

**Kodak Health, Safety, and Environmental (HSE) Product Specifications
for Packaging and Packaging Components**

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1.0 Purpose:

Eastman Kodak Company (Kodak) expects that products supplied to Kodak will meet all applicable legal requirements during manufacture, distribution, and sale. Guidance on Kodak's expectations for Suppliers is provided in the Health, Safety, and Environmental (HSE) Supplier Performance Standard, which can be found at: <http://www.kodak.com/go/hsesupplierstandard>.

Kodak HSE Specifications for Packaging and Packaging Components (EKSP-1594) support the performance expectations described in the HSE Supplier Performance Standard by communicating specifications and the verification process to Suppliers.

2.0 **Scope:**

EKSP-1594 applies to all packaging and packaging components (referred to as “Packaging”), regardless of production location, that are supplied to, purchased, or used by Kodak for both KODAK and non-KODAK branded products.

3.0 **Definitions:**

Packaging – Any material intended to be used for the containment, protection, handling, delivery and presentation of goods from the producer to the user or consumer as defined by the European Parliament and Council Directive 94/62/EC on Packaging and Packaging Waste. Packaging may be classified as primary packaging, grouped or secondary packaging, and transport or tertiary packaging. Examples of packaging include: cartons, crates, pails, trays, and bags.

Packaging Component – Any individual assembled part of a package such as, but not limited to, any interior or exterior blocking, bracing, cushioning, weatherproofing, exterior strapping, stretch wrapping, coatings, closures, inks, adhesives, and labels.

Packaging-Related Product Component – A part or constituent of the sales unit that is essential to the use of the product for its intended purpose or application. Within an imaging system, it generally serves as an interface with an equipment product and may interface with internal manufacturing processes. The component may also be applied directly to a product. In this case, the principle function of the packaging-related product component should be to inform, not to protect or contain. The packaging-related product component may also assist in the manufacture and use of an otherwise packaged product. The component may be a robust item of long service life, shaped so as to offer specific accommodation to the relevant product for repeated placement or storage. Examples of packaging-related product components include: 35 mm magazines, film cassettes, film cartridges, film cartridge or cassette labels, video tape cassette labels, film paster and after-exposure labels, film spools or reels, long term storage boxes (microfilm, prints, transparencies), plastic compact disc cases, print wallets, video storage containers, ink cartridges, ink tanks, and toner bottles.

Packaging-related product components are not covered within the scope of this document. They must meet ***Kodak HSE Product Specifications for Articles and Chemical Products or their Components (EKSP-1636)*** (see www.kodak.com/go/hsesupplier).

Wood Packaging Materials – Packaging materials made of coniferous and non-coniferous raw wood. Examples include: wooden pallets, dunnage, crating, packing blocks, drums, cases, load boards, pallet collars and skids. Materials made wholly of engineered wood-based products such as plywood, particle board, oriented strand board, or veneer that have been created using glue, heat and pressure or a combination thereof are not included in this definition.

Recycled Content - The concentration of materials that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer) or after the consumer use (post-consumer) and have been reused in the production of another product.

Rigid Plastic Packaging Container (RPPC) - Any plastic package having a relatively inflexible finite shape or form that has a minimum capacity of eight fluid ounces (236.59006 milliliters), or the equivalent volume, and a maximum capacity of five fluid gallons (18.9272 liters), or the equivalent volume, and is capable of maintaining its shape while holding other products. RPPCs include, but are not limited to, bottles, cartons, pails, clamshells and other receptacles.

4.0 Specification Requirements:

The Supplier must evaluate all constituents of “Packaging” to ensure the following HSE Product Specifications are met. Section 5.0 identifies the process Suppliers must use to verify their product meets these requirements.

4.1 Packaging Material Requirements:

4.1.1 Restricted Materials:

Appendix A identifies restricted materials. Appendix B contains an expanded listing, which includes available Chemical Abstract Services (CAS) numbers.

Unless Kodak has confirmed acceptability for use and provided written permission to a Supplier, “Packaging” must not contain restricted materials above the prescribed thresholds. Some restricted materials cannot be used to manufacture “Packaging”.

4.1.2 Materials Requiring Declaration:

Kodak requires suppliers to declare any use of restricted materials, as well as the additional materials listed below. If possible, the Supplier should avoid the use of these materials. Information regarding these materials enables Kodak to meet current and future regulatory requirements.

A. Foamed Plastics

Foamed plastics are rigid plastic matrices that are formed using a blowing or foaming agent. Plastics commonly used include polystyrene, polyvinyl chloride, and polyurethane. The most common foamed plastic is expanded polystyrene (EPS).

B. Substances of Very High Concern (SVHC)

SVHC present at greater than 0.1% by weight must be declared. SVHC are identified on the “Candidate List” in Annex XIV of Article 59(1) of the Regulation (EC) No. 1907/2006 (EU REACH). The Candidate List can be found at:

http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp on the European Chemical Agency website.

Supplier must also review biannual updates to the list of SVHC, and inform Kodak at ww-mcd@kodak.com if a newly added material is present at greater than 0.1% by weight.

4.1.3 Paper Packaging:

4.1.3.1 Pulp Derived from Renewable Sources

Paper packaging must be manufactured using renewable pulps derived from managed natural regeneration forests and plantations. Suppliers should declare any chain-of-custody or third-party certification of the origin of pulp and paper (e.g., Forest Stewardship Council or Programme for the Endorsement of Forest Certification)

4.1.3.2 Corrugated Fiberboard Packaging

Corrugated fiberboard packaging and packaging components must contain at least 25% recycled content. Post-consumer content should be used when feasible.

4.1.4 Plastic Packaging:

Plastic packaging materials must be marked with the appropriate Society of the Plastics Industry Inc. (SPI) resin identification code. Exceptions include metallized films and laminates, shrink wrap, foams, and materials that have dimensions or color that make marking impractical.

4.1.5 Wood Packaging:

Solid wood packaging materials that are used in international trade and may serve as a pathway for plant pests must be treated and marked when exported or imported, according to UN Standard ISPM-15 and be free of bark. For further information refer to Appendix C.

Sawdust, wood wool, shavings, and raw wood cut into thin pieces are not suitable pathways for introduction of quarantine pests and are not regulated unless technically justified.

4.2 Regional Requirements for Product Packaging:

In addition to the packaging material requirements outlined in Section 4.1, product packaging must comply with various state, country and regional requirements as outlined below. Additional information on these requirements can be obtained from references contained in Appendix C. More specific requirements driven by the product market will be defined in the Product Requirements Document.

4.2.1 Regional Packaging Fees:

Kodak is responsible for payment of packaging fees when it places a product on the market in various regions of the world. Suppliers must provide the weight, volume, and material composition of all packaging supplied to Kodak in order to facilitate calculation of these fees.

If Kodak resells a non-Kodak branded product in the same region in which it was purchased by Kodak, the Supplier assumes responsibility for payment of fees.

4.2.2 Requirements in China:

All external packaging for Electronic Information Products (EIP) covered under China's *Management Methods for Controlling Pollution Caused by Electronic Information Products* (China RoHS) must be labeled as required by China's National Standard for Packaging Recycling Marks GB 18455-2001.

4.2.3 Requirements in the European Union (EU):

4.2.3.1 Essential Requirements for Packaging and Packaging Waste

Article 9 of the European Parliament and Council Directive 94/62/EC on packaging and packaging waste requires that packaging meet "essential requirements." The "essential requirements" are:

- 1) Packaging shall be so manufactured that the packaging volume and weight be limited to the minimum adequate amount to maintain the necessary level of safety, hygiene and acceptance for the packaged product.

- 2) Packaging shall be designed, produced and commercialized in such a way as to permit its reuse, recycling, or recovery and to minimize its impact on the environment when packaging waste or residues from the packaging waste management operations are disposed of.
- 3) Packaging shall be so manufactured that the presence of noxious and other hazardous substances and materials as constituents of the packaging materials or of any of the packaging is minimized with regards to their presence in emissions, ash or leachate when packaging or residues are incinerated or landfilled.

The Directive includes a "conformity assessment procedure" which requires the manufacturers to "certify that their packaging complies with the requirements of the packaging and packaging waste directive." Unless product packaging is specified by Kodak, Suppliers of packaged products must be able to produce the Conformity Assessment Report when requested.

4.2.3.2 Manual Handling

EU Council Directive 90/269/EEC requires that manually handled packages, where there is a risk of back injury to workers, be marked with the weight of the load and the center of gravity when a package is asymmetrically loaded.

The maximum package weight for products, which are expected to be handled manually, should not be greater than 29 pounds (lbs) (13 kg). Any package weighing more than 40 lbs (19 kg) should consider adding additional design features, such as handles or handle holes, to aid in the manual handling of that case. Any package weighing more than 51 lbs (23 kg) should be transported on a pallet or some other mechanical means of movement.

4.2.3.3 Dimethylfumarate

According to European Commission Decision 2009/251/EC, dimethylfumarate (CAS No. 624-49-7) can not be present in "Packaging" at a concentration greater than 0.1. mg/kg. Because this substance is most commonly used in desiccants, Suppliers of these packaging components are required to provide an EU compliant Material Safety Data Sheet and an analytical test report for dimethylfumarate content from a laboratory accredited to ISO/IEC 17025 or an equivalent standard in order to demonstrate that this requirement has been met.

4.2.4 Requirements in Japan:

Identification marks are required on all plastic and paper containers and packaging sold into the consumer market, excluding corrugated fiberboard material.

4.2.5 Requirements in South Korea:

Article 14 of the "Act on the Promotion of Saving and Recycling Resources" requires that all foam packaging components used as cushioning materials for electronic equipment in Korea be marked with a "separate discharge" mark. The mark allows consumers to easily separate products/packaging for recycling. Exemptions include: packaging and packaging component materials with a surface area of 50 cm² or less; containers with components weighing 30 g or less; and packaging and packaging component materials whose nature and structure impede printing, engraving or labeling on the material.

4.2.6 Requirements in the United States:

4.2.6.1 Rigid Plastic Containers (RPPC)

All RPPC must be marked with the appropriate SPI resin identification code and contain at least 25% post consumer recycled content to meet various state requirements. Exemptions exist for medical products. Other allowable alternatives must be defined in the Product Requirements Document.

4.2.6.2 Plastic Bags

Plastic bags that are larger than five (5) inches in diameter at the open end and have a film thickness of less than one mil (0.001 inch) must be labeled with a suffocation warning statement as required to meet various city and state requirements.

5.0 Supplier Verification Requirements:

Upon entering into an agreement with Kodak, the Supplier is expected to complete Kodak's Declaration Form (**DF**) to document conformance to HSE Specifications outlined in Section 4.0.

5.1 Obtaining a Declaration Form:

The Supplier must go to Kodak's website at: www.kodak.com/go/hsesupplier to initiate a **Declaration Form (DF)**. The Supplier must also respond within 10 business days to Kodak's direct request for the **DF**.

The Supplier is expected to verify conformance for all Supplier sites that could supply "Packaging" to Kodak. Multiple **DFs** may be needed if the responses differ by production location. Supplier can request additional **DFs** by sending an email to: ww-mcd@kodak.com.

5.2 Expectation Regarding Second Tier Suppliers:

The Supplier is responsible for contacting their suppliers to ensure accurate and complete information is provided to Kodak. Documentation and/or test data, including documentation and data from the Supplier's supply chain, which is the basis of Supplier's **DF**, must be kept on file and made available upon request by Kodak.

5.3 Change Management:

Once the Supplier provides a **DF** for "Packaging", the Supplier must ensure that future changes continue to meet HSE Specifications. The Supplier must notify Kodak, by sending an email to ww-mcd@kodak.com, whenever product, process, material or regulatory changes result in changes to the **DF**.

5.4 Additional Information:

Upon request, Suppliers must provide additional information to Kodak to verify applicable "Packaging" material composition, marking and product labeling requirements have been met. As stated previously, additional requirements will be identified in the Product Requirements Document (PRD) or other similar documents.

6.0 Document History

<i>Revision</i>	<i>Section</i>	<i>Change</i>	<i>Date</i>
13		Updated to reflect new Kodak standards and format	10/17/2008
14	2.0	Added “regardless of production location”	1/1/2010
	3.0	Changed definition to reference the definition of packaging in the EU Packaging and Packaging Waste Directive	
	3.0	Added ink tanks for large commercial equipment to examples in definition of Packaging-Related Product Component	
	4.1	Shifted restricted materials list to Appendix A	
	4.1.2	Added requirement that Supplier review biannual updates to EU REACH Candidate List	
	4.1.4	Added requirement for marking plastics with resin identification code	
	4.1.5	Deleted composite wood requirement because it is no longer applicable to packaging	
	4.2.2	Added regulatory reference to GB 18455-2001	
	4.2.3	Added requirements for dimethylfumarate in the EU	
	4.2.5	Deleted EPS restriction in S. Korea because this requirement is no longer in effect (as of January 2010)	
	4.2.6	Added requirements for plastic bags in the US	
	5.1	Added expectation that Supplier submit multiple DFs if responses differ by production location	
	5.3	Updated email address used to notify Kodak product, process, or material or regulatory changes result in changes to the DF to ww-mcd@kodak.com.	
	Appendix B	Fixed errors and added or removed examples.	

Appendix A – Restricted Materials

See Appendix B for expanded chemical lists with available Chemical Abstract Services (CAS) numbers.

MATERIAL	REQUIREMENT	THRESHOLD LEVEL
Azo Colorants which form certain aromatic amines (refer to Appendix B for the list of specific amines)	Restricted	30 ppm
Brominated Flame Retardants (includes PBBs and PBDEs)	Restricted	1000 ppm
Heavy Metals: Cadmium/Cadmium Compounds Hexavalent Chromium/Hexavalent Chromium Compounds (Cr+6) Lead/Lead Compounds Mercury/Mercury Compounds	Restricted	No intentional addition The total concentration of these heavy metals can not exceed 100 ppm. Refer to Appendix D for the test methodology.
Ozone Depleting Substances- Class I CFCs, HBFCs	Restricted	0 ppm and no use in manufacture
Ozone Depleting Substances- Class II HCFCs	Restricted	1000 ppm and no use in manufacture
Polyvinyl Chloride (PVC) and Polyvinylidene dichloride (PVDC)	Restricted	1000 ppm
Perfluorooctane sulfonate (PFOS), PFOS-related substances (C ₈ F ₁₇ SO ₂ X where X = OH, metal salt, halide, amide, and other derivatives including polymers), perfluorooctanoic acid (PFOA), or PFOA salts.	Restricted	0 ppm and no use in manufacture

Appendix B - Expanded Chemical Lists with Chemical Abstract Services (CAS) Numbers

TABLE— Aromatic Amines formed from Azocolourants and Azodyes*

Aromatic Amines	CAS Numbers
biphenyl-4-ylamine	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'-methylenedianiline	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-toluidine	838-88-0
6-methoxy-m-toluidine	120-71-8
4,4'-methylene-bis(2-chloroaniline)	101-14-4
4,4'-oxydianiline	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 3

*Note: The European Community's aromatic amines ban applies to certain azocolourants and azodyes that by reductive cleavage of azo groups may release one of the above 22 aromatic amines.

TABLE — Cadmium/Cadmium Compounds

Cadmium/Cadmium Compounds	CAS Numbers
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	---

TABLE — Chromium VI Compounds

Chromium VI Compounds	CAS Numbers
Chromium (VI) oxide	1333-82-0
Barium chromate	10294-40-3
Calcium chromate	13765-19-0
Chromium trioxide	1333-82-0
Lead (II) chromate	7758-97-6
Sodium chromate	7775-11-3
Sodium dichromate	10588-01-9/ EC Number 234-190-3
Strontium chromate	7789-06-2
Potassium dichromate	7778-50-9
Potassium chromate	7789-00-6

Chromium VI Compounds	CAS Numbers
Zinc chromate	13530-65-9
Other hexavalent chromium compounds	---

TABLE — Lead/lead Compounds

Lead/lead Compounds	CAS Numbers
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	7446-27-7
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
Other lead compounds	---

TABLE — Mercury/Mercury Compounds

Mercury /Mercury Compounds	CAS Numbers
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
Other mercury compounds	---

TABLE — Ozone Depleting Substances/Isomers Class I*

Ozone Depleting Substances/Isomers Class I	CAS Numbers
Trichlorofluoromethane	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 Trichloro-1,2,2 trifluoroethane	76-13-1
Dichlorotetrafluoroethane (CFC 114)	76-14-2
Monochloropentafluoroethane (CFC 115)	76-15-3
Heptachlorofluoropropane (CFC 211)	422-78-6
	135401-87-5

Ozone Depleting Substances/Isomers Class I	CAS Numbers
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
Dibromofluoromethane	1868-53-7
Bromodifluoromethane	1511-62-2
Bromofluoromethane	373-52-4
Tetrabromofluoroethane	306-80-9
Tribromodifluoroethane	---
Dibromotrifluoroethane	354-04-1
Bromotetrafluoroethane	124-72-1
Tribromofluoroethane	---
Dibromodifluoroethane	75-82-1
Bromotrifluoroethane	421-06-7
Dibromofluoroethane	358-97-4
Bromodifluoroethane	420-47-3
Bromofluoroethane	762-49-2
Hexabromofluoropropane	---
Pentabromodifluoropropane	---
Tetrabromotrifluoropropane	---
Tribromotetrafluoropropane	---
Dibromopentafluoropropane	431-78-7
Bromoheptafluoropropane	2252-78-0
Pentabromofluoropropane	---
Tetrabromodifluoropropane	---
Tribromotrifluoropropane	---
Dibromotetrafluoropropane	---
Bromopentafluoropropane	460-88-8
Tetrabromofluoropropane	---
Tribromodifluoropropane	70192-80-2
Dibromotrifluoropropane	431-21-0
Bromotetrafluoropropane	679-84-5
Tribromofluoropropane	75372-14-4
Dibromodifluoropropane	460-25-3
Bromotrifluoropropane	421-46-5
Dibromofluoropropane	51584-26-0
Bromodifluoropropane	---
Bromofluoropropane	1871-72-3
Bromochloromethane	74-97-5

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

TABLE — Ozone Depleting Substances/Isomers Class II*

Hydrochlorofluorocarbons/ Isomers Class II ODS	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 (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

Hydrochlorofluorocarbons/ Isomers Class II ODS	CAS Numbers
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. Isomers with CAS numbers have been included when available.*

TABLE — Polybrominated Biphenyls (PBBs)*

Polybrominated Biphenyls (PBBs)	CAS Numbers
Polybrominated Biphenyls	59536-65-1
Dibromobiphenyl	92-86-4
2-Bromobiphenyl	2052-07-5
3-Bromobiphenyl	2113-57-7
4-Bromobiphenyl	92-66-0
Tribromobiphenyl	59080-34-1
Tetrabromobiphenyl	40088-45-7
Pentabromobiphenyl	56307-79-0
Hexabromobiphenyl	59080-40-9
hexabromo-1,1-biphenyl	36355-01-8
Firemaster FF-1	67774-32-7
Heptabromobiphenyl	35194-78-6
Octabromobiphenyl	61288-13-9
Nonabiphenyl	27753-52-2
Decabromobiphenyl	13654-09-6

**Note: As defined in the EU Directive 2002/95/EC*

TABLE — Polybrominated Diphenyl Ethers (PBDEs)*

Polybrominated Diphenyl Ethers (PBDEs)	CAS Numbers
Bromodiphenyl ether	101-55-3
Dibromodiphenyl ethers	2050-47-7
Tribromodiphenyl ether	49690-94-0
Tetrabromodiphenyl ethers	40088-47-9
Pentabromodiphenyl 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)
Hexabromodiphenyl ether	36483-60-0
Heptabromodiphenylether	68928-80-3
Octabromodiphenyl ether	32536-52-0
Nonabromodiphenylether	63936-56-1
Decabromodiphenyl ether	1163-19-5

*Note: As defined in the EU Directive 2002/95/EC

TABLE — Other Brominated Flame Retardants

Brominated Flame Retardants (other than PBBs or PBDEs)	CAS Numbers
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(14) [Aliphatic/alicyclic brominated compounds]	---
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(15) [Aliphatic/alicyclic brominated compounds in combination with antimony compounds]	---
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(16) [Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls]	---
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(17) [Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls) in combination with antimony compounds]	---
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(22) [Aliphatic/alicyclic chlorinated and brominated compounds]	---
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(42) [Brominated organic phosphorus compounds]	---
Poly(2,6-dibromo-phenylene oxide)	69882-11-7
Tetra-decaboro-diphenoxy-benzene	58965-66-5
1,2-Bis(2,4,6-tribromo-phenoxy) ethane	37853-59-1
3,5,3',5'-Tetrabromo-bisphenol A (TBBA)	79-94-7
TBBA, unspecified	30496-13-0
TBBA-epichlorhydrin oligomer	40039-93-8
TBBA-TBBA-diglycidyl-ether oligomer	70682-74-5
TBBA carbonate oligomer	28906-13-0
TBBA carbonate oligomer, phenoxy end capped	94334-64-2
TBBA carbonate oligomer, 2,4,6-tribromo-phenol terminated	71342-77-3
TBBA-bisphenol A-phosgene polymer	32844-27-2
Brominated epoxy resin end-capped with tribromophenol	139638-58-7
Brominated epoxy resin end-capped with tribromophenol	135229-48-0
TBBA-(2,3-dibromo-propyl-ether)	21850-44-2
TBBA bis-(2-hydroxy-ethyl-ether)	4162-45-2
TBBA-bis-(allyl-ether)	25327-89-3
TBBA-dimethyl-ether	37853-61-5
Tetrabromo-bisphenol S	39635-79-5
TBBS-bis-(2,3-dibromo-propyl-ether)	42757-55-1
2,4-Dibromo-phenol	615-58-7
2,4,6-tribromo-phenol	118-79-6

Brominated Flame Retardants (other than PBBs or PBDEs)	CAS Numbers
Pentabromo-phenol	608-71-9
2,4,6-Tribromo-phenyl-allyl-ether	3278-89-5
Tribromo-phenyl-allyl-ether, unspecified	26762-91-4
Bis(methyl)tetrabromo-phthalate	55481-60-2
Bis(2-ethylhexyl)tetrabromo-phthalate	26040-51-7
2-Hydroxy-propyl-2-(2-hydroxy-ethoxy)-ethyl-TBP	20566-35-2
TBPA, glycol-and propylene-oxide esters	75790-69-1
N,N'-Ethylene -bis-(tetrabromo-phthalimide)	32588-76-4
Ethylene-bis(5,6-dibromo-norbornane-2,3-dicarboximide)	52907-07-0
2,3-Dibromo-2-butene-1,4-diol	3234-02-4
Dibromo-neopentyl-glycol	3296-90-0
Dibromo-propanol	96-13-9
Tribromo-neopentyl-alcohol	36483-57-5
Poly tribromo-styrene	57137-10-7
Tribromo-styrene	61368-34-1
Dibromo-styrene grafted PP	171091-06-8
Poly-dibromo-styrene	31780-26-4
Bromo-/Chloro-paraffins	68955-41-9
Bromo-/Chloro-alpha-olefin	82600-56-4
Vinylbromide	593-60-2
Tris-(2,3-dibromo-propyl)-isocyanurate	52434-90-9
Tris(2,4-Dibromo-phenyl) phosphate	49690-63-3
Tris(tribromo-neopentyl) phosphate	19186-97-1
Chlorinated and brominated phosphate ester	125997-20-8
Pentabromo-toluene	87-83-2
Pentabromo-benzyl bromide	38521-51-6
1,3-Butadiene homopolymer,brominated	68441-46-3
Pentabromo-benzyl-acrylate, monomer	59447-55-1
Pentabromo-benzyl-acrylate, polymer	59447-57-3
Decabromo-diphenyl-ethane	84852-53-9
Tribromo-bisphenyl-maleinimide	59789-51-4
Brominated trimethylphenyl-Indane	---
Other Brominated Flame Retardants	---
Tetrabromo-cyclo-octane	31454-48-5
1,2-Dibromo-4-(1,2 dibromo-methyl)-cyclo-hexane	3322-93-8
TBPA Na salt	25357-79-3
Tetrabromo phthalic-anhydride	632-79-1
Hexabromo-cyclo-dodecane (HBCDD), unspecified	25637-99-4, 3194-55-6
alpha-hexabromocyclododecane	134237-50-6
beta-hexabromocyclododecane	134237-51-7
gamma-hexabromocyclododecane	134237-52-8

TABLE— (PVC) Polyvinyl Chloride, Polyvinylidene dichloride (PVDC)

Polyvinyl Chloride, Polyvinylidene dichloride (PVDC)	CAS Number
Polyvinyl chloride (PVC)	9002-86-2
Polyvinylidene dichloride (PVDC)	9002-85-1

Appendix C – References

European Parliament and Council Directive 96/62/EC on Packaging and Packaging Waste (Amended by Directive 2004/12/EC)

Further information can be obtained at:

http://europa.eu/legislation_summaries/environment/waste_management/121207_en.htm

Plastic Packaging Materials

Further Information on the SPI resin identification code can be obtained at:

<http://www.plasticsindustry.org/AboutPlastics/content.cfm?ItemNumber=825&navItemNumber=1124>

Wood Packaging Materials

Approved treatment includes fumigation with methyl bromide or heat treatment (HT)—heated to a core temperature of 56 deg C (133 deg F) for 30 min. Kiln drying (KD) or chemical pressure impregnation (CPI) may be considered heat treatment to the extent that these meet the heat treatment specifications mentioned.

Treated solid wood packaging materials must be marked with the International Plant Protection Convention (IPPC) logo, the ISO two-letter country code followed by a unique number assigned by the National Plant Protection Organization (NPPO) to the producer, and the IPPC approved abbreviation for the phytosanitary treatment measure used (e.g., HT and MB).

Recycled, remanufactured or repaired wood packaging material should be re-certified and re-marked. All components of such material should have been treated.

Further information may be obtained at <https://www.ippc.int/IPPC/En/default.jsp>.

Rigid Plastic Packaging Containers in the United States (8 fl. oz. – 5 gal.)

California - All products sold in California will comply with one of the following requirements: 10% source reduction, 5 time reuse rate, 45% brand-specific container recycle rate or 25% post consumer content. (Exemptions include: Containers which have been manufactured according to UN Transportation guidelines or FIFRA guidelines for holding insecticides, medical devices, food, drug or cosmetics, toxic or hazardous products or are manufactured for use in the shipment of hazardous materials, where prohibited by federal law from being manufactured with "used materials" (i.e. post consumer resin).

Further information can be obtained at:

<http://www.ciwmb.ca.gov/regulations/title14/ch4a3a.htm> and
<http://www.ciwmb.ca.gov/regulations/title14/ch4a3b.htm>.

Oregon - All products sold in Oregon will comply with one of the following requirements: source reduction (required every 5 years), 5 time reuse rate, 25% recycle rate or 25% post consumer content. (Exemptions include containers that have been manufactured according to UN Transportation guidelines or FIFRA guidelines for holding insecticides and medical devices.) Further information can be obtained at <http://www.leg.state.or.us/ors/459a.html>

Wisconsin - All products sold in Wisconsin will contain 10% recycled content. (Exemptions include containers that have been manufactured according to UN Transportation guidelines or

FIFRA guidelines for holding insecticides and medical devices.) Further information can be obtained at <http://www.legis.state.wi.us/statutes/Stat0100.pdf>, pages 27 -32 (100.297 & 100.33).

European Council Directive 90/269/EEC on Manual Handling Requirements

Further information can be found at:

<http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31990L0269:EN:HTML>.

Japan's Bill Concerning the Promotion of the Separation, Collection and Recycling of Container Packages

For additional information refer to "Identification is Requested by Law on Plastic Containers and Packaging, and on Paper Containers and Packaging", published by Ministry of Economy, Trade and Industry (METI) at: <http://www.meti.go.jp/english/information/downloadfiles/ceIndiMarke.pdf>.

Korean Separate Discharge Mark

Further information, including the marks, can be obtained from ENVICO at:

http://www.envico.or.kr/language/Eng/epr/separate/Eng_Separate_FAQ_View.htm

http://www.envico.or.kr/language/Eng/epr/separate/Eng_Separate_Design_View.htm

United States Plastic Bag Requirements

The cities of Chicago and New York, and the states of California, New York, Massachusetts, and Rhode Island require warning labels on plastic (polyethylene) bags with a **thickness of less than one mil (1/1000 inch) and have an opening size of seven inches or more (5 inches in Rhode Island).**

The following or similar statement is required:

"Warning: Keep this bag away from babies and children. Do not use in cribs, beds, carriages or playpens. The thin film may cling to nose and mouth and prevent breathing.

The warning should be printed conspicuously and legibly on each bag. The size of the print must adhere to the chart listed below

Total Length and Width of Bag	Minimum size of print
60 inches or more	24 point
40 to 59 inches	18 point
30 to 39 inches	14 point
25 to 29 inches	10 point

Further Information can be obtained at:

California Business and Professions Code, Section 22200-22205:

<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=bpc&group=22001-23000&file=22200-22205>

City of Chicago Title 7, Chapter 7-28, 7-28-050:

[http://www.amlegal.com/nxt/gateway.dll/Illinois/chicago_il/municipalcodeofchicagoillinois?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:chicago_il](http://www.amlegal.com/nxt/gateway.dll/Illinois/chicago_il/municipalcodeofchicagoillinois?f=templates$fn=default.htm$3.0$vid=amlegal:chicago_il)

New York State Title 10, Section 12-12:

<http://www.health.state.ny.us/nysdoh/phforum/nycrr10.htm>

Rhode Island Title 11 Criminal Offenses, Chapter 11-9 Children, Section 11-9-6:

<http://www.rilin.state.ri.us/Statutes/TITLE11/11-9/11-9-16.HTM>

Appendix D – Instructions for Testing and Sampling Heavy Metals in Packaging

CHEMICAL	TECHNIQUE	SPECIFICATION	TEST METHOD*
Cadmium	Inductively coupled plasma	Less than 100 ppm total with Pb, Hg, and Cr (VI)	6010
Lead	Inductively coupled plasma	Less than 100 ppm total with Cd, Hg, and Cr (VI)	6010
Mercury	Cold Vapor Atomic Absorption Spectroscopy	Less than 100 ppm total with Cd, Pb, and Cr (VI)	7470, 7471
Chromium VI	Atomic Absorption Spectroscopy	Less than 100 ppm total with Cd, Pb, and Hg	7190, 7195, 7196, 7197

*** Test Method - The US EPA's SW 846 set of analytical methods for the determination of chemical concentrations in wastes and other materials.**