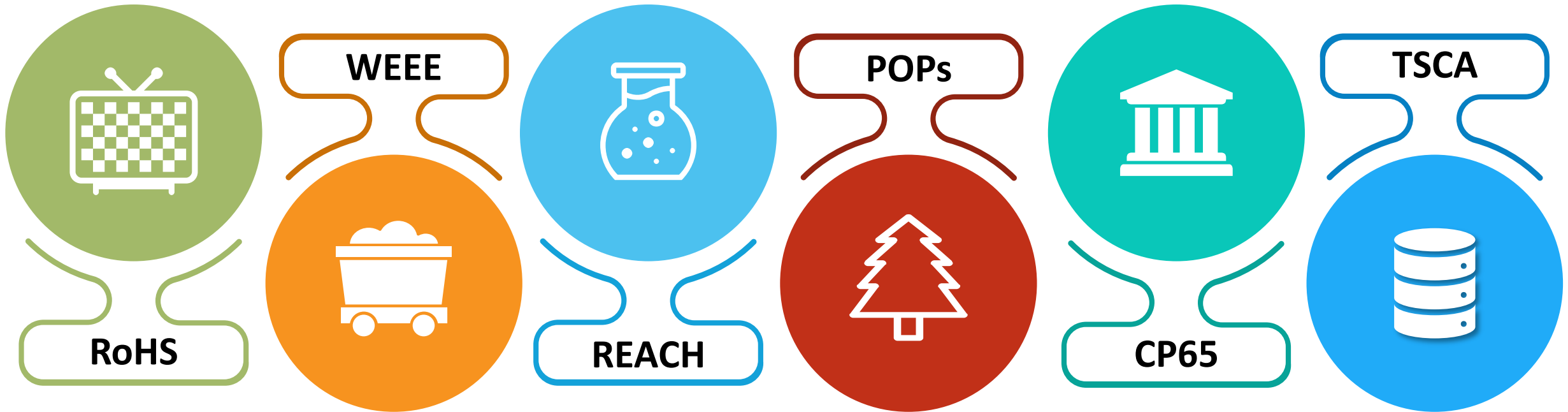




C&P-EE

The Development Tendency of Electronic Products of the Vehicle Restricted Substances Policies

Content





EU RoHS

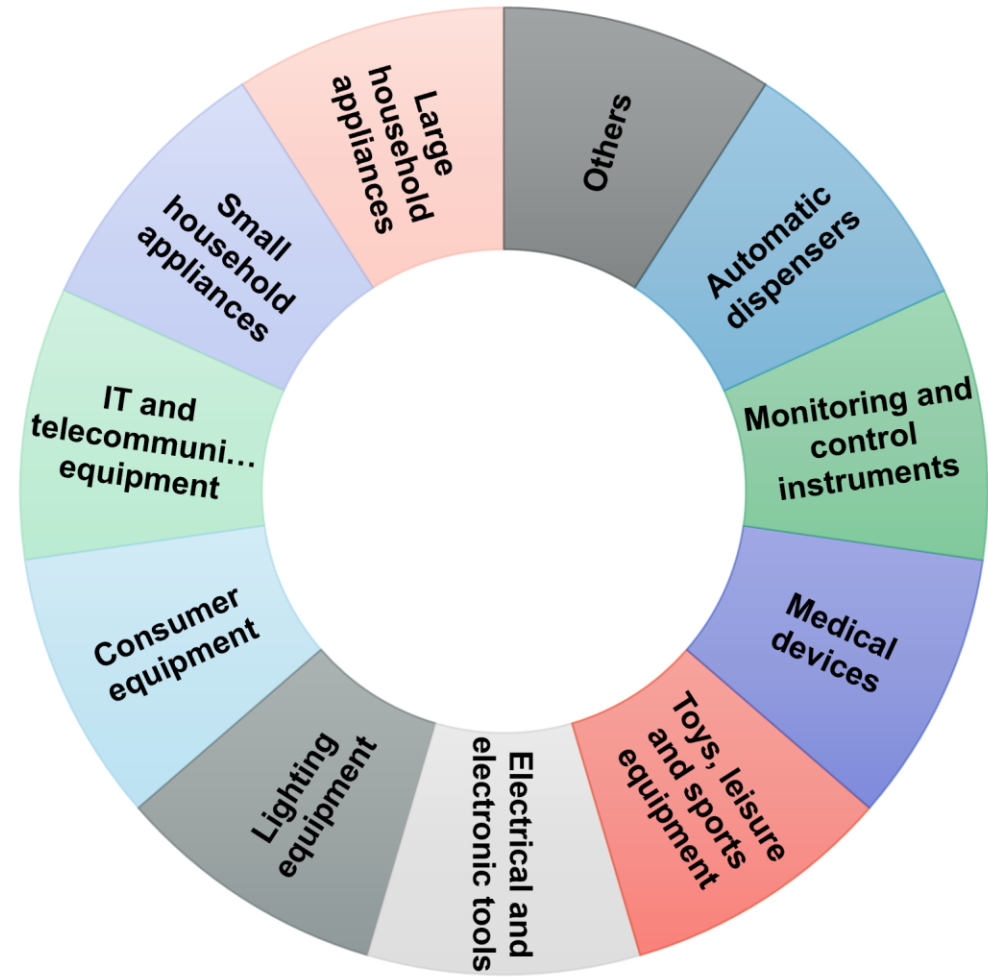
Directive 2011/65/EU

Restriction of the use of Certain Hazardous Substances in
Electrical and Electronic Equipment

RoHS RECAST (2011/65/EU)-Scope

use with a voltage rating not exceeding 1000 volts for alternating current and 1500 volts for direct current

equipment which is necessary for the protection of the essential interests of the security of member states, including arms, munitions and war material intended for specifically military purposes



Homogeneous Material

- The term “homogeneous” is understood as "**of uniform composition throughout**", so examples of "homogeneous materials" would be individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins and coatings.
- The term “**mechanically disjointed**” means that the materials can, in principle, be separated by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.



means a material that cannot be mechanically disjointed into different materials



The requirement of RoHS

■ Does not contain

- Lead (0.1 %)
- Mercury (0.1 %)
- **Cadmium (0.01 %)**
- Hexavalent chromium (0.1 %)
- Polybrominated biphenyls (PBB) (0.1 %)
- Polybrominated diphenyl ethers (PBDE) (0.1 %)
- **Bis(2-ethylhexyl) phthalate (DEHP) (0.1 %)**
- **Butyl benzyl phthalate (BBP) (0.1 %)**
- **Dibutyl phthalate (DBP) (0.1 %)**
- **Diisobutyl phthalate (DIBP) (0.1 %)**



WEEE

Directive 2012/19/EU

on **W**aste **E**lectrical and **E**lectronic **E**quipment (WEEE)
(recast)



Scope



1. Temperature exchange equipment



2. Screens, monitors, and equipment containing screens having a surface greater than 100 cm²



3. Lamps



4. Large equipment (any external dimension more than 50 cm)



5. Small equipment (no external dimension more than 50 cm)



6. Small IT and telecommunication equipment (no external dimension more than 50 cm)

Producer Responsibility –Implementation under WEEE

Product design (Art. 4)	Consider easily disassemble , product recycling potential , using less dangerous substances
Separation Collection (Art. 5)	Build up individual take-back system or join collective take-back system (compliance scheme)
Treatment (Art. 6)	Contract with licensed treatment and recycling facilities, and ensure they comply with legal requirements for selective treatment and recycling
Recovery (Art. 11)	Ensure to achieve reuse and recycling, and recovery targets under the WEEE Directive
Financing (Arts. 12 & 13)	Finance collection, reuse , recycling and recovery of waste equipment (3R)
Information for users (Art. 14)	Mark “Crossed-out wheeled bin” symbol on equipment
Information for treatment facilities (Art. 15)	<ul style="list-style-type: none">• Identifying components and materials, the location of dangerous substances in EEE within one year after equipment is put on the market• Identification of producer with a mark and the date putting onto the market
Information and reporting (Art. 16)	<ul style="list-style-type: none">• Registration before placing equipment onto the market• Regularly reporting the amount of equipment put on the market, separation collection, reuse, recycling and recovery

SGS Solution

- WEEE 3R (Re-use / Recycled / Recovered) report
 - Establish disassembly procedure
 - 3R (Re-use / Recycled / Recovered) assessment
- WEEE Disassemble Manual
 - WEEE Disassemble Manual
 - Flow Chart for Disassembly Procedure
 - Component and Material Composition
 - Identify the disassembled parts name by figures
 - Disassembly Tools
 - Indicate the parts name by WEEE Annex VII
 - 3R (Re-use / Recycled / Recovered) assessment





EU REACH

Registration, Evaluation, Authorization, and Restriction of Chemicals

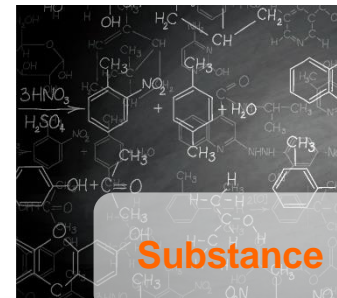
EU REACH Regulation



- ❑ **Regulation(in force date:2007/6/1):**
Regulation (EC) No 1907/2006
- ❑ **Competent Authority:**
European Chemical Agency (ECHA)
- ❑ **Regulated area:**
 - ✓ European Economic Area (EEA)
 - ✓ Northern Ireland

Regulated Products

all kinds of products which are placed on the market



EX:

Cu 、 Ag 、
CH₄...



EX:

Paint 、 Gel 、
Alloy...



EX:

Nail 、 Pin 、
screw...

Complex article



Article

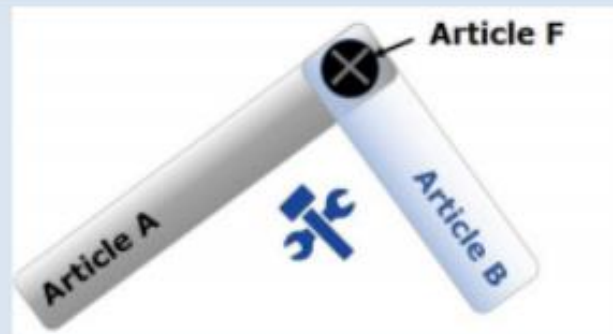
EX:

Nail 、 Pin 、
screw...

Complex article

A complex article refers to any article made up of more than one article.
In complex article, several articles can be joined or assembled together in various manners.

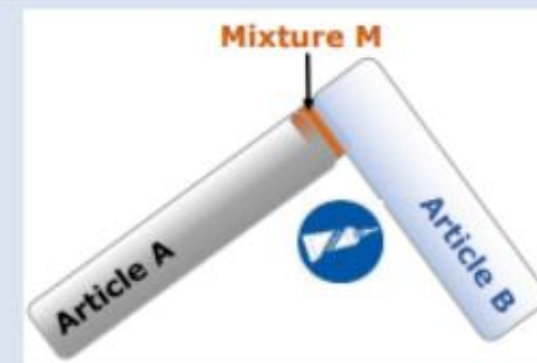
Case 1



A) Articles mechanically assembled (i.e. articles assembled without the incorporation of substance(s)/mixture(s))

Example(s): pair of (metallic) scissors, foldback clips

Case 2



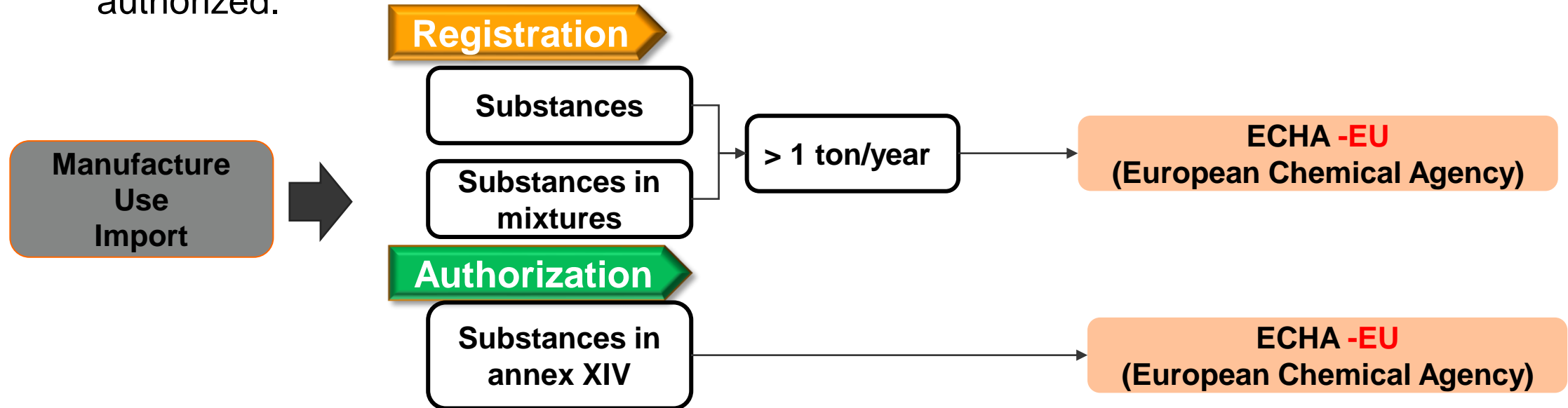
B) Joining together two or more articles using substance(s)/mixture(s)

Example(s): block of sticky notes, glued chip in a bank card, unpainted bicycle frame formed by welding together multiple steel tubes.

Regulations of substance/mixture

■ Regulated items:

- 1) Substances on their own or in mixtures shall not be placed on EU/UK market unless they have been registered.
- 2) Substances listed in annex XIV shall not be placed on EU/UK market unless they have been authorized.



Regulations of substances in products

- **Regulated items** : products containing SVHC and dangerous substance

Substances of very high concern, SVHC	
Regulated scope	All products
Limitation	The con. of SVHC in each article of products shall not be exceeded 1000 ppm. $0.1\%(w/w)=1000\text{ ppm}=1000\text{ mg/kg}$
Regulated items	223 items
Subsequent actions when the limitation is exceeded.	[1]: provide a safe use datasheet to buyer and consumer [2]: upload the i6z of a product to SCIP database [3]: SVHC notification to competent authority if the accumulated amount of SVHC in all products more than 1 ton/year

Dangerous substance listed in annex 17	
Regulated scope	according to the regulations in annex 17
Limitation	According to annex 17, different substances under specific use conditions have a specific limitation in homogeneous material.
Regulated items	76 items (remove part items)
Subsequent actions when the limitation is exceeded.	prohibited to sell and manufacture



EU POPs

Persistent Organic Pollutants Regulation

Introduction of EU POPs



❑ Regulation(in force date: 2019/7/15):

- Regulation (EC) No 2019/1021

❑ Competent Authority:

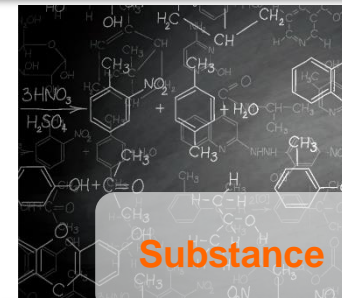
- European Chemical Agency (ECHA)

❑ Regulated area:

- ✓ EU Member States

Regulated Products

all kinds of products which are placed on the market



Substance

EX:

Cu 、 Ag 、
CH₄...



Mixture

EX:

Paint 、 Gel 、
Alloy...



Article

EX:

Nail 、 Pin 、
screw...

Potential POP substances in electrical products

POP substances	Potential Applications	POP substances	Potential Applications
Tetrabromodiphenyl ether	flame-retardant	Heptabromodiphenyl ether	flame-retardant
Pentabromodiphenyl ether	flame-retardant	Hexabromobiphenyl	flame-retardant
Hexabromodiphenyl ether	flame-retardant	Polychlorinated naphthalenes	Capacitors and widely used as wire insulation compound
Hexachlorobenzene	Fireworks, ammunition, and synthetic rubber, agricultural Fungicide	Polychlorinated Biphenyls	Capacitors,insulating material for transformers,coating and solvents, a wide range of applications
Hexachlorobutadiene	As solvents, heat carrier, heat exchangers, hydraulic system with a liquid, lotion, but also for synthetic rubber industry	PFOS, its salts and related compounds	Textiles, cookware, carpets, paper, paint, fire fighting foam, video materials, aviation hydraulic oil products
Short Chain Chlorinated Paraffins	As plasticizers, flame retardants used in various plastics, leather processing, metal processing, Paint	HBCDD	flame-retardant and plastic
Decabromodiphenyl ether	flame-retardant	PFOA, its salts and related compounds	Textiles, cookware, carpets, paper, paint, fire fighting foam, video materials, aviation hydraulic oil products



California Proposition 65

SGS

Requirements of California Proposition 65

- California Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986.
- No one should be exposed to CP65 listed substances **without giving clear and reasonable warning** in advance for activities in commerce in California.
- The requirement regulate not only for physical store but also e-shop or mail-order.
- **Exemption**
 - Businesses with less than 10 employees
 - Government agencies
 - If the exposures they cause create no significant risk of cancer or birth defects or other reproductive harm
- **Governmental authority:** **The Office of Environmental Health Hazard Assessment (OEHHA)**

What are the controlled chemicals by CP65?

- List of chemicals known to cause **cancer**, **birth defects** or **other reproductive harm** should be published.
- The list must be updated **at least once a year** and now contains **over 960 chemicals** from 1987. The current Proposition 65 list is available on-line.
([The Proposition 65 List - OEHHA \(ca.gov\)](http://oehha.ca.gov))
- **Once a chemical is listed**, businesses have **12 months** to comply with **warning requirements**.
- Frequently encountered listed chemicals in daily used products include heavy metals (e.g. lead and cadmium), plasticizers, BPA, solvents (e.g. benzene and chlorinated solvents), and agricultural pesticides.

Proposition 65 List

Chemical	Type of Toxicity	CAS No.	Date Listed	NSRL or MADL (µg/day) ^a
A-alpha-C (2-Amino-9H-pyrido[2,3-b]indole)	cancer	26148-68-5	1-Jan-90	2
Acetaldehyde	cancer	75-07-0	1-Apr-88	90 (inhalation)
Acetamide	cancer	60-35-5	1-Jan-90	10
2-Acetylaminofluorene	cancer	53-96-3	1-Jul-87	0.2
Acifluorfen sodium	cancer	62476-59-9	1-Jan-90	
Acrylamide	cancer	79-06-1	1-Jan-90	0.2
Acrylamide	developmental, male	79-06-1	25-Feb-11	140
Acrylonitrile	cancer	107-13-1	1-Jul-87	0.7
Actinomycin D	cancer	50-76-0	1-Oct-89	0.00008
AF-2;[2-(2-furyl)-3-(5-nitro-2-furyl)]acrylamide	cancer	3688-53-7	1-Jul-87	3
Aflatoxins	cancer	---	1-Jan-88	
Aldrin	cancer	309-00-2	1-Jul-88	0.04

- NSRL: No Significant Risk Levels (NSRLs) for cancer-causing chemicals
- MADL: Maximum Allowable Dose Levels (MADLs) for chemicals causing reproductive toxicity

Warning Label

■ Content:

● Content of warning:

Symbol + WARNING + warning text

● Warning symbol: Warning Symbol - Proposition 65 Warnings Website (ca.gov)



or





● WARNING: **capital letters and bold**

● Type size:

- ✓ entire warning is in a type size **no smaller than the largest type size used for other “consumer information” on the product**, and
- ✓ the warning must not be in a type size smaller than **6-point type**

■ Type of warning label

(1) **Standard form** (2) **Shor form**

Type	2018/8/30
Standard form	 WARNING: This product can expose you to chemicals including [name of one or more chemicals known to cause cancer, name of one or more chemicals known to cause reproductive toxicity, or name of one or more chemicals known to cause both cancer and birth defects or other reproductive harm], which is [are] known to the State of California to cause [cancer or birth defects or other reproductive harm]. For more information go to www.P65Warnings.ca.gov
Short form	 WARNING: [cancer or birth defects or other reproductive harm] - www.P65Warnings.ca.gov



TSCA (Toxic Substances Control Act)



Toxic Substances Control Act (TSCA)

- The Act considers the risk management to remove unreasonable risks of injury to humans and the environment.
- **Governmental authority:** U.S. Environmental Protection Agency (US EPA)
- **Chemical reporting & Toxic chemical controlling**
- **Controlled chemicals under TSCA:** Methylene Chloride (paint and coating removal), PCBs, asbestos (school), lead-based paint (housing and child-occupied facilities), and formaldehyde (wood products)...
- EPA announced final rules of **five Persistent, bioaccumulative, and Toxic (PBT) Chemicals** to remove unreasonable risks in January 2021.



Five Persistent, Bioaccumulative, and Toxic (PBT) Chemicals

- **2,4,6-TTBP:** an intermediate/reactant in processing, including in oils and lubricants.
- **HCBD:** a byproduct during the manufacture of chlorinated hydrocarbons.
- **DecBDE:** an additive flame retardant.
- **PIP (3:1):** a plasticizer, a flame retardant, an anti-wear additive, or an anti-compressibility additive.
- **PCTP:** is used to make rubber more pliable in industrial uses.

Timeline of PBTs under TSCA

2021/03/08

2022/01/06

2024/10/31

2025/01/06

- **HCBD**
Manufacture,
processing, and
distribution
- **DecaBDE**
Manufacture,
processing
- **PCTP**
Manufacture,
processing
- **PIP (3:1) in products**
Processing,
distribution

- **DecaBDE**
Distribution
- **PCTP**
Distribution

- **PIP (3:1) in articles**
Processing,
distribution

- **PIP (3:1) in
sealants and
adhesives**
Processing,
distribution

Detail Final Rules for Five PBTs under TSCA

Substance	CAS No.	
2,4,6-Tris (tert-butyl) phenol (2,4,6-TTBP)	732-26-3	
Scope	Requirement	Effective Date
Distribution in containers with a volume of less than 35 gallons	≤ 0.3%	2026/1/6
Processing and distribution of oil and lubricant additives	≤ 0.3%	2026/1/6
Distributors to maintain ordinary business records related to compliance with the prohibitions/restrictions and other provisions in § 751.409	Record keeping for 3 years after record has been generated	2026/1/6
Substance	CAS No.	
Hexachlorobutadiene (HCBd)	87-68-3	
Scope	Requirement	Effective Date
Manufacturing, processing and distribution of HCBd or HCBd-containing products or articles*1	Prohibited	2021/3/8
Manufacturers, processors and distributors of HCBd or HCBd-containing products or articles to maintain ordinary business records related to compliance with the prohibitions/restrictions and other provisions in § 751.413	Record keeping for 3 years after record has been generated	2021/3/8
Exemptions:		
<ul style="list-style-type: none"> - Unintentional production of HCBd as a byproduct in the manufacture of chlorinated solvents - Processing and distribution of HCBd for burning as a waste fuel 		
Substance	CAS No.	
Decabromodiphenyl ether (DecaBDE)	1163-19-5	
Scope	Requirement	Effective Date
Manufacturing and processing of DecaBDE or DecaBDE-containing products or articles*1,*2	Prohibited	2021/3/8
Manufacturers, processors and distributors of DecaBDE or DecaBDE-containing products or articles to maintain ordinary business records related to compliance with the prohibitions/restrictions and other provisions in § 751.405	Record keeping for 3 years after record has been generated (not required for footnotes *1 & *2)	2021/3/8
Distribution of DecaBDE or DecaBDE-containing products or articles	Prohibited	2022/1/6
Manufacturing, processing and distribution for use in curtains in the hospitality industry, and the curtains to which Deca-BDE has been added	Prohibited	2022/7/6
Processing and distribution for use in wire and cable insulations in nuclear power generation facilities, and DecaBDE-containing wire and cable insulations	Prohibited	2023/1/6
Manufacturing, processing and distribution for use in parts installed in and distributed as part of new aerospace vehicles, and parts for such vehicles*3	Prohibited	2024/1/8
Manufacturing, processing and distribution of DecaBDE-containing replacement parts for motor vehicles	Prohibited	2036 or after the end of vehicles service lives, whichever is earlier

After the end of the pallets' service life, prohibits the distribution of DecaBDE-containing plastic shipping pallets that were manufactured before March 8, 2021
 Exempts processing and distribution for recycling of DecaBDE-containing plastic from products or articles and DecaBDE-containing products or articles made from such recycled plastic
 After the end of aerospace vehicles service lives, prohibits importing, processing and distribution of the following:

- DecaBDE-containing aerospace vehicles manufactured before January 8, 2024
- DecaBDE-containing replacement parts for aerospace vehicles

Substance	CAS No.	
Phenol, isopropylated, phosphate (3:1) (PIP 3:1)	68937-41-7	
Scope	Requirement	Effective Date
Processing and distributing PIP (3:1), including PIP (3:1)-containing products*1,*2	Prohibited	2021/3/8
Manufacturers, processors and distributors of PIP (3:1) or PIP (3:1)-containing products to maintain ordinary business records related to compliance with the prohibitions/restrictions and other provisions in § 751.407	Record keeping for 3 years after record has been generated (not required for activities in last 2 exemptions under footnote *1)	2021/3/8
Processing and distributing PIP (3:1), including PIP (3:1)-containing articles*1,*2	Prohibited	2024/10/31
Manufacturers, processors and distributors of PIP (3:1) or PIP (3:1)-containing articles to maintain ordinary business records related to compliance with the prohibitions/restrictions and other provisions in § 751.407	Record keeping for 3 years after record has been generated (not required for activities in last 2 exemptions under footnote *1)	2024/10/31
Releasing to water during manufacturing, processing and distribution	Prohibited	2021/3/8
Photographic printing articles	Prohibited	2022/1/1
Adhesives and sealants	Prohibited	2025/1/6

Exemptions:

- Hydraulic fluids for aviation or military
- Lubricants and grease
- New and replacement parts for motor and aerospace vehicles
- Manufacture of cyanoacrylate adhesives in closed systems
- Specialized engine air filters for locomotive and marine applications
- Plastic for recycling from PIP (3:1)-containing products or articles
- Finished products or articles made of plastic recycled from PIP (3:1)-containing products or articles

Downstream notification requirements, including language in safety data sheets (SDSs) or labels for PIP (3:1) or PIP (3:1)-containing products

Substance	CAS No.	
Pentachlorothiophenol (PCTP)	133-49-3	
Scope	Requirement	Effective Date
Manufacturing and processing of PCTP or PCTP-containing products or articles	Prohibited unless concentrations are ≤ 1%	2021/3/8
Manufacturers, processors and distributors of PCTP or PCTP-containing products or articles to maintain ordinary business records related to compliance with the prohibitions/restrictions and other provisions in § 751.411	Record keeping for 3 years after record has been generated	2021/3/8
Distribution of PCTP or PCTP-containing products or articles	Prohibited unless concentrations are ≤ 1%	2022/1/6



Thank you!

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