GPCSE

Global Product and Component Specification for the Environment

Abstract: This document describes X-Rite global specification for restricting or prohibiting certain chemical compounds and materials in X-Rite products or manufacturing processes and contains general product content restrictions (battery, material content, packaging materials, product labeling and marking requirements, chemical registration requirements, ozone depleting substance restrictions, and others).

Applicability: All X-Rite design centers, X-Rite manufacturing facilities and X-Rite suppliers involved in generating X-Rite products, parts, or components must comply with the X-Rite Global Product and Component Specification for the Environment (GPCSE).

Company Name _____

Name and Title _____

Authorized Signature _____

Contact information (Address) _____

TEL _____

FAX _____

Date _____

On behalf of the aforesaid company, I hereby attest that I understand that the substances listed below are prohibited from inclusion in products and materials delivered to ( ). I further attest that said substances are not intentionally included in said products and materials now, nor will they be in the future.

Owner – Mark Schmidt

Revision History

December 2004

- Initial release PCSE

Revised 8-28-2007

- Include signature page
- Changed name from PCSE to GPCSE.
- Included Battery and Packaging sections.

Revised 9-26-2007

Section 3.0
- Added perfluorooctane sulfonates (PFOS) restriction.
- Revised the nickel restriction to align with the regulation.

Section 6.0
- Added non-rechargeable type batteries must not contain lead exceeding 0.2% (2000 ppm) by weight, and non-rechargeable alkaline and carbon-zinc batteries must be hermetically sealed.
- Revised U.S. based restrictions on mercury in alkaline-manganese and zinc-carbon batteries at 0.0001% (1 ppm).
- Added non-rechargeable alkaline and carbon-zinc batteries must be labeled with the battery manufacturer's brand name, model designation, expiration date (month and year) and country of origin.
- Deleted the note that labeling requirement for The Netherlands must also be met.

Section 7.0
- Clarified methyl bromide sterilization must not be used.
- Added that all materials used in the packaging systems must be recyclable.

Revised 4-15-2008

- Revised error in subclasue 3.16 Perfluorooctane sulfonates from "These requirements in section 3.15.1 and 3.15.2 do not apply....." to "These requirements in section 3.16.1 and 3.16.2 do not apply....."

Revised 5-28-2008

- Added REACH Directive EC1907/2006

Table of Contents

1.0 SCOPE

1.1 Certain Chemicals Restricted or Prohibited

This specification provides X-Rite's general requirements for prohibiting or restricting certain chemical compounds as constituents of parts, components, materials and products purchased by X-Rite worldwide, and for prohibiting the use of certain compounds in the manufacture of parts, components materials and products by X-Rite worldwide.

1.2 Marking and Labeling For Recycling and Disposal.

This specification also provides X-Rite's general requirements for product marking and labeling for recycling and disposal of X-Rite purchased parts, components, materials, products and packaging.

1.3 Compliance with Applicable Laws.

This specification is not intended to be a listing of all product content limitations or restrictions that may be established as a matter of law. Seller's compliance with this specification does not relieve or diminish Seller's obligation to comply with all applicable laws.

1.4 Relation to Other X- Rite Specifications.

This specification is in addition to, and in no way limits or supersedes, any other product specifications that may be established by X-Rite.

2.0 PURPOSE

The purpose of this specification is to present X-Rite general product content requirements for X-Rite -purchased parts, components, materials and products that X-Rite sells or that are incorporated into the products X-Rite sells.

3.0 GENERAL PRODUCT CONTENT RESTRICTIONS

The restrictions and prohibitions specified in this Section 3.0 apply to the specified compound as a constituent of all parts, components, materials or products purchased by X-Rite, and for Ozone Depleting Substances (ODS) used in manufacturing (Section 3.15).

3.1 Asbestos.

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

3.2 Certain Azo Colorants.

Azo colorants listed in Table 5.1 must not be used in X- Rite products made from textiles or leather (such as, carrying cases and protective covers) in concentrations greater than or equal to 0.1% (1000 PPM) by material weight where the substance may come in prolonged direct contact with exposed skin.

3.3 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) in concentrations greater than or equal to 0.1% (1000 PPM) by material weight. PBBs and PBDEs restricted under this section include, but are not limited to, those listed in Table 5.2.

3.4 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.

3.5 Chlorinated Hydrocarbons

The chlorinated hydrocarbons listed in Table 5.3 must not be contained in any parts, components, materials or products in concentrations greater than or equal to 0.1% (1000 PPM) by material weight.

3.6 Chlorinated Paraffins

Short Chain Chlorinated Paraffins (SCCPs), including but not limited to those identified by CAS numbers 63449-39-8 and 85535-84-8, must not be used or contained in softeners in paints,coatings and sealants; in oils; or in flame-retardants in rubber, plastic and textiles in concentrations greater than or equal to 0.1% (1000 PPM) by material weight.

3.7 Formaldehyde

Formaldehyde must not be used in wooden materials, furniture, detergents, cleaning agents and polishes in concentrations greater than or equal to 0.0005% (5 PPM) by material weight.

3.8 Halogenated Diphenyl Methane

The following halogenated diphenyl methanes must not be present in any parts, components, materials, or products in concentrations greater than or equal to 0.1% (1000 PPM) by material weight:

NAME	CAS #
Monomethyltetrachlorodiphenylmethane	76253-60-6
Monomethyldichlorodiphenylmethane	81161-70-8
Monomethyldibromodiphenylmethane	99788-47-8

3.9 Hexavalent Chromium/Hexavalent Chromium Compounds

See section 3.13.

3.10 Lead/Lead Compounds

See section 3.13.

3.11 Lead in Paint

Lead carbonates and sulfates must not be used in any paint applied to parts, components, materials or products in concentrations greater than 0.01% (100 PPM) by material weight.

3.12 Mercury

Mercury must not be used in parts, components, materials or products (including switches, relays or electrical contacts) in concentrations greater than 0.1% (1000 ppm) by material weight unless the use of a RoHS exemption has been specifically approved by X-Rite (see section 3.13), such as for scanner bulbs, projector lamps, backlit displays or LED's.

3.13 RoHS Compliance for Parts, Components, Materials and Products

Generally. The European Union has adopted Directive 2002/95/EC, Restrictions of Hazardous Substances ("RoHS"), which 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. X-Rite expects its suppliers to meet all RoHS requirements as needed to support X-Rite business needs, X-Rite product cycles and X-Rite reliability requirements for products. Upon request
the supplier will meet the provisions of Section 4.0, "Supplier Verification."

3.14 Nickel

Nickel finishes that release greater than 0.5 µg/cm_2/week must not be used on the external surface of any product designed to be frequently handled or carried by the user (or intended to be in direct and prolonged skin contact). Measurement to be performed using EN 1811:1998.

3.15 Ozone Depleting Substances (ODS)

3.15.1 ODS Use in Product Manufacturing Process. The ODS substances listed in Table 5.4 must not be used in the manufacturing process of any parts, components, materials or products.

3.15.2 ODS in Parts, Components, Materials and Products. The ODS substances listed in Table 5.5 must not be contained in any parts, components, materials or products.

3.16 Perfluorooctane sulfonates.

3.16.1 Perfluorooctane sulfonates (PFOS, CAS# 1763-23-1) must not be used after 27 June 2008in concentrations equal to or greater than 0.1% (1000 ppm) by weight in parts,components, or products.
3.16.2 Perfluorooctane sulfonates (PFOS, CAS# 1763-23-1) must not be used after 27 June 2008 in concentrations equal to or greater than 0.005% (50 ppm) by weight in preparations.

These requirements in sections 3.16.1 and 3.16.2 do not apply to the following applications or processes:
• photoresists or antireflective coatings for photolithography processes
• photographic coatings applied to films, papers, or printing plates
• mist suppressants for nondecorative hard chromium (VI) plating
• wetting agents for use in controlled electroplating systems

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

Polychlorinated biphenyls (PCBs) and polychlorinated terphenyls (PCTs) must not be present in parts, components, materials, or products in concentrations greater than or equal to 0.0005% (5PPM) by material weight.

3.18 Polychlorinated Naphthalene (more than 3 chlorine atoms).

Polychlorinated Naphthalene (more than 3 chlorine atoms) must not be present in parts, components, materials, or products in concentrations greater than or equal to 0.0005% (5 PPM) by material weight.

3.19 Poly Vinyl Chloride (PVC)

PVC must not be used in the external housings of products in concentrations greater than or equal to 0.0005% (5 PPM) by material weight. This restriction does not apply to the sheathing of wires and cables, plastic parts weighing less than 25 grams and to protective product covers.

3.20 Lead in Poly Vinyl Chloride (PVC) Coating for Cable, Wire and Cords.

The concentration of lead (Pb) in the PVC coating (outer jacket) of external PVC coated cable, wire or cord must not exceed 0.03% (300 PPM) by material weight and for internal PVC coated cable, wire or cord must not exceed 0.1% (1000 ppm) by material weight.

3.21 Radioactive Substances

Radioactive substances must not be present in parts, components, materials or products.

3.22 Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Per Table 5.6, TBT's, TPT's, and TBTO's must not be used in parts, components, materials or products in concentrations greater than or equal to 0.0005% (5 PPM) by material weight.

4.0 SUPPLIER VERIFICATION

Documentation and/or test data, including documentation and data from the seller's supply chain, which demonstrates specific actions by the seller to verify compliance must be kept on file and made available on request.
Upon request by X-Rite the seller will verify compliance of materials, parts, components, and/or products using analytical testing or other suitable means approved by X-Rite.

5.0 TABLES

Table 5.1
Azo Colorants

(Please note that the EC azo dyes ban only applies to certain azo colorants that by reductive cleavage of azo groups may release one of the following 22 aromatic amines.)

Name	CAS #
biphenyl-4-amine	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

*CAS = Chemical Abstract Service

Table 5.2
Brominated Flame Retardants Prohibited from Products

Brominated Flame Retardant Groups	CAS #
Bromobiphenyl	2052-07-05, 2113-57-7, 92-66-0
Bromobiphenyl Ether	101-55-3
Decabromobiphenyl	13654-09-06
Decabromobiphenyl Ether	1163-19-5
Dibromobiphenyl	92-86-4
Dibromobiphenyl Ether	2050-47-7
Heptabrombiphenyl	
Heptabromobiphenyl Ether	68928-80-3
Hexabromobiphenyl	59080-40-9, 36355-01-8, 67774-32-7
Hexabromobiphenyl Ether	36483-60-0
Nonabromobiphenyl	
Nonabromobiphenyl Ether	63936-56-1
Octabrombiphenyl	61288-13-9
Octabromobiphenyl Ether	32536-52-0
Pentabromobiphenyl	
Pentabromobiphenyl Ether	32534-81-9
Polybrominated Biphenyl, Polybromobiphenyl(s), Polybromodiphenyl(s)	59536-65-1
Polybrominated Biphenyl Ether, Polybrominated Biphenyl Oxide	
Tetrabromobiphenyl	40088-45-7
Tetrabromobiphenyl Ether	40088-47-9
Tribromobiphenyl	
Tribromobiphenyl Ether	49690-94-0

Note: The above list is not exclusive. The prohibition in Section 3.3 of this specification for flame retardants that are Polybrominated Biphenyls (PBBs) or Polybrominated Diphenyl Ethers (PBDEs) represent certain chemical groupings within these categories.

*CAS = Chemical Abstract Service

Table 5.3
Chlorinated Hydrocarbons Prohibited From Products

Name	CAS #
1,1 Dichloroethylene	75-35-4
Pentachloroethane	76-01-7
Methylenechloride	75-09-2
Tetrachloroethane	56-23-5
1,1,1,2 Tetrachloroethane	630-20-6
1,1,2,2 Tetrachloroethane	79-34-5
Tetrachloroethylene	127-18-4
Trichloromethane	67-66-3
1,1,2 Trichloroethane	79-00-5
Trichloroethylene	79-01-6

*CAS = Chemical Abstract Service

Table 5.4
Ozone Depleting Substances Prohibited From Product Manufacturing Process

Chlorofluorocarbons	Halons
CFC-11	• halon-1211
CFC-12	• halon-1301
CFC-13	• halon-2402
CFC-111	• All isomers of the above substances
CFC-112	All isomers of the above substances
CFC-113	
CFC-114	**Other**
CFC-115	
CFC-211	• carbon tetrachloride
CFC-212	• methyl chloroform (1,1,1 trichloroethane)
CFC-213	• All isomers of the above substances except1,1,2 trichloroethane
CFC-214	• methyl bromide
CFC-215	• All hydrobromofluorocarbons
CFC-216	
CFC-217	

Table 5.5
Ozone Depleting Substances Prohibited From Products

Group I
Chlorofluorocarbons, CFCs (includes isomers of listed substances)

CFCl3 (CFC- 11)
CF2Cl2 (CFC- 12)
C2F3Cl3 (CFC-113)
C2F4Cl2 (CFC-114)
C2F5Cl (CFC-115)

Group II
Other Fully Halogenated CFCs (includes isomers of listed substances)

CF3Cl (CFC- 13)
C2FCl5 (CFC-111)
C2F2C14 (CFC-112)
C3FCl7 (CFC-211)
C3F2Cl6 (CFC-212)
C3F3Cl5 (CFC-213)
C3F4C14 (CFC-214)
C3F5Cl3 (CFC-215)
C3F6C12 (CFC-216)
C3F7Cl (CFC-217)

Group III
Halons (includes isomers of listed substances

CF2Br (halon-1211)
Cl
CF3Br (halon-1301)
C2F4Br2 (halon-2402)

Group IV

CCl4 (carbon tetrachloride)

Group V

C2H3Cl3 (1,1,1 trichloroethane)

Group VI

CH3Br (methyl bromide)

Group VII
Hydrobromofluorocarbons, HBFCs (includes isomers of listed substances)

CHFBr2 CHF2Br CH2FBr C2HFBr4 C2HF2Br3 C2HF3Br2 C2HF4Br C2H2FBr3 C2H2F2Br2 C2H2F3Br C2H3FBr2	C2H4FBr C3HFBr6 C3HF2Br5 C3HF3Br4 C3HF4Br3 C3HF5Br2 C3HF6Br C3H2FBr5 C3H2F2Br4 C3H2F3Br3 C2H3FBr2	C3H3FBr4 C3H3F2Br3 C3H3F3Br2 C3H3F4Br C3H4FBr3 C3H4F2Br2 C3H4F3Br C3H5FBr2 C3H5F2Br C3H6FBr C3H2F4Br2

Group VIII
Hydrochlorofluorocarbons, HCFCs (includes isomers of listed substances)

CHFCl2 (HCFC-21) CHF2Cl (HCFC-22) CH2FCl (HCFC-31) C2HFCl4 (HCFC-121) C2HF2Cl3 (HCFC-122) C2HF3Cl2 (HCFC-123) C2HF4Cl (HCFC-124) C2H2FCl (HCFC-131) C2H2F2Cl2 (HCFC-132) C2H2F3Cl (HCFC-133) C2H3FCl2 (HCFC-141) CH3FC2 (HCFC-141b) C2H3F2Cl (HCFC-142) CH3F2Cl (HCFC-142b) C2H4FCl (HCFC-151) C3H3F3Cl2 (HCFC-243) C3H4FCl3 (HCFC-251) C3H4F3Cl (HCFC-253) C3H6FCl (HCFC-271)	C3X-RITEC16 (HCFC-221) C3HF2Cl5 (HCFC-222) C3HF3Cl4 (HCFC-223) C3HF4Cl (HCFC-224) C3HF5Cl2 (HCFC-225) CF3CF2CHCl2 (HCFC-225ca) CF2ClF2CHClF (HCFC-225cb) C3HF6Cl (HCFC-226) C3H2FCl5 (HCFC-231) C3H2F2Cl4 (HCFC-232) C3H2F3C13 (HCFC-233) C3H2F4Cl2 (HCFC-234) C3H2F5Cl (HCFC-235) C3H3FCl4 (HCFC-241) C3H3F2Cl3 (HCFC-242) C3H3F4Cl (HCFC-244) C3H4F2CE2 (HCFC-252) C3H5F2Cl2 (HCFC-261)

Table 5.6
Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Name	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) -	
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) –	
Mixture of tributyltin 1,2,3,4,4a, 4b, 5,6,10,10adecahydro-7-isopropyl-1, 4adimethyl-1-phenanthlenecarboxylate and its analogs (Tributyltin rosin salt) -	
Other Tributyl Tins & Triphenyl Tins -	

1. Only short-chain chlorinated paraffins with carbon length of 10-13 atoms are covered.
*CAS = Chemical Abstract Service

6.0 Batteries

Purpose
The purpose of this standard is to present X-Rite's general requirements for batteries and battery packs that are contained in products or bundled with other brand products as part of an X- Rite delivered solution.
solution.

Scope
This standard applies globally to X- Rite business units and X- Rite suppliers. This standard is the *X- Rite Standard GPCSE*.

General
The content restrictions and prohibitions specified in this heading apply to all batteries and battery packs that are contained in X-Rite products or bundled with other X- Rite brand products as part of an X- Rite delivered solution.

Mercury

Batteries must not contain mercury exceeding 0.0005% (5 PPM) by weight. Button cell batteries and batteries composed of button cell batteries, with a mercury content of no more than 2% by weight, are not subject to this requirement.

Alkaline-manganese batteries (except button cells) must not contain intentionally added mercury and must not contain more than 0.0001% (1 ppm) mercury by weight. The total mercury content of alkaline-manganese button cell batteries must not exceed 25 milligrams of mercury per button cell or 2% (20,000 ppm) by weight, whichever is less.

Zinc-carbon batteries must not contain intentionally added mercury and must not contain more than 0.0001% (1 ppm) mercury by weight.

X- Rite products, parts, and components must not contain mercuric oxide batteries.

Cadmium

The total cadmium content of alkaline-manganese and zinc-carbon batteries must not exceed 0.001% (10 PPM) by weight.

Lead

Rechargeable type batteries must not contain lead exceeding 0.4% (4000 ppm) by weight. This requirement does not apply to sealed lead acid batteries such as those used in Uninterruptible Power Supply (UPS) Systems. Non-rechargeable type batteries must not contain lead exceeding 0.2% (2000 ppm) by weight.

Non-rechargeable Alkaline and Carbon-Zinc Batteries
Non-rechargeable alkaline and carbon-zinc batteries must be hermetically sealed.

Classification as "Not Restricted" for Transport

All batteries must be classified as "Not Restricted" for purposes of transport for all modes of transportation, as defined in the following documents:

• United States, "Hazardous Materials Regulations," Title 49, Code of Federal Regulations, US Department of Transportation http://www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=200349

• International Civil Aviation Organization (ICAO), "Technical Instructions for the Safe Transport of Dangerous Goods by Air"

• International Air Transport Association (IATA), "Dangerous Goods Regulations"

A manufacturer's certification to this effect must be supplied on request.

Lead-Acid Batteries. Rechargeable sealed lead acid batteries must meet dangerous goods transport criteria for non-spillable batteries as specified in ICAO/IATA Packaging Instruction 806 and Special Provision A67, and must be tested at 55°C (130°F) to ensure no free liquid flows from the case when it is cracked or ruptured. In addition to the labeling requirements in section 4 of this document, the words "Non-Spillable" or "Non-Spillable Battery" must be rmaked on the battery and the outside packaging.

Lithium and Lithium-Ion Cells, Batteries, and Battery Packs. Each design type must be certified by the manufacturer as meeting the criteria and testing requirements of ICAO/IATA

Labeling Requirements

Non-rechargeable alkaline and carbon-zinc batteries must be labeled with the battery manufacturer's brand name, model designation, expiration date (month and year) and country of origin. The country of origin is equivalent to the country in which the battery was manufactured.

Batteries that are rechargeable for consumer products which are not easily removable, their packaging must be labeled according to the requirements specified in this section. For products distributed for sale in multiple countries (whether listed below or not).

All battery labels shall be visible, legible and indelible.

China

Batteries manufactured or sold in China shall be labeled according to the following table. This is only required if retail or if they can be purchased separately. This does not apply to Custom batteries or battery packs designed by X-Rite.

.

Product Type Requirements

Product Type	Requirements
Alkaline zinc-manganese and zinc-manganese batteries containing 1 to 5 PPM mercury or less than 1 PPM mercury based on battery weight	Batteries must be labeled: 1-5 PPM mercury: 低水银内容 (Chinese characters for "low mercury content") Less than 1PPM mercury: 水銀任意 (Chinese characters for "mercury free")

Europe

Batteries manufactured or sold into the EU.

Important Note:
On 26 September 2006 the agreed text of Directive 2006/66/EC on Batteries and Accumulators and Waste Batteries and Accumulators was published in the Official Journal of the European Communities. This Directive repeals the existing Batteries Directive 91/157/EEC which in comparison had a more limited range of provisions.

Disposal of spent batteries and accumulators

This legislation prohibits the placing on the market of most batteries and accumulators with a certain mercury or cadmium content and establishes rules for the collection, recycling, treatment and disposal of batteries and accumulators.

ACT

Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC.

SUMMARY

The Directive prohibits the placing on the market of certain batteries and accumulators with a proportional mercury or cadmium content above a fixed threshold. In addition, it promotes a high rate of collection and recycling of waste batteries and accumulators and improvement in the environmental performance of all involved in the life-cycle of batteries and accumulators, including their recycling and disposal.

The aim is to cut the amount of hazardous substances - in particular, mercury, cadmium and lead - dumped in the environment; this should be done by reducing the use of these substances in batteries and accumulators and by treating and re-using the amounts that are used.

The Directive applies to all types of batteries and accumulators, apart from those used in equipment to protect Member States' security or for military purposes, or in equipment designed to be sent into space. It therefore covers a wider range of products than Directive 91/157/EEC, which applied only to batteries containing mercury, lead or cadmium, and excluded "button cells".

The Directive prohibits:

- batteries and accumulators, whether or not incorporated in appliances, containing more than 0.0005% by weight of mercury (except for button cells, which must have a mercury content of less than 2% by weight);
- portable batteries and accumulators, including those incorporated in appliances, with a cadmium content by weight of more than 0.002% (except for portable batteries and accumulators for use in emergency and alarm systems, medical equipment or cordless power tools).

To ensure that a high proportion of spent batteries and accumulators are recycled, Member States must take whatever measures are needed (including economic instruments) to promote and maximise separate waste collections and prevent batteries and accumulators being

thrown away as unsorted municipal refuse. They have to make arrangements enabling end-users to discard spent batteries and accumulators at collection points in their vicinity and have them taken back at no charge by the producers. Collection rates of at least 25% and 45% have to be reached by 26 September 2012 and 26 September 2016 respectively.

In principle, it must be possible to remove batteries and accumulators readily and safely. It is for Member States to ensure that manufacturers design their appliances accordingly.

Member States also have to ensure that, from 26 September 2009 at the latest, batteries and accumulators that have been collected are treated and recycled using the best available techniques. Recycling must exclude energy recovery.

As a minimum, treatment must include removal of all fluids and acids. Batteries and accumulators must be treated and stored (even if only temporarily) in sites with impermeable surfaces and weatherproof covering, or in suitable containers.

The recycling of battery and accumulator content to produce similar products or for other purposes has to reach the following levels by 26 September 2011:

- at least 65% by average weight of lead-acid batteries and accumulators, including the recycling of the lead content to the highest degree that is technically feasible;
- 75% by average weight of nickel-cadmium batteries and accumulators, including the recycling of the lead content to the highest degree that is technically feasible;
- at least 50% by average weight of other battery and accumulator waste.

If there is no viable end market, or if a detailed assessment of environmental, economic and social impact concludes that recycling is not the best solution, Member States may dispose of batteries and accumulators containing cadmium, mercury or lead in landfills or underground storage. Otherwise, it is prohibited to put waste from industrial and automotive batteries and accumulators into landfill, or to incinerate it; only residues from treating and recycling them may be disposed of in these ways.

Treatment and recycling may take place outside the Member State concerned or even outside the Community, provided EU legislation on the shipment of waste is respected.

The producers have to bear the cost of collecting, treating and recycling industrial, automotive and portable batteries and accumulators, as well as the costs of campaigns to inform the public of these arrangements. Small producers may be exempted from this obligation if this does not impede the proper functioning of the collection and recycling schemes. All producers of batteries and accumulators have to be registered.

End-users are to be informed in various ways:

- through campaigns covering, among other things, the potential effects on the environment and human health of the substances used in batteries and accumulators, and the collection and recycling arrangements at the end-users' disposal;
- being directly informed by distributors that they can discard waste batteries and accumulators at sales points;
- visible, legible and indelible markings on batteries, accumulators and battery packs with the following information: the symbol of the crossed-out wheeled bin (in Annex II to the Directive); the capacity of the accumulator or the portable battery; the chemical symbols Hg, Cd and Pb if the batteries, accumulators or button cells contain over 0.0005% mercury, over 0.002% cadmium or over 0.004% lead. If the battery, accumulator or battery pack are too small, this information appears on the packaging.

The Member States must send the Commission reports on the implementation of the Directive and the measures they are taking to encourage developments affecting the impact of batteries

and accumulators on the environment (including new recycling and treatment techniques) - the first report will cover the period until 26 September 2012; subsequent reports are to be produced every three years. On the basis of these reports, the Commission must publish its own report on the implementation of the Directive and its impact on the environment and the functioning of the internal market.

A review of the Directive will be carried out after the second round of reports from the Member States. The Commission will examine the appropriateness of further risk management measures, minimum collection targets and minimum recycling obligations, and if necessary propose amendments to the Directive.

Context

This Directive repeals and replaces Directive 91/157/EEC as from 26 September 2008 (see "Related Acts" below).

Several hundred thousand tonnes of industrial and portable batteries and accumulators are placed on the Community market every year. A wide range of metals are used, from mercury, lead and cadmium to nickel, copper, zinc, manganese and lithium.

Disposing of the waste from these products pollutes the atmosphere (in the case of incineration) and contaminates ground-cover and water (in the case of landfill or burial). Through appropriate rules it will be possible to reduce the environmental pollution from this waste. In addition, recycling the waste enables the recovery of thousands of tonnes of metals, including precious metals like nickel, cobalt and silver.

Key terms
• "Battery" or "accumulator": any source of electric energy generated by direct conversion of chemical energy and consisting of one or more primary battery cells (non-rechargeable) or of one or more secondary battery cells (rechargeable). • "Button cell": any small round portable battery or accumulator whose diameter is greater than its height and which is used for special purposes such as hearing aids, watches, small portable equipment and back-up power.

REFERENCES

Act	Entry into force	Transposition in the Member States	Official Journal
Directive 2006/66/EC	26.9.2006	28.9.2008	OJ L 266 of 26.9.2006

RELATED ACTS

Corrigendum to Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC [Official Journal L 339 of 6.12.2006].

Council Directive 91/157/EEC of 18 March 1991 on batteries and accumulators containing certain dangerous substances [Official Journal L 78 of 26.3.1991].

This Directive will be repealed and replaced by Directive 2006/66/EC as from 26 September 2008. It has prohibited, from 1 January 1993 onwards, the placing on the market of:

- manganese alkaline batteries designed for prolonged use in extreme conditions and containing more than 0.05% by weight of mercury;
- any other alkaline battery with a mercury content of more than 0.025% by weight.

Directive 98/101/EC tightened up these standards sharply as of 1 January 2000, the date on which Member States prohibited the marketing of batteries and accumulators containing more than 0.0005% of mercury by weight. The same applies to appliances incorporating such batteries and accumulators.

Batteries of the "button" type or those composed of elements of the "button" type are excluded from the scope of the Directives. Member States must draw up programmes aimed primarily at reducing the heavy-metal content of batteries and accumulators. Under these programmes, Member States must encourage the separate collection of batteries and accumulators with a view to their recovery or disposal. The Directives also require that batteries and accumulators, or the appliances in which they are incorporated, be marked in such a way as to indicate separate collection and recycling requirements and heavy-metal content.

Excluded Products:

- Products whose batteries are soldered, welded, or permanently attached to terminals

- Portable products where battery replacement by unqualified personnel could present safety hazards. Excluded products must be accompanied by instructions, preferably in the product manual, which inform users of the following:

- The content of environmental hazardous batteries or accumulators, as described in the following table

- How to remove the batteries or accumulators safely

PRODUCT TYPE	SYMBOL	WORDING
All alkaline batteries	See note 1	Manufacturer's name/logo
Alkaline zinc-manganese and zinc-manganese batteries containing 1 to 5 PPM mercury or less than 1 PPM mercury	See note 1	Manufacturer's name/logo
Button cell batteries with greater than 5 PPM mercury	 Hg See Notes 1 and 2	Manufacturer's name/logo
Lead-acid (sealed) batteries	 Pb See Notes 1 and 2	Manufacturer's name/logo
Lithium and lithium-ion batteries	See note 1	Manufacturer's name/logo
Nickel-Cadmium batteries	 **Cd** See Notes 1 and 2	Manufacturer's name/logo
Nickel metal hydride batteries	See Note 1	Manufacturer's name/logo

Note 1: Size of Wheeled-Bin Mark and Heavy Metal Content Symbol: The Wheeled-Bin mark must cover 3% of the battery or accumulator's largest side area, to a maximum size of 5 cm by 5 cm. For cylindrical cells, the Wheeled-Bin mark must cover 3% of half the surface area of the battery or accumulator, to a maximum size of 5 cm by 5 cm.

- For small batteries that are sold separately, where the Wheeled-Bin mark would be smaller than 0.5 cm by 0.5 cm (that is, batteries with a diameter of less than 3.62 cm), a separate 1 cm by 1 cm Wheeled-Bin mark must be printed on either the battery retail package or shipping package, whichever applies.
- A symbol (Hg for mercury; Cd for cadmium; Pb for lead) representing heavy metal content must be printed beneath the separate Wheeled-Bin mark and must be at least 1/4 the size of the separate Wheeled-Bin mark.

.

Japan

Batteries available for sale in Japan shall be labeled according to the following two tables.

Class of the Specified Labeled Product	Form
Sealed **lead storage batteries** not covered by using plastic or other materials and sealed lead storage batteries covered by using plastic or other materials with height of less than 10 mm.	Form 1
Sealed **lead storage batteries** covered by using plastic or other materials with height of 10 mm or more.	Form 2
Sealed alkaline storage batteries (limited to sealed **nickel-cadmium storage batteries)** not covered by using plastic or other materials and sealed alkaline storage batteries covered by using plastic or other materials with height of less than 10 mm.	Form 3
Sealed alkaline storage batteries (limited to sealed **nickel-cadmium storage batteries)** covered by using plastic or other materials with height of 10 mm or more.	Form 4
Sealed alkaline storage batteries (limited to sealed **nickel-hydrogen storage batteries**) not covered by using plastic or other materials and sealed alkaline storage batteries covered by using plastic or other materials with height of less than 10 mm.	Form 5
Sealed alkaline storage batteries (limited to sealed **nickel-hydrogen storage batteries**) covered by using plastic or other materials with height of 10 mm or more.	Form 6
Lithium storage batteries not covered by using plastic or other materials and lithium storage batteries covered by using plastic or other materials with height of less than 10 mm.	Form 7
Sealed **lithium storage batteries** covered by using plastic or other materials with height of 10 mm or more.	Form 8

Form 1	**Form 2**
Characters: **PB** Remarks: The letter size shall be 4.5 point type or larger, as provided in Japanese Industrial Standard (JIS) Z 8305.	Symbols (color as displayed or in black and white):  Remarks: a: Length of one side of symbol s: Surface area of symbol (a x a) w: Width of line (0.1 mm or more) b: Height of character (1/5 of a or more) Surface area (s) of labeled symbol shall be 9 square millimeters or more, and 3% or more of surface area of labeling surface of the said sealed storage batteries or 25 square centimeters or more. The letter size shall be 6 point type or larger, as provided in Japanese Industrial Standard (JIS) Z 8305.

Form 3 Characters: **Ni-Cd** Remarks: The letter size shall be 4.5 point type or larger, as provided in Japanese Industrial Standard (JIS) Z 8305.	**Form 4** Symbols (color as displayed or in black and white):  Remarks: a: Length of one side of symbol s: Surface area of symbol (a x a) w: Width of line (0.1 mm or more) b: Height of character (1/5 of a or more) Surface area (s) of labeled symbol shall be 9 square millimeters or more, and 3% or more of surface area of labeling surface of the said sealed storage batteries or 25 square centimeters or more. The letter size shall be 6 point type or larger, as provided in Japanese Industrial Standard (JIS) Z 8305.
Form 5 Characters: **Ni-MH** Remarks: The letter size shall be 4.5 point type or larger, as provided in Japanese Industrial Standard (JIS) Z 8305.	**Form 6** Symbols (color as displayed or in black and white):  Remarks: a: Length of one side of symbol s: Surface area of symbol (a x a) w: Width of line (0.1 mm or more) b: Height of character (1/5 of a or more) Surface area(s) of labeled symbol shall be 9 square millimeters or more, and 3% or more of surface area of labeling surface of the said sealed storage batteries or 25 square centimeters or more. The letter size shall be 6 point type or larger, as provided in Japanese Industrial Standard (JIS) Z 8305.
Form 7 Characters:	**Form 8** Symbols (color as displayed or in black and

Li-ion Remarks: The letter size shall be 4.5 point type or larger, as provided in Japanese Industrial Standard (JIS) Z 8305.	white):  Remarks: a: Length of one side of symbol s: Surface area of symbol (a x a) w: Width of line (0.1 mm or more) b: Height of character (1/5 of a or more) Surface area(s) of labeled symbol shall be 9 square millimeters or more, and 3% or more of surface area of labeling surface of the said sealed storage batteries or 25 square centimeters or more. The letter size shall be 6 point type or larger, as provided in Japanese Industrial Standard (JIS) Z 8305.

Taiwan
Batteries manufactured or sold in Taiwan shall be labeled according to the following table.

Product Type	Symbol	Requirements
All dry cell batteries, button ("coin") cells and battery packs Examples of battery chemistries include: Alkaline, Nickel-cadmium, Nickel-metal hydride, Lithium photo cells, Lithium-ion. - Batteries used as replacement parts in refurbish/repair centers are exempt from these requirements.	 "The Taiwan EPA requires dry battery manufacturing or importing firms in accordance with Article 15 of the Waste Disposal Act are required to indicate the recovery marks on the batteries used in sales, giveaway or promotion. Contact a qualified Taiwanese recycler for proper battery disposal."	Size and Colors of Required Label: The Four-in-One Recycling Symbol and text, Please recycle waste batteries," must be clear and durable. The Four-in-One Recycling Symbol may be printed in any single solid color (that is, in monotone) and must be square in shape, with each side not smaller than 0.5 cm (in packaging) and 1.5 cm (in user manuals or product literature). General Compliance Requirements: Dry cell batteries, button cells and battery packs must meet the following criteria: - The Four-in-One Recycling Symbol must be printed or affixed on one or more of the following: • The body of the battery (except for button cells), battery pack or the product; or • The retail or shipping packaging (as applicable) for the battery or product, or product documentation - The Chinese Recovery Text, "Please recycle waste batteries," must be printed near the Four-in-One Recycling Symbol on the packaging or documentation; and - If the Four-in-One Recycling Symbol is printed or affixed only on the body of the battery, battery pack or the product (not included on retail or shipping packaging, or in documentation), it must be accompanied by the Chinese Recovery Text, "Please recycle waste batteries."

United States and Canada

The following labels must appear on batteries available for sale in the United States or Canada.

PRODUCT TYPE	SYMBOL	WORDING
Lead-acid (sealed) batteries		BATTERY MUST BE RECYCLED. NON-SPILLABLE or NON-SPILLABLE BATTERY
Nickel-cadmium batteries		BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY.
Nickel metal hydride batteries	None	CONTAINS NICKEL METAL HYDRIDE. BATTERY MUST BE DISPOSED OF PROPERLY.
Rechargeable consumer products containing not easily removable sealed lead-acid batteries		CONTAINS SEALED LEAD BATTERY.MUST BE RECYCLED
Rechargeable consumer products containing not easily removable nickel-cadmium batteries		CONTAINS NICKEL-CADMIUM BATTERY. BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY.
Retail or shipping packaging, whichever applies, of rechargeable consumer product containing sealed lead battery		CONTAINS SEALED LEAD BATTERY. BATTERY MUST BE RECYCLED.
Retail or shipping packaging, whichever applies, of rechargeable consumer product containing nickel-cadmium battery		CONTAINS NICKEL-CADMIUM BATTERY. BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY

7.0 Packaging

Purpose
This standard provides X-Rite's global environmental requirements for all packaging used for selling or shipping X- Rite products.

Scope
This requirements in this standard apply globally to all packaging used for selling or shipping X- Rite products. The standard applies globally to X- Rite business units and X- Rite suppliers.

General Packaging Requirements
The restrictions specified in this section apply to all packaging materials purchased by or on behalf of X- Rite.

Restricted Materials. Materials listed in X- Rite GPCSE must not be used in X- Rite packaging.

Ozone Depleting Substances in Packaging Materials. Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs) listed in X- Rite GPCSE – *Restricted Materials* must not be used in plastic foam packaging materials; for example, as foaming agents. Methyl bromide sterilization must not be used on wood packaging.

Heavy Metals in Packaging Materials. Packaging materials must not contain lead, mercury, cadmium, or hexavalent chromium where the sum concentration of incidental lead, mercury, cadmium, and hexavalent chromium is greater than 0.01% (100 PPM) by weight.

Polyvinyl Chloride (PVC). PVC must not be used in new package designs.

Recyclable Materials. All materials used in the packaging systems must be recyclable. Choose materials in which recycling systems are readily available. Do not use permanent glue or adhesives to attach dissimilar materials such as foam cushions to corrugated.

General Material Coding. Where the following materials are used in packaging, the applicable coding is required to be embossed or marked on all components. The symbol, not including the lettering, must be between 0.5 in (1.27 cm) and 1 in (2.54 cm) in height. The symbol and the lettering must be molded or embossed into the base of a component or labeled. It must be durable, clearly visible, and easily legible when the packaging is opened. The abbreviations must appear in capital letters.

Material Codes:

Material	Abbreviation	Number
Polyethylene Terephthalate	PET	1
High Density Polyethylene	HDPE	2
Polyvinyl Chloride	PVC	3
Low Density Polyethylene	LDPE	4
Polypropylene	PP	5
Polystyrene	PS	6
Corrugated fiberboard	PAP	20
Non-corrugated fiberboard	PAP	21
Paper	PAP	22

Material	Abbreviation	Number
Steel	FE	40
Aluminum	ALU	41
Wood	FOR	50
Cork	FOR	51
Cotton	TEX	60
Jute	TEX	61
Glass clear	GL	70
Glass green	GL	71
Glass brown	GL	72
Paper and cardboard/miscellaneous metals	*	80
Paper and cardboard/plastic		81
Paper and cardboard/aluminum		82
Paper and cardboard/tinplate		83
Paper/cardboard/plastic/aluminum		84
Paper and cardboard/plastic/aluminum/tinplate		85
Plastic/aluminum		90
Plastic/tinplate		91
Plastic/miscellaneous metals		92
Glass/plastic		95
Glass/aluminum		96
Glass/tinplate		97
Glass/miscellaneous metals		98
*For composites, the material abbreviation is "C/" plus the abbreviation for the predominant material; for example,. C/PAP for a composite that is predominantly paper.		

China

Scope

This standard stipulates the types, names, sizes and colors of marks for recyclable, reusable packaging and packaging that is renewable for utilization. This standard applies to all types of recyclable, reusable packaging materials and packaging materials that can be regenerated for utilization (excluding hazardous materials).

Cited standards

By citation herein, the provisions contained in the standards listed below constitute provisions of this standard. At the time of publication hereof, all of the versions shown were valid. All standards are likely to be amended. All parties using this standard should investigate the possibility of using the latest versions of the standards listed below. GB/T 16716-1996 General Rules for the Handling and Utilization of Packaging Refuse

Definitions

The definitions listed below are used in this standard. All definitions listed in GB/T 16716 apply to this standard. Green point mark [English] Environmental protection mark for green packaging for which the packaging producer has paid packaging processing fee.

- Mark graphics, names and material quality codes
- See Table 1 for the four types of mark graphics and their names.

Table 1 Recycling Marks

Mark Number	Mark Name	Mark Graphic	Scope of Application of Mark
1	Reusable		Applies to all types of packaging
2	Recyclable/renewable		
3	Contains renewable materials		

Packaging Recycling Marks Used for Plastic Packaging Materials and Containers example

- The “Recyclable/Renewable” mark should be used for plastic packaging materials and containers.
- On plastic containers and packaging pieces with volumes in excess of 100ml, the recycling symbol for the type of plastic must be indicated in an accessible and external manner, printed or carved on said plastic packaging material.

Packaging Recycling Marks

EIP packaging is marked in accordance with the needs and requirements for recycling, reuse, and regeneration, as defined in standard GB 18455–2001, *Packaging Recycling Marks*.

As specified in SJ/T11364–2006, the following packaging information may be used for instances in which it is not possible to provide recycling marks on the packaging material.

- Mark size: Must be in proportion to the size of the packaging. For example, on a sales package with a size of 500mm x 500mm x 500mm, the printed diameter should be no less than 20mm, produced on two opposite visible surfaces of the packaging.
- Mark color: Printed marks on packaging are to be monochromatic. For packaging printed in various colors, the positive-negative principle is to be applied based on the color printed as the base color. For example, on white or clear objects, black may be used.
- Mark positioning: The position of the mark on packaging must be clearly visible to consumers, and must not conceal the packaged products.
- Plastic mark codes PET-01, HDPE-02, PVC-03, LDPE-04, PP-05, PS-06.

Non-recyclable/Reusable Packaging

- The internal packaging of hazardous goods must not be recycled or reused. Hazardous goods include: Explosives, flammable liquids, corrosives, oxidants and organic peroxides, radioactive articles, poisons, infectious articles, self-igniting articles and articles which are flammable upon contact with moisture.
- Single-use packaging for medical supplies must not be reused, and may only be used to regenerate materials.

Japan

Corrugated Boxes	Paper and Composite Packaging (combined kraft and paper structure)	Plastic Containers/Packaging (except PET Bottles for beverages and soy sauce)
		

PET Bottle	Steel Can	Aluminum Can
		

The guidelines for the Japanese material labeling requirements indicate the following major points:

- The vertical size of the marks shall be 6 mm or more for printing and 8 mm or more for embossing.
- There are exemptions for packaging that has no existing printing, is too small (less than 50 cm_2), or when affixing the label is not possible due to shape.
- However, if any of these packaging components are part of a packaging system (such as the outer film with no labeling, bottle, or small cap) the exemptions do not apply. Either each component must be labeled or for packaging that is either too small or of an odd shape, the identification mark shall be placed on another packaging component in addition to its own mark.
- Marks for two or more packaging components may be placed on either component if they are to be discarded at the same time.
- Although not mandatory at this time, indication of material under the mandatory marking is preferable by using signs prescribed by JIS 6899-1 (ISO 1043-1).

Korea

- South Korea requires a Separate Discharge Mark for containers of certain products and “buffers” (foam cushioning) for electronic equipment. The requirements of the Separate Discharge Mark System are provided in the Presidential Enforcement Decree of Dec. 18, 2002, the Guideline of the Separate Discharge Mark System of December 2002 (Ministry of Environment Notification No. 2002-1 as well as in its amendment of December 17, 2003 (Ministry of Environment Notification No. 2003-213) and of Jan. 26, 2004 (Ministry of Environment Notification No. 2004-9). These labeling requirements became effective in January 2004.

- The Separate Discharge Mark is mandatory on all packaging of certain product types. The scope of marking requirements covers foods and beverages, agricultural produce, dairy and fishery products, detergents, cosmetics (excluding glass containers), shampoos and conditioners for pets, drugs, butane gas, and pesticides that are packaged with packaging materials composed of paper pack (limited to paper packs that are coated and pasted with synthetic resins or aluminum leaves), metal containers, glass containers or plastic resins, and electronic equipment “buffers.

    - A “buffer" is defined as any packing materials that are made from foam-like synthetic resins, which are made of beads containing hydrocarbons such as butane, hexane, pentane, and so forth, puffed by applying heat or by other means. Examples of "buffer" materials are expanded polystyrene (EPS), polystyrene paper (PSP), expanded polyethylene (EPE), and expanded polypropylene (EPP).
    - Electronic equipment refers to products that are powered by electricity and utilize electronic motion generated using electronic tubes or semiconductors. They include industrial machinery and tools (computers, communication machinery and tools, electronic applied machinery and tools, and so forth) as well as household machinery and tools (televisions, refrigerators, washers, audios, and so forth).
    - The scope of electronic products covered by this “buffer labeling requirement” includes all end-use electronic equipment (such as for consumer and commercial use) but excludes parts and supplies of electronic equipment.

- Exemptions to the separate disposal labeling requirement include the following:

    - Packaging materials whose surface is less than 50 cm_2.
    - Packaging components with a capacity or volume less than 30 grams or 30 milliliters.
    - Packaging material on which it is technically difficult to print, engrave, or label due to elements or structural properties.
    - Film/sheet type packaging materials that are not printed, engraved, or labeled in the process of manufacturing, use, import, and sale. (This exemption originally included all packaging materials that are not printed, engraved, or labeled in the process of manufacturing, use, import, and sale, which was referred to as “unfigured packaging material.” An amendment on Dec. 17, 2003, narrows the definition of “unfigured packaging materials” to only “film/sheet type”).
    - Wrap film packaing materials with a thickness less than 20 microns (μm).

In addition, shopping bags and wrappings filled at point of sale by sellers are exempt from the mandatory recycling, and thus the labeling requirement.

- In the Korean text below the triangle reads “separate disposal.” Material type abbreviations (PET, HDPE, LDPE, PP, PS, PVC, OTHER, Metal, Fe, Al, Paper, Paper pack, or glass)should be indicated inside the triangle. Material types, other than plastic resins, should be written in Korean. The symbol (excluding the “separate disposal” text) must be larger than 8 mm in width and length. The height of the “separate disposal” Korean text should be one fourth of the width of the symbol. The extension of each side of the symbol is a regular triangle, whose inside angle is 60° and outside angle at the bended part of the arrow’s end is 120°. The color of the mark should be distinct from other colors used on the packaging, so as to make the mark clearly visible (however, this is not applicable to engraved or embossed labels).

    - The label should be located on the front or side flank of the component, unless impossible, in which case the mark could be located on the bottom or lid of the package.

    - If there are multiple separable components, each component should bear the Mark

    - If it is impossible to label each component, only the major component should be labeled using the symbol for its material type, together with the role/function name (in Korean characters) and abbreviation letters of the material types of the other unlabeled components, separated by a colon (:), adjacent to the symbol. This is referred to as Inclusive Marking, as shown in the example to the right.

    - For composites, “OTHER” shall be used inside the Mark. Please note that paper-plastic composites are limited only to paper with a plastic layer or coating on both sides of the paper. • Producers and/or importers who wish to use this “separate disposal” label on packaging material that is not required to be labeled must apply for its use through ENVICO. Producers and/or importers may voluntarily label other packaging elements (such as packaging elements not required to bear the “Separate Disposal” label) with material identification, empty space ratio and number of layers.

Taiwan

Taiwan requires the use of a four-arrow symbol on all plastic containers and plastic packaging components. In addition to the four-arrow symbol, plastic containers should also have a materials symbol.

Slovakia

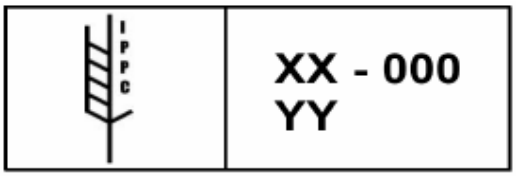
- Multi-trip packaging must be clearly and legibly marked with the words Návratny obal (returnable packaging).
- The **Tidyman** symbol, which in Slovakia means "this packaging must be put in a collection bin after use", must also be marked on the packaging sold in the consumer channels.

- Exemptions from marking include the following: Packs with a surface of less than 100 cm_2; packs with a capacity that does not exceed 50 ml; inner fixings, components, and innerlayers if these are not printed or embossed; plastic film that is not printed or that bears nolabel; packaging ancillaries such as labels or hang tags; and packaging components with aweight not exceeding 5 g.

Packaging and Pallets Made of Wood.

Within the country of origin, or where the shipping entity has specifically determined that country of destination will accept untreated pallets, all packaging and pallets made of wood must be treated and marked in accordance with the provisions of the International Standard for Phystosanitary Measures (ISPM) #15: *Guidelines for Regulating Wood Packaging Material in International Trade*.

The mark must include the following:
o IPPC symbol
o ISO two-letter country code followed by a unique number assigned by the National Plant Protection Organization (NPPO) to the producer of the wood packaging material, who is responsible for ensuring appropriate wood is used and properly mark
o The IPPC abbreviation for Heat Treatment (HT)
Note: Methyl bromide (MB) fumigation is not authorized.



European Union

EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE 94/62/ EC
of 20 December 1994 on packaging and packaging waste

http://ec.europa.eu/environment/waste/packaging_index.htm

packaging and packaging waste directive 94 62 ec

8.0 REACH Directive EC1907/2006

(Registration, **E**valuation, **A**uthorization and Restriction of **Ch**emical substances)

REACH is a European Community Regulation on chemicals and their safe use (EC 1907/2006). It deals with the **R**egistration, **E**valuation, **A**uthorization and Restriction of **Ch**emical substances. The new law entered into force on 1 June 2007.

REACH affects the availability and allowable use of practically all chemicals and materials used in manufacturing in the EU either on their own or in finished products. This applies where the substance is imported or manufactured in the EU in quantities greater than 1 ton per annum.

The first major event in the implementation of REACH starts June 1, 2008 when importers or manufacturers of chemicals and materials already on the market in the EU can pre-register them. The pre-registration deadline ends December 1, 2008. If the deadline is missed the substance cannot be manufactured or put on the market in the EU until it is registered. Registering a substance after the deadline has passed could be a costly and lengthy process.

X-Rite wants to ensure the uninterrupted supply of chemicals and materials used in its products manufactured in the EU. X-Rite is asking its suppliers to confirm that they are aware of the REACH regulation and that they have taken the appropriate steps to pre-register their chemicals and materials accordingly. In some cases, this may require the X-Rite supplier to ask and ensure REACH compliance by their own supply chain.