chromate molybdate	1,000 ppm	235-759-9	SVHC ³
Lead hydrogen arsenate	1,000 ppm	232-064-2	SVHC ³
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1,000 ppm	215-693-7	SVHC ³
Pitch, coal tar, high temp.	1,000 ppm	266-028-2	SVHC ³
Sodium dichromate	1,000 ppm	234-190-3 7789-12-0 10588-01-9	SVHC ³
Triethyl arsenate	1,000 ppm	427-700-2	SVHC ³
Tris(2-chloroethyl)phosphate	1,000 ppm	204-118-5	SVHC ³
Zirconia aluminosilicate	1,000 ppm	-	SVHC ³
Perfluorooctane sulfonates (PFOS)	1,000 ppm	-	2006/122/EC

(1) Applicable to products and subparts that may come into direct contact with human skin.

(2) Threshold values applicable at the homogeneous materials level

(3) REACH Candidate List of Substances of Very High Concern for Authorization (EC 1907/2006)

5.3.1 Table 1 Exemptions

All exemptions approved and referenced in the EU RoHS standard (Directive 2002/95/EC) and EU 76/769/EEC as well as exemptions as referenced in the EU PFOS standard (2006/122/EC) apply to the Skyworks Banned Substances list.

5.4 Skyworks Restricted Substances

Table 2 is the Skyworks **Restricted Substances List**. Suppliers should consider, wherever possible, future phase-out of these materials as these materials may be targeted for future phase-out by Skyworks. Special disclosure of all Restricted Substances is required on the **Green Supplier Survey** (refer to Sec. 5.7).

Table 2 – Restricted Substances

Material / Substance	Threshold Level ²	Source
Antimony / Antimony Compounds	1,000 ppm	JIG B
Arsenic / Arsenic Compounds	1,000 ppm	JIG B
Beryllium / Beryllium Compounds	1,000 ppm	JIG B
Bismuth / Bismuth Compounds	1,000 ppm	JIG B
Brominated Flame Retardants (other than PBBs or PBDEs)	1,000 ppm	JIG B
Nickel ¹	1,000 ppm	JIG B
Phthalates (see JIG Annex F)	1,000 ppm	JIG B
Selenium / Selenium Compounds	1,000 ppm	JIG B
Vinyl Chloride Polymer (PVC)	1,000 ppm	JIG B
Antimony Trioxide (in polymeric materials only)	1,000 ppm	Skyworks
Chlorine	900 ppm	IEC 61249-2-21
Bromine	900 ppm	IEC 61249-2-21
Total Halogens	1,500 ppm	IEC 61249-2-21
Tantalum	Intentionally added	Skyworks
Phosphorus, red	1,000 ppm	Skyworks
<i>(1) Applicable to products and subparts that may come into direct contact with human skin.</i>		
<i>(2) Threshold values applicable at the homogeneous materials level</i>		

5.5 Product Packaging Banned Substances

Packaging materials (e.g. cartons to package products, cartons for returnable boxes, and packaging for part transportation which includes handles, reels, sticks, magazines, bags, staples, sheets, wraps, paints, inks, tapes, labels, cushions, wooden frames, corrugated cardboard, vinyl ties, cushioning materials, foil and trays) must not contain any amount of lead, mercury, cadmium, or hexavalent chromium as an intentionally added element. The total concentration of the four heavy metals (lead, mercury, cadmium and hexavalent chromium) must not exceed 0.01% (100ppm) by weight.

Table 3 – Skyworks Banned Substances in Packaging

Material / Substance	Threshold Level ²	Source
Cadmium, Mercury, Lead, Chromium VI	100 ppm total	94/62/EEC
Chlorofluorocarbons (CFC's)	Intentionally Added	JIG A
Hydrochlorofluorocarbons (HCFC's)	Intentionally Added	JIG A
REACH Candidate List of Substances of Very High Concern (SVHC) for Authorization (refer to the Banned Substance List for listing of all SVHC's).	1,000 ppm	SVHC ³

(2) Threshold values applicable at the homogeneous materials level

(3) REACH Candidate List of Substances of Very High Concern for Authorization (EC 1907/2006)

5.5.1 Table 3 Exemptions

Packaging containers that are reused and returned to the supplier by Skyworks (not disposed of by Skyworks).

5.5.2 Suppliers of Packaging Materials

Packaging materials that are recyclable, reusable, or can be regenerated must comply with **Packaging Recycle Marks - GB 18455-2001** - National Standard of the Peoples Republic of China - as referenced in the **Marking for Control of Pollution Caused by Electronic Information Products - SJ/T11364-2006**. This standard is a part of **Management Methods for Controlling Pollution by Electronic Information Products**, also known as "China RoHS."

5.6 Labeling Requirements

All Lead Free components must have the outer packaging boxes and inner packing material (bag, box, reel, tray, etc.) marked with a label identifying the component as Pb Free and that the components are applicable for lead-free soldering process. As an alternative, the Lead-Free (Pb Free) Symbol may be used and must clearly be legible on the product package label as mutually determined and agreed by the supplier and Skyworks Solutions and in compliance with the JEDEC 97 Standard

Example:



5.6.1 Labeling Categories

- e1 – SnAgCu (Tin/Silver/Copper)
- e2 – Other Sn alloys with no Bi or Zn (Bismuth or Zinc)
- e3 – Sn
- e4 – Precious metals Ag, Au (Gold), NiPd (Nickel/Palladium), NiPdAu, but no Sn
- e5 – SnZn, SnZnX but no Bi
- e6 – Contains Bi
- e7 – Low temperature solder (<150°C) containing Indium but no Bismuth

5.7 Green Supplier Survey

It is the responsibility of all Level 1 material suppliers (*refer to sec. 4.0 - Definitions*) to comply with the materials restriction, reporting and labeling requirements contained in this procedure for all parts and substances and raw materials sold to Skyworks. Material declaration, reporting, and certification shall be completed using **Skyworks on-line Green Supplier Survey (GSS)**. Suppliers shall receive e-mailed instructions from Skyworks providing necessary links and log-in information to the GSS database and survey when one has been assigned. Once in the database, Suppliers have access to the **Green Procurement Supplier Specification - SQ03-0132** (this document) and the survey itself.

Green Supplier Survey



Welcome to the Green Supplier Survey (GSS) Database!

Skyworks is committed to the protection and preservation of the environment through the continuous improvement of its products and manufacturing processes worldwide. In support of this, Skyworks requires its suppliers to meet specified environmental criteria.

The GSS Database is a tool used by Skyworks to:

- 1) Communicate environmental requirements to suppliers
- 2) Provide suppliers with a means to certify conformance to Skyworks requirements including Banned and Restricted Substances.
- 3) Provide suppliers with an easy, quick, and effective means of providing full materials declarations for parts / materials supplied to Skyworks

Instructions:

1. Internet Explorer 6.x or greater is required to access this site. No other browsers are supported.
2. Disable all browser popup blockers.
3. On the left Navigation bar, under "My Inbox", click "Pending for Me".
4. Click on the questionnaires assigned to you and complete / submit.
5. Access the Skyworks Green Procurement Supplier Specification - **SQ03-0132** (on the left Navigation bar) for supporting information and complete instructions.

For support, please contact:

Melanie Walsh at melanie.walsh@skyworksinc.com

Create

New Survey

View All

By Package
By Status
By Request No.
By Supplier
By Requester
By Part Number

My Inbox

Authored By Me
Reviewed By Me
Pending For Me

SQ03-0132

Delegation(s)

Logout

QUICK LINKS

Skyworks Products
Block Diagrams
Technical Library

Site Search

ENGLISH | 简体中文 | 日本語 | 한국어

Surveys must be completed and returned to Skyworks as indicated in the instruction e-mail and the survey form itself. Fill out all required fields at each section tab (Company Information, Certification Statement, Banned Substances, Restricted Substances, Breakdown Declaration, and Lab Analytical).

Green Supplier Survey # New Request



Save Changes Send Survey Close Add Comments

Company Information Certification Statement Banned Substances Restricted Substances Breakdown Declaration Lab Analytical

5.7.1 Laboratory Analysis

Upon request from Skyworks, Supplier shall provide laboratory analysis (from a third party analytical company such as SGS) to verify the information provided in the Green Supplier Survey. Skyworks will specify, at the time of request, what specific materials are to be analyzed for and any other analytical requirements. Requests for laboratory analysis will typically be made via the on-line survey form as shown below. Lab analytical files can be attached to the 'Lab Analytical' tab in the **Green Supplier Survey**. An analytical process flow chart is required for each lab analytical report.



Green Supplier Survey # New Request

Save Changes

Send Survey

Close

Add Comments



Company Information | Certification Statement | Banned Substances | Restricted Substances | Breakdown Declaration | Lab Analytical

"Please review any specified analytical requirements below. Attach laboratory analytical reports below."

- Lab Analytical Required
- Lab Analytical NOT Required
- Pb (lead) - USEPA 3050B, ICP-AES
- Cr+6 (hexavalent chrome) - USEPA 3050B, ICP-AES
- Cd (cadmium) - USEPA 3052, ICP-AES
- Hg (mercury) - USEPA 3060A, UV-vis
- PBB (polybrominated biphenyls) - 83/264/EEC/2003/11/EEC, GC-MS
- PBDE (polybrominated diphenylethers) - 83/264/EEC/2003/11/EEC, GC-MS
- Bromine (brominated materials)
- Chlorine (chlorinated materials)
- Antimony Trioxide
- Total Halogens
- Phosphorus
- PFOS
- Other (write in capability by administrator prior to survey being sent out)

Attachment

Attach/Detach

Skyworks Part Details

Skyworks Parts

Package Type

Need Information:-

Comments

5.8 Product Change Notice (PCN)

Any change to the material content of an approved material must be reported in written form to Skyworks Solutions. Refer to the Supplier Process Change Notice (PCN) requirements as referenced in the **Supplier Quality Manual (SQ02-0020)**. Upon approval of a supplier PCN, the supplier will be issued a new **Green Supplier Survey** by the database administrator which must be completed and returned to Skyworks promptly upon receipt.

6 Substance Tables

These lists are not comprehensive; they represent examples of chemicals with known CAS numbers.

Where a product or sub-part contains related substance and meet reporting criteria, this information should be reported.

6.1 Asbestos and Asbestos Materials

Substance	CAS #
Asbestos and Asbestos Materials	1332-21-4
Actinolite	77536-66-4
Amosite (Grunerite)	12172-73-5
Anthophyllite	77536-67-5
Chrysotile	12001-29-5
Crocidolite	12001-28-4
Tremolite	77536-68-6

6.2 Azo-based dyes and colorants

Substance	CAS #
4-Aminobiphenyl	92-67-1

Benzidine	92-87-5
4-Chloro-o-toluidine	95-69-2
2-Naphthylamine	91-59-8
o-Aminoazotoluene	97-56-3
5-Nitro-o-toluidine	99-55-8
4-Chloroaniline	106-47-8
4-methoxy-m-phenylenediamine	615-05-4
4,4.-Diaminodipheylmethane	101-77-9
3,3.-Dichlorobenzidine	91-94-1
3,3.-Dimethoxybenzidine	119-90-4
3,3.-Dimethylbenzidine	119-93-7
4,4.-methylenedi-o-toluididne	838-88-0
p-Cresidine	120-71-8
4,4.-Methylene-bis-(2-chloro-anilene)	101-14-4
4,4.-Oxydianilene	101-80-4
4,4.-Thiodianiline	139-65-1
o-Toluidine	95-53-4
4-Methyl-m-phenylenediamine	95-80-7
2,4,5-Trimethylaniline	137-17-7
o-Anisidine	90-04-0
4-amino azobenzene	60-09-03

6.3 Cadmium and Cadmium compounds

Substance	CAS #
Cadmium	7440-43-9
Cadmium oxide	1306-19-0
Cadmium sulfide	1306-23-6
Cadmium chloride	10108-64-2
Cadmium sulfate	10124-36-4
Other cadmium compounds	--

6.4 Chromium VI and Chromium Compounds

Substance	CAS #
Chromium	7440-47-3
Chromium (VI) oxide	1333-82-0
Barium chromate	10294-40-3
Calcium chromate	13765-19-0
Chromic acetate	1066-30-4
Chromium trioxide	1333-82-0
Lead (II) chromate	7758-97-6
Sodium chromate	7775-11-3
Sodium dichromate	10588-01-9
Strontium chromate	7789-06-2
Potassium dichromate	7778-50-9
Potassium chromate	7789-00-6
Zinc chromate	13530-65-9
Chromium dichloride dioxide	14977-61-8
Chromium VI ion	18540-29-9

6.5 Lead and Lead Compounds

Substance	CAS #
Lead	7439-92-1
Lead (II) sulfate	7446-14-2
Lead (II) carbonate	598-63-0
Lead hydrocarbonate	1319-46-6
Lead acetate	301-04-2
Lead (II) acetate, trihydrate	6080-56-4
Lead phosphate	7446-27-7
Lead selenide	12069-00-0
Lead (IV) oxide	1309-60-0
Lead (II,IV) oxide	1314-41-6
Lead (II) sulfide	1314-87-0
Lead (II) oxide	1317-36-8
Lead (II) carbonate basic	1319-46-6
Lead hydroxidcarbonate	1344-36-1
Lead (II) phosphate	7446-27-2
Lead (II) chromate	7758-97-6
Lead (II) titanate	12060-00-3
Lead sulfate, sulphuric acid, lead salt	15739-80-7
Lead sulphate, tribasic	12202-17-4
Lead stearate	1072-35-1

6.6 Mercury and Mercury compounds

Substance	CAS #
Mercury	7439-97-6
Mercuric chloride	33631-63-9
Mercury (II) chloride	7487-94-7
Mercuric sulfate	7783-35-9
Mercuric nitrate	10045-94-0
Mercuric (II) oxide	21908-53-2
Mercuric sulfide	1344-48-5

6.7 Ozone Depleting Substances

Substance	CAS #
Trichlorofluoromethane (CFC 11)	75-69-4
Dichlorodifluoromethane (CFC12)	75-71-8
Chlorotrifluoromethane (CFC 13)	75-72-9
Pentachlorofluoroethane (CFC 111)	354-56-3
Tetrachlorodifluoroethane (CFC 112)	76-12-0
Trichlorotrifluoroethane (CFC 113)	354-58-5
1,1,2 Trichlorotrifluoroethane	76-13-1
Dichlorotetrafluoroethane (CFC 114)	76-14-2
Monochloropentafluoroethane (CFC 115)	76-15-3
Heptachlorofluoropropane (CFC 211)	422-78-6 135401-87-5
Hexachlorodifluoropropane (CFC 212)	3182-26-1
Pentachlorotrifluoropropane (CFC 213)	2354-06-5 134237-31-3

Tetrachlorotetrafluoropropane (CFC 214)	29255-31-0
1,1,1,3-Tetrachlorotetrafluoropropane	2268-46-4
Trichloropentafluoropropane (CFC 215)	1599-41-3
1,1,1-Trichloropentafluoropropane	4259-43-2
1,2,3-Trichloropentafluoropropane	76-17-5
Dichlorohexafluoropropane (CFC 216)	661-97-2
Monochloroheptafluoropropane (CFC 217)	422-86-6
Bromochlorodifluoromethane (Halon 1211)	353-59-3
Bromotrifluoromethane (Halon 1301)	75-63-8
Dibromotetrafluoroethane (Halon 2402)	124-73-2
Carbon Tetrachloride (Tetrachloromethane)	56-23-5
1,1,1, - Trichloroethane (methyl chloroform) and its isomers except 1,1,2-trichloroethane	71-55-6
Bromomethane (Methyl Bromide)	74-83-9
Bromodifluoromethane and isomers (HBFC.s)	1511-62-2
Dichloroethane	107-06-2
1.1.1.2 Tetrachloroethane	630-20-6
Pentachloroethane	76-01-7
Methylene chloride	75-09-2
1.1.2 Trichloroethane	79-00-5
Trichloromethane (Chloroform)	67-66-3
Trichloroethylene	79-01-6
1.1.2.2 Tetrachloroethane	79-34-5

Note: These materials may contain isomers that are not listed here.

6.8 Ozone Depleting Substances - Hydrochlorofluorocarbons(HCFCs) / Isomers

Substance	CAS #
Dichlorofluoromethane (HCFC 21)	75-43-4
Chlorodifluoromethane (HCFC 22)	75-45-6
Chlorofluoromethane (HCFC 31)	593-70-4
Tetrachlorofluoroethane (HCFC 121)	134237-32-4
1,1,1,2-tetrachloro-2-fluoroethane (HCFC 121a)	354-11-0
1,1,2,2-tetracloro-1-fluoroethane	354-14-3
Trichlorodifluoroethane (HCFC 122)	41834-16-6
1,2,2-trichloro-1,1-difluoroethane	354-21-2
Dichlorotrifluoroethane(HCFC 123)	34077-87-7
Dichloro-1,1,2-trifluoroethane	90454-18-5
2,2-dichloro-1,1,1-trifluoroethane	306-83-2
1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a)	354-23-4
1,1-dichloro-1,2,2-trifluoroethane (HCFC-123b)	812-04-4
2,2-dichloro-1,1,2-trifluoroethane (HCFC-123b)	812-04-4
Chlorotetrafluoroethane (HCFC 124)	63938-10-3
2-chloro-1,1,1,2-tetrafluoroethane	2837-89-0
1-chloro-1,1,2,2-tetrafluoroethane (HCFC 124a)	354-25-6
Trichlorofluoroethane (HCFC 131)	27154-33-2;(134237-34-6)
1-Fluoro-1,2,2-trichloroethane	359-28-4
1,1,1-trichloro-2-fluoroethane (HCFC131b)	811-95-0
Dichlorodifluoroethane (HCFC 132)	25915-78-0
1,2-dichloro-1,1-difluoroethane (HCFC 132b)	1649-08-7
1,1-dichloro-1,2-difluoroethane (HFCF 132c)	1842-05-3
1,1-dichloro-2,2-difluoroethane	471-43-2

1,2-dichloro-1,2-difluoroethane	431-06-1
Chlorotrifluoroethane (HCFC 133)	1330-45-6
1-chloro-1,2,2-trifluoroethane	1330-45-6
2-chloro-1,1,1-trifluoroethane (HCFC-133a)	75-88-7
Dichlorofluoroethane(HCFC 141)	1717-00-6; (25167-88-8)
1,1-dichloro-1-fluoroethane (HCFC-141b)	1717-00-6
1,2-dichloro-1-fluoroethane	430-57-9
Chlorodifluoroethane (HCFC 142)	25497-29-4
1-chloro-1,1-difluoroethane (HCFC142b)	75-68-3
1-chloro-1,2-difluoroethane (HCFC142a)	25497-29-4
Hexachlorofluoropropane (HCFC 221)	134237-35-7
Pentachlorodifluoropropane (HCFC 222)	134237-36-8
Tetrachlorotrifluoropropane (HCFC 223)	134237-37-9
Trichlorotetrafluoropropane (HCFC 224)	134237-38-0
Dichloropentafluoropropane, (Ethyne, fluoro-) (HCFC 225)	127564-92-5; (2713-09-9)
2,2-Dichloro-1,1,1,3,3-pentafluoropropane(HCFC 225aa)	128903-21-9
2,3-Dichloro-1,1,1,2,3-pentafluoropropane (HCFC 225ba)	422-48-0
1,2-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225bb)	422-44-6
3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC 225ca)	422-56-0
1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC 225cb)	507-55-1
1,1-Dichloro-1,2,2,3,3-pentafluoropropane(HCFC 225cc)	13474-88-9
1,2-Dichloro-1,1,3,3,3-pentafluoropropane (HCFC 225da)	431-86-7
1,3-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225ea)	136013-79-1
1,1-Dichloro-1,2,3,3,3-pentafluoropropane(HCFC 225eb)	111512-56-2
Chlorohexafluoropropane (HCFC 226)	134308-72-8
Pentachlorofluoropropane (HCFC 231)	134190-48-0
Tetrachlorodifluoropropane (HCFC 232)	134237-39-1
Trichlorotrifluoropropane (HCFC 233)	134237-40-4
1,1,1-Trichloro-3,3,3-trifluoropropane	7125-83-9
Dichlorotetrafluoropropane (HCFC 234)	127564-83-4
Chloropentafluoropropane (HCFC 235)	134237-41-5
1-Chloro-1,1,3,3,3-pentafluoropropane	460-92-4
Tetrachlorofluoropropane (HCFC 241)	134190-49-1
Trichlorodifluoropropane (HCFC 242)	134237-42-6
Dichlorotrifluoropropane (HCFC 243)	134237-43-7
1,1-dichloro-1,2,2-trifluoropropane	7125-99-7
2,3-dichloro-1,1,1-trifluoropropane	338-75-0
3,3-Dichloro-1,1,1-trifluoropropane	460-69-5
Chlorotetrafluoropropane (HCFC 244)	134190-50-4
3-chloro-1,1,2,2-tetrafluoropropane	679-85-6
Trichlorofluoropropane (HCFC 251)	134190-51-5
1,1,3-trichloro-1-fluoropropane	818-99-5
Dichlorodifluoropropane (HCFC 252)	134190-52-6
Chlorotrifluoropropane (HCFC 253)	134237-44-8
3-chloro-1,1,1-trifluoropropane (HCFC 253fb)	460-35-5
Dichlorofluoropropane (HCFC 261)	134237-45-9
1,1-dichloro-1-fluoropropane	7799-56-6
Chlorodifluoropropane (HCFC 262)	134190-53-7
2-chloro-1,3-difluoropropane	102738-79-4
Chlorofluoropropane (HCFC 271)	134190-54-8
2-chloro-2-fluoropropane	420-44-0

Note: These materials may contain isomers that are not listed here.

6.9 Polybrominated Biphenyls (PBBs) their Ethers (PBDEs, PBBEs) and their Oxides (PBBOs)

Substance	CAS #
Bromobiphenyl and its ethers	2052-07-5 (2-Bromobiphenyl) 2113-57-7 (3-Bromobiphenyl) 92-66-0 (4-Bromobiphenyl) 101-55-3 (ether)
Decabromobiphenyl and its ethers	13654-09-6 1163-19-5 (ether)
Dibromobiphenyl and its ethers	92-86-4 2050-47-7 (ether)
Heptabromobiphenylether	68928-80-3
Hexabromobiphenyl and its ethers	59080-40-9 36355-01-8 (hexabromo-1,1.-biphenyl) 67774-32-7 (Firemaster FF-1) 36483-60-0 (ether)
Nonabromobiphenylether	63936-56-1
Octabromobiphenyl and its ethers	61288-13-9 32536-52-0 (ether)
Pentabromobidphenyl ether (PeBDPO)	32534-81-9
Polybrominated Biphenyls	59536-65-1
Tetrabromobiphenyl and its ethers	40088-45-7 40088-47-9 (ether)
Tribromobiphenyl ether	49690-94-0

6.10 Polychlorinated Biphenyls (PCBs) and Terphenyls (PCTs)

Substance	CAS #
Polychlorinated Biphenyls	1336-36-3
Aroclor	12767-79-2
Chlorodiphenyl (Aroclor 1260)	11096-82-5
Kanechlor 500	27323-18-8
Aroclor 1254	11097-69-1
Terphenyls	26140-60-3 61788-33-8

6.11 Radioactive Substances

Substance	CAS #
Uranium	--
Plutonium	--
Radon	--
Americium	--
Thorium	--
Cesium	7440-46-2
Strontium	7440-24-6
Other radioactive substances	-

6.12 Shortchain Chlorinated paraffin

Substance	CAS #
Chlorinated paraffin (Paraffin wax, chlorinated; Paraffin waxes and Hydrocarbon waxes, chlorinated; Chlorinated paraffin; Chlorinated wax; Chlorinated waxes; Chlorowax 40; Chlorowax 500c;)	63449-39-8 8029-39-8
alkanes, C10-13, chloro	85535-84-8
alkanes, C14-17, chloro	85535-85-9
Naphthalene, chloro derives (Naphthalene, chloro derivs.; Naphthalene, polychlorinated)	70776-03-3

6.13 Tributyl Tin, Triphenyl Tin and oxides

Substance	CAS #
Bis(tri-n-butyltin) oxide	56-35-9
Triphenyltin N,N'-dimethyldithiocarbamate	1803-12-9
Triphenyltin fluoride	379-52-2
Triphenyltin acetate	900-95-8
Triphenyltin chloride	639-58-7
Triphenyltin hydroxide	76-87-9
Triphenyltin fatty acid salts (C=9-11)	47672-31-1
Triphenyltin chloroacetate	7094-94-2
Tributyltin methacrylate	2155-70-6
Bis(tributyltin) fumarate	6454-35-9
Tributyltin fluoride	1983-10-4
Bis(tributyltin) 2,3-dibromosuccinate	31732-71-5
Tributyltin acetate	56-36-0
Tributyltin laurate	3090-36-6
Bis(tributyltin) phthalate	4782-29-0
Copolymer of alkyl acrylate, methyl methacrylate and tributyltin methacrylate(alkyl; C=8)	-N.A.
Tributyltin sulfamate	6517-25-5
Bis(tributyltin) maleate	14275-57-1
Tributyltin chloride	1461-22-9
Mixture of tributyltin cyclopentanecarboxylate and its analogs (Tributyltin naphthenate)	-N.A.
Mixture of tributyltin 1,2,3,4,4a,4b,5,6,10,10a-decahydro-7-isopropyl-1,4a-dimethyl-1-phenanthlenecarboxylate and its Analogs (Tributyltin rosin salt)	-N.A.

6.14 Halogenated (Brominated and Chlorinated) Flame Retardants (other than PBB or PBDE)

Substance	CAS #
TBBPA - Tetrabromo bisphenol-A	79-94-7
TBBPA - TETRABROMOBISPHENOL A - CARBONATE-OLIGOMERS	94334-64-2
BRPS - BROMINATED POLYSTYRENE	57137-10-7
TBPA - TETRABROMOPHTHALIC ACID ANHYDRIDE	632-79-1
TBPI - N,N'ETHYLENE-	32588-76-4

BISTETRABROMOPHTHALIMIDE	
Octabromodiphenyl	61288-13-9
Dibromo neopentyl glycol	3296-90-0
HBCD - HEXABROMOCYCLODODECANE	25637-99-4

7 Quality Records:

<i>DESCRIPTION</i>	<i>COLLECTION</i>	<i>STORAGE/FILING</i>	<i>MINIMUM RETENTION PERIOD</i>	<i>DISPOSITION</i>
Green Supplier Survey (GSS)	Database Administrator via GSS Database	Electronic - GSS Database	10 years	Archive