

# CORPORATE POLICY



## CORPORATE PRODUCT MATERIAL CONTENT POLICY

CPZ-CE-003

CHARLES A. DERROW  
MANAGER, COMPLIANCE ENGINEERING

REVISION: A1  
March 9, 2007





## CORPORATE PRODUCT MATERIAL CONTENT POLICY

---

### 1.0 PURPOSE

- 1.1 Define the corporate Policy of Zebra Technologies Corporation, (Zebra) on product material content restrictions for all purchased material, parts, components and purchased assemblies that Zebra sells or incorporates into Zebra finished products.

### 2.0 SCOPE

- 2.1 This Policy applies to all divisions, groups, and facilities of Zebra, and all suppliers that supply materials and assemblies to Zebra worldwide.
- 2.2 This Policy provides Zebra's general requirements for prohibiting or restricting certain material compounds as constituents of parts, components, and products purchased by Zebra, and for prohibiting the use of certain compounds in the manufacture of parts, components materials and products purchased by Zebra.
- 2.3 This Policy contains a summary description of applicable laws, and Zebra does not represent or warrant that it is a complete or accurate summary description of such laws. Suppliers are encouraged to review applicable laws with counsel. Accordingly, a supplier's compliance with this Policy does not relieve or diminish supplier's obligation to comply with all applicable laws.

### 3.0 DEFINITIONS

### 4.0 REFERENCES

- 4.1 RoHS – 2002/95/EC Restriction of Hazardous substances,
- 4.2 WEEE - 2002-96-EC Waste Electrical and Electronic Equipment
  - 4.2.1 2003/108/EC WEEE Amendments
- 4.3 The Montreal Protocol on Substances that deplete the Ozone Layer
- 4.4 Proposition 65 in the State of California
- 4.5 California legislation SB-50 Adopting the EU Directive 2002/95/EC effective 1-1-2007
- 4.6 Packaging and Packaging Waste Directive, 94/62/EC
- 4.7 SJ 11363-2006 Requirements for concentrations limits for certain hazardous substances in EIP
- 4.8 SJ 11364-2006 Marking for control of pollution caused by EIP
- 4.9 GB 18455-2001 Packaging recycling Mark



## CORPORATE PRODUCT MATERIAL CONTENT POLICY

---

- 4.10 China RoHS – Administrative Measure on the control of Pollution caused by Electronic Information Products 2006-03-02

### 5.0 CONTENT RESTRICTION POLICY

#### 5.1 General Material Restrictions.

The restrictions and bans specified in this Policy apply to the specified compound or element as a constituent of all parts, components, materials or products purchased by Zebra, and for Ozone Depleting Substances (ODS) used in manufacturing of all parts, components, materials or products purchased by Zebra. For additional product content restrictions applicable to packaging materials only, see Section 6.

#### 5.2 EU-RoHS Compliance for Parts, Components, Materials & Purchased Assemblies.

EU Directive 2002/95/EC, Restrictions of Hazardous Substances (“RoHS”), restricts the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBBs), and polybrominated diphenyl ethers (PBDEs) in electronic products placed on the market in the European Union after July 1 2006. All divisions, groups, and facilities of Zebra, and all Zebra suppliers must meet the RoHS compliance requirements.

##### 5.2.1 General RoHS Compliance Requirements.

Except for the specific applications of lead and mercury specifically listed in Section 5.2.2 Exemptions, all materials, parts, components, and/or products must meet the following per the RoHS directive:

Must not contain RoHS restricted substances greater than:

a) Quantity limit of 0.1% (1000 PPM) for:

1. Lead (Pb)
2. Mercury
3. Hexavalent Chromium
4. Polybrominated Biphenyls (PBB)
5. Polybrominated Diphenyl Ethers (PBDE); and

b) Quantity limit of 0.01% (100 PPM) for:

1. Cadmium

##### 5.2.2 Exemptions.

All materials, parts, components, and/or products must meet the specifications listed in 5.2.1, General RoHS Compliance Requirements, unless they are covered by a harmonized EU RoHS exemption. A current list of exemptions can be found here: [http://www.buyusa.gov/europeanunion/rohs\\_exemptions.html](http://www.buyusa.gov/europeanunion/rohs_exemptions.html)

- 5.3 Asbestos. Asbestos must not be present in parts, components, materials or products.

- 5.4 Arsenic. Arsenic must not be present in inks, parts, components, material or products.



## CORPORATE PRODUCT MATERIAL CONTENT POLICY

---

- 5.5 Cadmium. Cadmium and its compounds must not be used in parts, components, materials or products in concentrations greater than 0.01% (100 PPM) by material weight.
- 5.6 Chlorinated Paraffins. Short Chain Chlorinated Paraffins (SCCPs), including but not limited to those identified by CAS numbers 63449-39-8 and 85535-84-8, in concentrations greater than or equal to 0.1% (1000 PPM) must not be used or contained: in softeners in paints, coatings and sealants; in oils; or in flame-retardants in rubber and plastic.
- 5.7 Halogenated Diphenyl Methanes. The following halogenated diphenyl methanes must not be present in any parts, components, materials, or products:
- Monomethyltetrachlorodiphenylmethane (CAS# 76253-60-6)
  - Monomethyldichlorodiphenylmethane (CAS# 81161-70-8)
  - Monomethyldibromodiphenylmethane (CAS# 99788-47-8)
- 5.8 Lead in Paint. Lead carbonates and sulfates must not be used in any paint applied to parts, components, materials or products.
- 5.9 Mercury. Mercury must not be contained in any part, material, component or product, including switches, relays or electrical contacts. This restriction does not apply to backlit displays.
- 5.10 Ozone Depleting Substances (ODS)
- 5.10.1 ODS Use in Product Manufacturing Process. The ODS substances listed in Appendix A Table 2 and Table 3 must not be used in the manufacturing process of any parts, components, materials or products.
- 5.10.2 ODS in Parts, Components, Materials and Products. The ODS substances listed in Appendix A Table 2 and Table 3 must not be contained in any parts, components, materials or products.
- 5.11 Certain Brominated Flame Retardants. Plastic parts, components, materials and products must not contain flame-retardants that are polybrominated biphenyls (PBBs) or polybrominated diphenyl ethers (PBDEs), also known as polybrominated biphenyl ethers (PBBEs) and polybrominated biphenyl oxides (PBBOs). PBBs and PBDEs prohibited under this section include, but are not limited to, those listed in Section 8.3.3.
- 5.12 Polychlorinated Biphenyls (PCBs) and Polychlorinated Terphenyls (PCTs). Polychlorinated biphenyls (PCBs) and polychlorinated terphenyls (PCTs) must not be present in parts, components, materials, or products.
- 5.13 Polyvinyl Chloride (PVC). The use of (PVC) shall not be allowed except when used for wire construction. In this case, the construction shall not contain Lead (Pb).
- 6.0 PACKAGING
- 6.1 The restrictions listed in this section apply to all packaging and all packaging components purchased and used by Zebra. These restrictions also apply to all packaging used on products that are branded for Zebra resale.



## CORPORATE PRODUCT MATERIAL CONTENT POLICY

---

6.1.1 The packaging material shall not contain or use in the fabrication process the following materials, CFCs and HCFCs listed in Appendix A Table 2 and Table 3, carbon tetrachloride, trichloroethane, or other organic halogenides

6.1.2 The packaging material shall not contain the following heavy metals, lead, mercury, cadmium, or hexavalent chromium as an intentionally added element. The sum concentration of incidental lead, mercury, cadmium, and hexavalent chromium must not exceed 100 PPM by weight.

6.2 All packaging shipped with Zebra products should be properly marked for recycling per GB 18455-2001 Packaging recycling Mark. At this point in time the markings described in this document cover the majority of our packaging marking requirements globally. In the case where a particular material is not defined in this standard, the packaging should be marked with an appropriately recognized recycling symbol. This symbol should be approved by Zebra Technologies for use on our packaging prior to use.

### 7.0 PRODUCT MARKING AND DOCUMENTATION REQUIREMENTS

7.1 All Assemblies (not Zebra designed) supplied to Zebra Technologies with a manufacturing date of March 1, 2007 are required to meet the marking and documentation requirements of the China RoHS administrative measure on the control of pollution caused by electronic information products.

7.1.1 Where possible, all products should be marked with either the defined "logo" 1 or "logo" 2 as described in SJ 11364-2006. When "logo" 2 is used, the supplier must also supply Zebra Technologies with the Material Declaration Table.

7.1.2 If a product can not be marked for technical reasons, but is determined to have an "Environment Friendly Use Period" the supplier should supply Zebra technologies with the EFUP number of years, and the corresponding Material Declaration Table

### 8.0 VERIFICATION OF COMPLIANCE:

8.1 Upon request by Zebra the supplier will verify via analytical testing, compliance to the above Policy. Any additional documentation and/or test data, including documentation and data from the supplier's supply chain, which demonstrates specific supplier actions to verify compliance must be kept on file and made available upon request.

### 9.0 TABLES

9.1 The following materials are prohibited for use in the manufacturing of raw materials, parts or products supplied to Zebra.

Material	Threshold
Ozone Depleting Substances – Class I (See Appendix A, Table 2 for list)	0



## CORPORATE PRODUCT MATERIAL CONTENT POLICY

- 9.2 The following materials are prohibited for use in the manufacturing of parts or products on behalf of Zebra.

Material	Threshold
Ozone Depleting Substances – Class I (See Appendix A, Table 2 for list)	0
Ozone Depleting Substances – Class II (See Appendix A, Table 3 for list)	0
Certain Glycol Ethers (See Appendix A, Table 5 for list)	0

- 9.3 The following materials are prohibited for use in raw materials, parts, components, or products above the thresholds defined below. Restrictions are divided into two categories: General Restrictions and Specific Applications. For the category of Specific Applications, materials are only restricted for use in those applications listed in the table.

9.3.1 General Restrictions:

Material	Threshold
Asbestos, Asbestos Materials	100 ppm (total)
Ozone Depleting Substances – Class I (See Appendix A for list)	0
Ozone Depleting Substances – Class II (See Appendix A for list)	0
Polychlorinated Biphenyls (PCB)/ Terphenyls (PCT)	50 ppm (total)
Polybrominated Biphenyls (PBB) and their ethers/oxides (PBDE)	0

9.3.2 Specific Applications: The following materials may not be used in the application listed below.

Material	Restricted Application	Threshold
Cadmium and its compounds	Dyes, Pigments, paints/enamels	100 ppm
	Plastic Stabilizer (electric cables)	
Lead and its compounds	Paints	0
Mercury compounds	All uses except lamps and others listed below.	0
Mercury	Relays, switches, contacts, guards	5 ppm

- 9.3.3 FLAME RETARDANTS: The following flame retardants are restricted from use in Zebra products. The only exception being the use of bromide compounds required for



**CORPORATE PRODUCT MATERIAL CONTENT POLICY**

manufacturing printed circuit boards. At present there are no cost effective substitutes for bromides as a flame-retardants. Our manufacturing processes are designed to minimize the use of bromides as process/material improvements are made throughout the industry.

Polybrominated Biphenyls (PBBs) and their Ethers/Oxides	CAS Numbers
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)
Heptabromobiphenyl ether	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)
Nonabromobiphenyl ether	63936-56-1
Octabromobiphenyl and its ethers	61288-13-9 32536-52-0 (ether)
Pentabromobidphenyl ether (note: Commercially available PeBDPO is a complex reaction mixture containing a variety of brominated diphenyloxides.	32534-81-9 (CAS number used for commercial grades of PeBDPO)
Polybrominated Biphenyls	59536-65-1
Tetrabromobiphenyl and its ethers	40088-45-7 40088-47-9 (ether)
Tribromobiphenyl ether	49690-94-0

9.3.4 PACKAGING CONTENT RESTRICTIONS: The following materials are prohibited for use in product packaging materials

<b>Material</b>	<b>Restricted Application</b>	<b>Threshold</b>
Cadmium, Chromium (VI), Lead, Mercury	Packaging/Packaging components/Packaging Inks, etc.	100 ppm (total)



CORPORATE PRODUCT MATERIAL CONTENT POLICY

APPENDIX A

**TABLE 1: Asbestos**

Asbestos/Asbestos Materials	CAS Numbers
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

**TABLE 2: Class I Ozone Depleting Substances/Isomers**

Ozone Depleting Substances/Isomers*	CAS Numbers
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

\*Please note: These materials may contain isomers that are not listed here.  
 Isomers with CAS numbers have been included when available.



CORPORATE PRODUCT MATERIAL CONTENT POLICY

**TABLE 3: Class II Hydrochlorofluorocarbons/ Isomers**

Hydrochlorofluorocarbons/ Isomers*	CAS Numbers
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
1-Fluoro-1,2,2-trichloroethane	(134237-34-6) 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;
1,1-dichloro-1-fluoroethane (HCFC-141b)	(25167-88-8) 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	



**CORPORATE PRODUCT MATERIAL CONTENT POLICY**

(HCFC 225cc) 1,2-Dichloro-1,1,3,3,3-pentafluoropropane	13474-88-9
(HCFC 225da) 1,3-Dichloro-1,1,2,3,3-pentafluoropropane	431-86-7
(HCFC 225ea) 1,1-Dichloro-1,2,3,3,3-pentafluoropropane	136013-79-1
(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) 1,1,1-Trichloro-3,3,3-trifluoropropane	134237-40-4 7125-83-9
Dichlorotetrafluoropropane (HCFC 234)	127564-83-4
Chloropentafluoropropane (HCFC 235) 1-Chloro-1,1,3,3,3-pentafluoropropane	134237-41-5 460-92-4
Tetrachlorofluoropropane (HCFC 241)	134190-49-1
Trichlorodifluoropropane (HCFC 242)	134237-42-6
Dichlorotrifluoropropane (HCFC 243) 1,1-dichloro-1,2,2-trifluoropropane 2,3-dichloro-1,1,1-trifluoropropane 3,3-Dichloro-1,1,1-trifluoropropane	134237-43-7 7125-99-7 338-75-0 460-69-5
Chlorotetrafluoropropane (HCFC 244) 3-chloro-1,1,2,2-tetrafluoropropane	134190-50-4 679-85-6
Trichlorofluoropropane (HCFC 251) 1,1,3-trichloro-1-fluoropropane	134190-51-5 818-99-5
Dichlorodifluoropropane (HCFC 252)	134190-52-6
Chlorotrifluoropropane (HCFC 253) 3-chloro-1,1,1-trifluoropropane (HCFC 253fb)	134237-44-8 460-35-5
Dichlorofluoropropane (HCFC 261) 1,1-dichloro-1-fluoropropane	134237-45-9 7799-56-6
Chlorodifluoropropane (HCFC 262) 2-chloro-1,3-difluoropropane	134190-53-7 102738-79-4
Chlorofluoropropane (HCFC 271) 2-chloro-2-fluoropropane	134190-54-8 420-44-0

\*Please note: These materials may contain isomers that are not listed here.  
 Isomers with CAS numbers have been included when available.

**TABLE 4: PCBs & PCTs**

**Polychlorinated Biphenyls (PCBs)  
 and Terphenyls (PCTs)**

	CAS Number
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

NUMBER: CPZ-CE-003  
REVISION: A1  
DATE: March 9, 2007  
PAGES: 12



## CORPORATE PRODUCT MATERIAL CONTENT POLICY

---

**TABLE 5: Glycol Ethers**

<b>Certain Glycol Ethers</b>	<b>CAS Numbers</b>
2-Ethoxyethanol	110-80-5
2-Ethoxyethyl acetate	111-15-9
2-Methoxyethanol	109-86-4
2-Methoxyethyl acetate	110-49-6
Diethylene glycol dimethyl ether	111-96-6