

Safety. Science. Transformation.™

A Retailer's Guide to U.S. Product Compliance and Sustainability

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CHAPTER 1

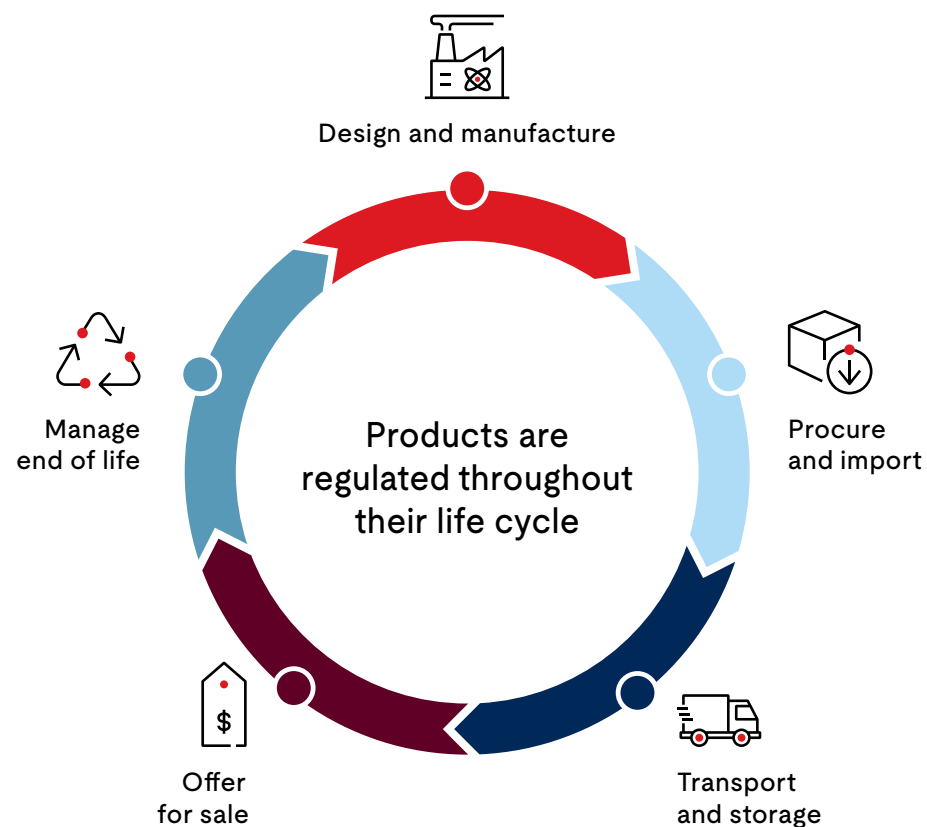
Essential Elements of a Product Compliance Program



Introduction to retail product compliance

Retailers have a lot to juggle when it comes to their product compliance programs. A strong product compliance program considers restrictions and requirements in the design and manufacturing stages of private-label products, during the sourcing and procurement of national-brand products, and the transport, storage, sale and end-of-life management for thousands of consumer products. So how do retailers manage their obligations? They do it with help from UL Solutions.

Chapter 1 of this e-book provides a high-level overview of the major components of a strong retail product compliance program. [Chapter 2](#) details how and why retailers are moving beyond compliance to create strong product sustainability programs.



Transport of hazardous materials

HAZMAT – “Includes those materials designated by the secretary of the U.S. Department of Transportation (DOT) as posing an unreasonable threat to the public and the environment.

The terms “hazardous materials” and “HAZMAT” include all of the following:

- Hazardous substances
- Hazardous wastes
- Marine pollutants
- Elevated temperature material
- Materials identified in 49 CFR 172.101
- Materials meeting the definitions contained in Part 173 of 49 CFR”

Note: Hazardous materials (HAZMAT) are sometimes referred to as dangerous goods in some international jurisdictions and government agencies.

There are many products that retailers sell, transport and handle that are considered HAZMAT. Examples include, but are not limited to:



Aerosols



Lithium batteries



Pesticides



Cleaners



Paints



Smoke detectors²



Fire extinguishers



Perfumes



Swimming pool chemicals

Lighters and matches

The transport of HAZMAT affects retailers and is regulated by the DOT. Specifically, the Pipeline and Hazardous Materials Safety Administration (PHMSA) “is responsible for regulating and ensuring the safe and secure movement of hazardous materials to industry and consumers by all means of transportation.”³ The Hazardous Materials Regulations (HMR) apply to any retailer that ships HAZMAT:

- Between distribution centers and stores
- Directly to consumers
- Via reverse logistics for returns and exchanges

Retailers must adhere to rules and regulations when transporting HAZMAT. In addition to the DOT, there are other international codes and standards involved in transport that are worth noting:














- International Maritime Organization (IMO) – International Maritime Dangerous Goods (IMDG) Code
- International Air Transport Association (IATA) – Dangerous Goods Regulations
- International Civil Aviation Organization (ICAO) – Technical Instructions⁴
- Transport of Dangerous Goods (TDG) in Canada



Classification of hazardous materials

There are nine classes of hazardous materials used in the process of the regulations and their safe handling and transport. For these classes, visual identifiers are used to help communicate what hazardous materials are being transported for proper handling and management. The placards, markings and labels used for identifying the respective materials can vary based on the mode of transport, size of shipment, use of exceptions and country. A brief description of the nine hazard classes along with their standard labels used by the DOT in the U.S. are featured below.⁵ For complete documentation on labels, placards and markings, reference the DOT and PHMSA resources.

Class number	Class name	Division(s)	Labels
1	Explosives	1.1, Mass explosion hazard 1.2, Projection hazard 1.3, Fire hazard 1.4, Minor explosion hazard 1.5, Very insensitive explosives 1.6, Insensitive articles that don't have a mass explosion hazard	
2	Gases	2.1, Flammable gas 2.2, Non-flammable gas 2.3, Poison gas	
3	Flammable liquid and combustible liquid		
4	Flammable solid, spontaneously combustible, and dangerous when wet	4.1, Flammable solid 4.2, Spontaneously combustible material 4.3, Dangerous when wet	

Class number	Class name	Division(s)	Labels
5	Oxidizer and organic peroxide	5.1, Oxidizer 5.2, Organic peroxide	 
6	Poison (toxic) and poison inhalation hazard	6.1, Poisonous inhalation hazard 6.2, Infectious substance	   
7	Radioactive		   
8	Corrosive		
9	Miscellaneous		 

Retailers are responsible for knowing whether a material is hazardous and for communicating the hazardous nature of the product to authorities. PHMSA has created a resource for retailers to help ensure that hazardous materials are handled and transported correctly according to the HMR. The PHMSA guidelines outline six broad steps with more specific details and resources in each step.

-  1
Classify the hazardous material and locate it on the hazardous materials table
-  2
Determine quantities and select packaging
-  3
Package your material
-  4
Mark and label your package
-  5
Prepare shipping paper
-  6
Offer your package to your carrier of choice⁶



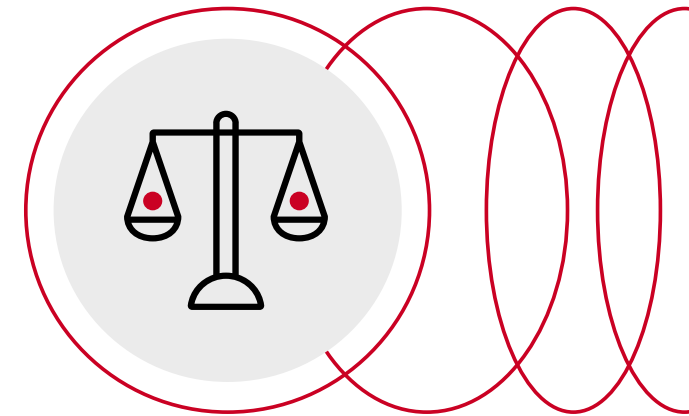


More specifically, the Federal Motor Carrier Safety Administration (FMCSA) lists the following as HAZMAT shipper responsibilities:

- Determine whether a material meets the definition of a hazardous material
- Proper shipping name
- Class/division
- Identification number
- Hazard warning label
- Packaging
- Marking
- Employee training
- Shipping papers
- Emergency response information
- Emergency response telephone number
- Certification
- Compatibility
- Blocking and bracing
- Placarding
- Security plan
- Incident reporting⁷

Several transportation incidents have occurred with shipments containing undeclared hazardous materials⁸. Retailers need to be aware that these incidents may be subject to both civil and/or criminal penalties under the Federal Hazardous Materials Transportation law. The law notes the following enforcement sanctions:

- Administrative actions
- Notice and opportunity for a hearing
- Civil penalties
- Compliance orders
- Criminal penalties
- Civil action in federal court⁹



UL Solutions' WERCSmart offers a systematic approach to the transport of hazardous materials

Retail products in small packaging posing a low to medium hazard often qualify for relief from the regulations. Exceptions, such as limited quantity, may be available based on the chemical hazards, product composition or container size, among other factors. It is important for retailers to use exceptions where possible to minimize product shipping costs and reduce the administrative burden for low-risk products.

With the full product makeup provided by manufacturers, along with a complete database of global regulations, our regulatory experts and automation engine, WERCSmart derives transport classifications for all modes of transportation (land/air/sea). Transporting HAZMAT comes with financial, safety and reputation risks, and retailers must manage that responsibility.

To learn how WERCSmart from UL Solutions can help you establish a retail product compliance program that supports complex and diverse product inventories and your HAZMAT requirements, contact us at UL.SupplyChain@UL.com



Product storage and risk reduction



Retailers need to know what is in their products to ensure that they can store them in the correct areas for optimal risk mitigation, e.g., flammable products in areas with adequate fire suppression systems, as well as to meet regulatory obligations.

In the U.S., the National Fire Protection Association (NFPA) establishes the codes and standards that determine how and where hazardous waste and products containing hazardous materials are stored. Local, state and federal governments may incorporate these codes by reference into regulatory requirements. For retailers, these codes and standards apply to distribution centers and warehouses. Three important codes for retailers to know are:

- **NFPA 400, Hazardous Materials Code** – “Consolidates fundamental safeguards for the storage, use and handling of hazardous materials in all occupancies and facilities”¹⁰
- **NFPA 1, Fire Code** – “Fire and life safety for the public and first responders as well as property protection by providing a comprehensive, integrated approach to fire code regulation and hazard management”¹¹
- **NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response** – “Presents a simple, readily recognized and easily understood system of markings (commonly referred to as the ‘NFPA hazard diamond’)”¹²

Note: The International Code Council (ICC) and International Fire Code (IFC) help determine the storage of HAZMAT. The IFC and NFPA 1 are very similar. Several other codes may apply to retailers.

To learn more about these codes, contact the UL Solutions team at UL.SupplyChain@UL.com

Retailers storing hazardous materials must be able to determine the maximum allowable quantity (MAQ) of a hazardous material. The MAQ is the “maximum amount of a material that is permitted in a control area before requiring additional protection.”¹³

In addition to the NFPA codes, there are other federal agencies, rules and laws shaping compliance requirements for HAZMAT storage, including but not limited to:

- **Occupational Safety and Health Administration (OSHA)** – Under the U.S. Department of Labor, OSHA standard 1926.250(b)(3) states that noncompatible materials must be segregated in storage.¹⁴ For retailers, this means that those products identified as noncompatible must be stored separately within distribution centers and/or warehouses.
- **DOT** – The DOT, in part, regulates the safe storage of hazardous materials during transport. For retailers, this means that any HAZMAT being transported (as defined above) must be correctly labeled, packaged and stored before, during and after transport.¹⁵



Mechanisms built into the codes and laws position retailers for the safe storage and handling of HAZMAT. For example:

- **NFPA 13** sets the standard for the installation of sprinkler systems for industry with the goal of preventing injury and property loss.¹⁶
- **49 USC§5107** – HAZMAT employee training requirements and grants, updates of which came into effect in June 2023, prescribes the training requirements that a HAZMAT employer must provide to HAZMAT employees and the timeframe for doing so.¹⁷



“The MAQ is the maximum amount of a material that is permitted in a control area before requiring additional protection.”

National Fire Protection Association (NFPA)

UL Solutions offers a systematic approach to product storage and risk reduction.

Product	Slotting category	Custom code (example)	Hazards	IFC MAQs			NFPA MAQs		
				No sprinkler	Cabinets/day boxes	Sprinklers	No sprinkler	Cabinets/day boxes	Sprinklers
Pool chemical	High hazard	Level 1	Oxidizer	4000 lb	8000 lb	No limit	4000 lb	8000 lb	No limit
			Toxic	500 lb	1000 lb	1000 lb	500 lb	1000 lb	1000 lb
			Irritant	No limit	No limit	No limit	No limit	No limit	No limit
Spray air freshener	Segregated	Level 2	Aerosol	2500 lb	2500 lb	12000 lb	2500 lb	2500 lb	2500 lb
			Irritant	No limit	No limit	No limit	No limit	No limit	No limit
			Sensitizer	No limit	No limit	No limit	No limit	No limit	No limit
			Carcinogen/mutagen	No limit	No limit	No limit	No limit	No limit	No limit
Hand soap	General storage	Level 3	Irritant	No limit	No limit	No limit	No limit	No limit	No limit
			Sensitizer	No limit	No limit	No limit	No limit	No limit	No limit

With the established data collection and vetting procedures in WERCSmart, UL Solutions can effectively support retail distribution center operations in identifying clear storage requirements for hazardous and potentially hazardous products. By utilizing NFPA and international fire codes, formulation details and other product-level characteristics collected directly from product manufacturers, the WERCSmart data engine can assign actionable storage directives that apply to a retailer's specific operation and deliver the data in a variety of formats.

UL Solutions can also provide accompanying MAQ guidance for understanding how a product and its specific hazards may contribute to critical quantity limitations as dictated by NFPA and IFC standards. The robust rules and data of WERCSmart help many retailers and distribution centers minimize HAZMAT risks, comply with regulations and optimize their storage operations.



Hazardous waste management

It has long been recognized that hazardous waste and materials management presents unique challenges for the retail sector.¹⁸

For retailers managing hazardous materials, including hazardous waste, there are a myriad of laws and rules to follow. Several aspects of hazardous waste management are governed at the federal level under the Resource Conservation and Recovery Act (RCRA).

Hazardous waste – “Waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment.”¹⁹

It is crucial for retailers to properly manage hazardous waste throughout their supply chain. Retailers can face heavy fines and/or penalties for hazardous waste and other nonconformance violations. The U.S. Environmental Protection Agency (EPA) has the authority to administer civil penalties for hazardous waste violations under RCRA. As of 2023, the maximum civil penalties range from \$17,570 to \$117,468/day (USD).²⁰ Over the years, retailers have incurred hundreds of millions of dollars in fines from federal and state agencies.

Elements of a good waste program

At a minimum, a strong waste program has these essential elements:

- Accurate hazardous waste determinations
- Complete RCRA notification
- Proper employee training
- Timely annual and biennial hazardous waste reporting
- Land disposal restrictions determination
- Proper onsite management of hazardous waste
- Generator status determination
- Emergency preparedness and prevention
- Recordkeeping requirements
- All applicable manifest requirements²¹

Retailers are onboarding thousands of products each week. Any number of these products may ultimately become waste, so it is important to have accurate hazardous waste determinations of the consumer products in their supply chain as early as possible in the product onboarding process.



Civil penalties for hazardous waste violations under the RCRA.

As of 2023, the maximum penalties range from (USD)

\$17,570/day to

\$117,468/day

Classification of hazardous waste



Classifying waste is complex. All solid wastes must be assessed to determine whether they are hazardous. The term “solid waste” means any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant or air pollution control facility, and other discarded material resulting from industrial, commercial, mining and agricultural operations, and from community activities²². The sheer volume and number of products and other types of materials that can become solid waste in the retail environment can be overwhelming. They may include returned items, damaged or leaking products and other wastes in a retailer’s operation. This section focuses on the classification of hazardous waste, which is a major component of establishing a strong hazardous waste management program.

Classification occurs at both the federal and state levels and, in some cases, at the local level. In fact, under RCRA, states are encouraged to implement and oversee their own state-level hazardous waste management programs. Because of this, state laws may impose stricter requirements than RCRA.²³

Title 40 of the Code of Federal Regulations dictates that solid waste is hazardous if it exhibits certain characteristics or if it appears on one of the four lists: F, K, P and U.²⁴



Characteristic wastes

A “characteristic waste” exhibits any of these four hazardous waste characteristics: ignitability, corrosivity, reactivity or toxicity.



Ignitable waste

Wastes meeting the definition of ignitable waste are assigned the D001 waste code. These wastes include liquids with a low flash point, non-liquids that can cause a fire under certain conditions, ignitable compressed gases and oxidizers.



Corrosive waste

Wastes meeting the definition of corrosive waste are assigned the D002 waste code. These wastes include aqueous wastes with a pH of less than or equal to 2, a pH greater than or equal to 12.5 or liquids that corrode steel.



Reactive waste

Wastes meeting the definition of reactive waste are assigned the D003 waste code. These wastes include materials that are unstable under normal conditions, react dangerously with water, produce toxic gases, or that can explode or detonate under certain conditions.



Toxic waste

Wastes meeting the definition of toxic waste are assigned waste codes D004-D043, as appropriate. This characteristic is determined from the product formulation or the concentration of a component found during the Toxicity Characteristic Leaching Procedure (TCLP). The assigned waste code corresponds to the toxic constituent present in the waste.

Listed wastes

F and K lists do not typically apply to retailers; however, P and U lists do. P and U listed wastes apply to the disposal of unused commercial chemical products. The EPA defines a commercial chemical product as a chemical that is either 100% pure, technical- (commercial-) grade or the sole active ingredient in a chemical formulation.²⁵

P and U Lists²⁶

List	Definition	Criteria to meet
P	Acute hazardous waste from discarded commercial products	<ul style="list-style-type: none">• The waste must contain one of the chemicals listed on the P or U lists.• The chemical in the waste must be unused.• The chemical in the waste must be in the form of a commercial chemical product.
U	Hazardous waste from discarded commercial products	



The EPA defines a **commercial chemical product** as a chemical that is either

100%

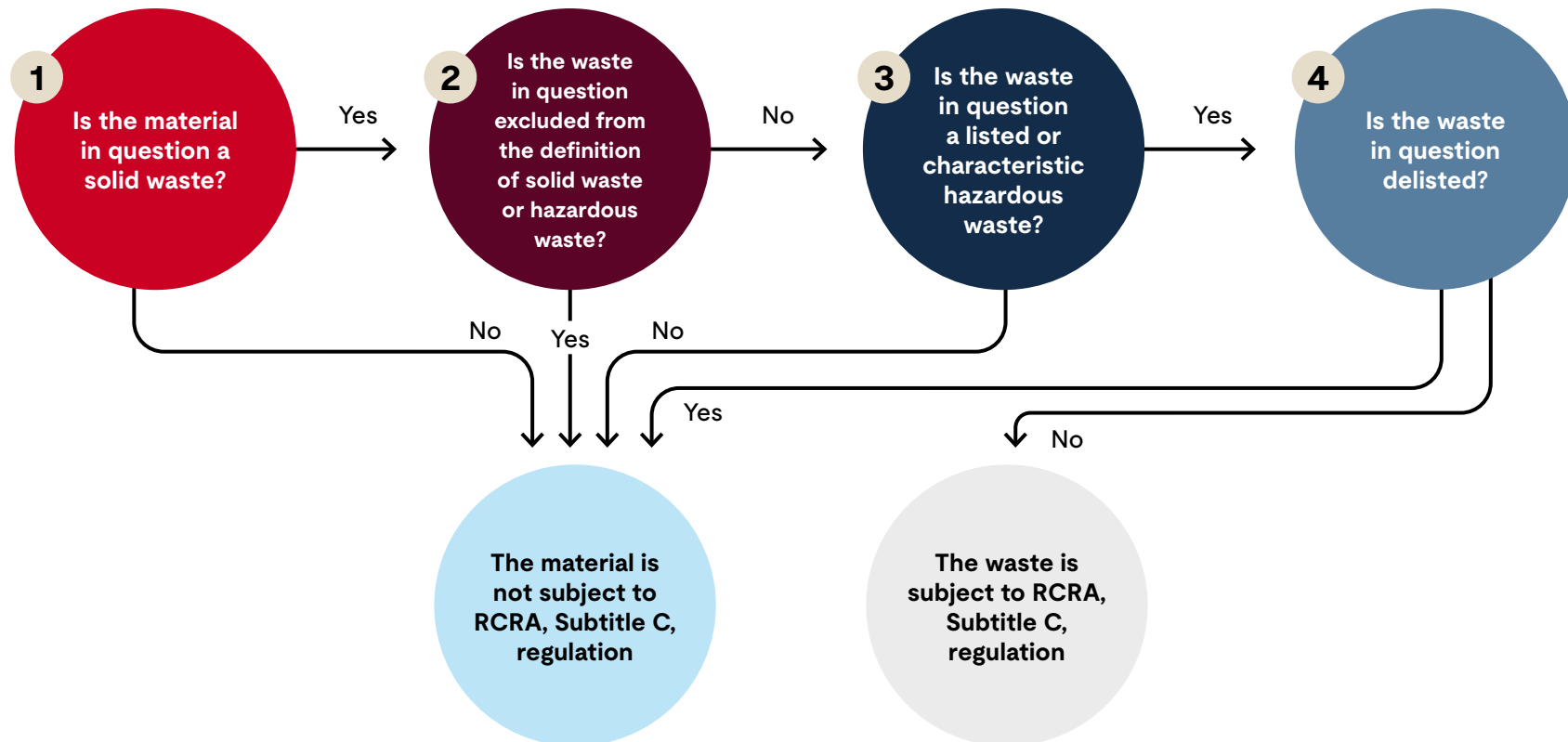
pure, technical- (commercial-) grade or the sole active ingredient in a chemical formulation.

The EPA has set the process for hazardous waste identification under RCRA.

Process for identifying hazardous waste

To classify waste, there are four questions to ask. The yes/no answers to these questions ultimately determine the retailer's course of action for waste management.

To start, determine whether the material is a solid waste. If it is not a solid waste, it is not subject to RCRA. If it is a solid waste, you must decide whether it is excluded from the solid and hazardous waste definitions. If it is, it is not subject to RCRA. If it is not excluded from the lists, the next question is whether the waste in question is a listed or characteristic hazardous waste. If not, it is not subject to RCRA. If it is a listed or characteristic waste, the final question is whether it has been delisted. If it has been delisted, it is not subject to RCRA.



Waste determination at the state level adds an additional layer of complexity

More stringent state laws can override the requirements imposed by the federal RCRA. It is important for retailers to be aware of the federal and state waste classification of a given solid waste. Retailers operating in multiple states and/or states that have additional hazardous waste characteristics for classifying hazardous wastes, such as Washington and California, are required to account for the nuances in the regulations.

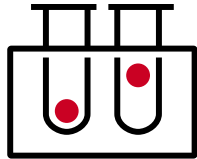
WERCSmart offers a systematic approach to hazardous waste determinations

WERCSmart from UL Solutions streamlines the growing challenges and complexity associated with federal and state-specific hazardous waste regulations. Our automation engine leverages product and component attributes to derive disposal classifications, which our team of experts further analyzes and then delivers to retailers via software as a service (SaaS), application programming interface (API) and other formats.

To see how WERCSmart is already helping retailers manage the diverse state and federal waste regulations, contact us at UL.SupplyChain@UL.com



Chemical regulations in consumer products

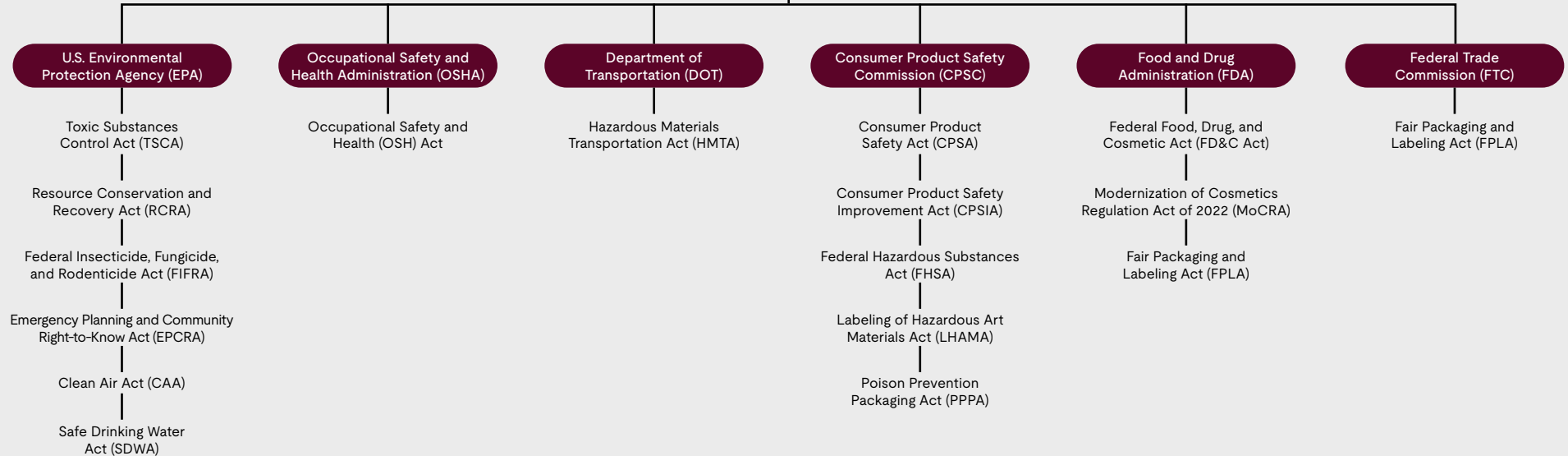


Chemical management at the federal level

For retailers in the U.S., regulations concerning chemical management are complex. The legislative framework can involve federal, state and/or local governance.

At the federal level, chemical management legislation is spread out over several acts administered by various federal agencies, commissions and administrations. Each act contains numerous rules and/or regulations that drive the regulatory landscape of chemical management. Depending on what they sell, some retailers may need to track and adhere to multiple federal acts and many associated regulations to achieve compliance in the U.S.

Federal acts relevant to chemical management in the U.S.



Note: This is not an exhaustive list of federal agencies or acts.

Toxic Substances Control Act (TSCA)

The Toxic Substances Control Act (TSCA)²⁷ is the primary federal chemical control law. Under TSCA, the EPA regulates chemical substances and mixtures of chemical substances, including chemical substances and mixtures contained in articles. Formulated products such as paints and cleaners are examples of regulated mixtures. Manufactured goods such as laptop computers, cellular telephones and other consumer electronics are examples of regulated articles.

Under TSCA, the EPA regulates the complete life cycle of chemicals, from manufacturing and processing to distribution in commerce, use and ultimate disposal. Furthermore, TSCA defines “manufacture” to include import, so retailers that import products are subject to all of the requirements that apply to manufacturers. However, certain categories of chemicals are excluded from regulation under TSCA because they were already subject to other regulatory programs when TSCA was originally enacted. These include foods, cosmetics and pesticides.

TSCA divides the universe of chemical substances into two broad categories: new and existing. The TSCA Chemical Substances Inventory (TSCA Inventory or Inventory) provides the sole means of determining whether a given chemical substance is new or existing for TSCA regulatory purposes. Substances listed on the Inventory are existing, while substances that are not listed are new. This distinction is important because different regulatory requirements apply to new versus existing chemicals.

Retailers are potentially subject to the full range of TSCA regulations.²⁸ However, the requirements most likely to impact them are:

- Premanufacture notification requirements for new chemicals
- Significant new use rules (SNURs)
- Risk management rules
- Chemical data reporting (CDR) requirements
- TSCA inventory active-inactive rule
- Mercury inventory reporting requirements
- Import certification requirements
- Asbestos reporting requirements



The following table briefly summarizes these requirements.*

TSCA requirement	Description	Retailer action required	Recordkeeping requirements	Upcoming deadline
Premanufacture notification requirements for new chemicals	Premanufacture notices (PMNs) allow the EPA to review new chemicals and regulate them (if necessary) to prevent unreasonable risks to human health or the environment before they enter U.S. commerce.	Retailers planning to import a formulated product containing a new chemical must notify the EPA at least 90 days before doing so.	There are associated recordkeeping requirements.	Ongoing
Significant new use rules (SNURs)	SNURs require notice to the EPA before chemical substances and mixtures are used in new ways that might create concerns. More than 4,000 chemicals are currently subject to SNURs, including more than 800 that apply to chemicals in articles.	If the use of a chemical substance is determined to be a significant new use, retailers must submit a significant new use notice (SNUN) to the EPA at least 90 days before importing a product containing that substance for that use.	There are associated recordkeeping requirements.	Ongoing
Risk management rules	Risk management rules may include prohibitions or restrictions on certain uses, recordkeeping requirements, requirements for warnings or instructions, or restrictions on disposal methods. More than 200 existing chemicals are currently subject to risk management rules.	Retailers must comply with all applicable requirements.	Recordkeeping may be required.	Ongoing

*This is not a comprehensive list. Retailers are potentially subject to the full range of TSCA regulations.

Table continued

TSCA requirement	Description	Retailer action required	Recordkeeping requirements	Upcoming deadline
Chemical dating reporting (CDR) requirements	The CDR rule requires manufacturers and importers to provide the EPA with information on the production and use of chemicals in commerce every four years.	Retailers must report on chemicals for which production or importation volumes are 25,000 pounds or greater for a specific reporting year, or 2,500 pounds or greater for chemicals subject to certain actions under TSCA.	There are associated recordkeeping requirements.	<p>Barring a change in the regulations, the next reporting period will run from June 1 to September 30, 2024, and every four years thereafter.</p> <p>Manufacturers and importers of chemical substances on the TSCA Inventory, with some exemptions, may be subject to reporting in 2024 if the total quantities imported into or manufactured in the U.S. exceed the specified thresholds in any one or more of calendar years 2020, 2021, 2022 and 2023.</p> <p>Total quantities include quantities imported as the pure chemical, quantities imported as a component of one or more mixtures and quantities manufactured in the U.S. However, reporting is not required for chemical substances imported as part of an article.</p>
TSCA inventory active-inactive rule	TSCA requires the EPA to designate chemical substances on the TSCA Inventory as either “active” or “inactive” in U.S. commerce.	<p>A retailer that intends to import a product containing a chemical substance designated as inactive must submit a Notice of Activity (NOA) Form B before doing so, but not more than 90 days prior to the anticipated date of import.</p> <p>Note: Import of a chemical substance as part of an article does not trigger this requirement.</p> <p>Upon receipt of an NOA Form B, the EPA will change the designation of inactive substances to active.</p>	There are associated recordkeeping requirements.	Ongoing

Table continued

TSCA requirement	Description	Retailer action required	Recordkeeping requirements	Upcoming deadline
Mercury inventory reporting requirements	The Mercury Inventory Reporting rule requires reporting by persons who manufacture or import mercury or mercury-added products, including pre-assembled products that contain mercury-added components or otherwise intentionally use mercury in a manufacturing process.	<p>Retailers that import such products are subject to reporting.</p> <p>The reporting requirements apply to elemental mercury and mercury compounds.</p> <p>Potentially impacted products include, but are not limited to, batteries, lighting, lamps and switches, as well as formulated products, including cosmetics and pesticides that are otherwise exempt under TSCA.</p>	There are associated recordkeeping requirements.	Future reporting deadlines are July 1, 2025, for calendar year 2024, and every three years thereafter.
Import certification requirements	Imports of chemical substances, mixtures or articles that contain a chemical substance or mixture must comply with TSCA in order to enter the U.S.	<p>Retailers must certify that imported chemicals either comply with TSCA or are not subject to TSCA; the former is known as a positive certification, while the latter is known as a negative certification.</p> <p>Note: No certification is required for tobacco or tobacco products or chemicals that are a part of articles, unless required by a specific rule under TSCA. However, retailers must still comply with all applicable requirements.</p>	There are no specific recordkeeping requirements, but retailers should be able to document compliance if necessary.	Ongoing
Asbestos reporting requirements	EPA has finalized a reporting rule for asbestos.	Retailers who have manufactured, imported or processed asbestos — including asbestos as a component of a mixture, asbestos in articles or asbestos as an impurity — in the four full calendar years prior to the effective date of this rule, and with annual sales greater than or equal to \$500,000 (USD) in any calendar year from 2019 to 2022 when combined with those of their ultimate parent company (if any), must report certain information to the EPA. This is a one-time reporting requirement.	There are associated recordkeeping requirements.	The effective date of the final rule is August 24, 2023. The submission period shall begin six months following the effective date and last for three months. Therefore, companies subject to the final rule have up to nine months following the effective date to collect and submit all required information to EPA.

Proposed PFAS reporting rule

In addition to the existing requirements summarized above, a proposed per- and polyfluoroalkyl substances (PFAS) reporting rule will likely impact retailers. If finalized as proposed, the PFAS Reporting and Recordkeeping rule would apply to retailers who have manufactured or imported PFAS, including formulated products and articles containing PFAS, at any period from January 1, 2011, to the effective date of the final rule. The submission period would begin six months following the effective date of the final rule and last for six months.

PFAS compounds are found in many common household items



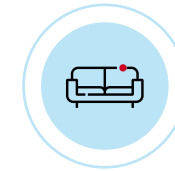
Takeout containers



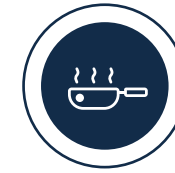
Paint



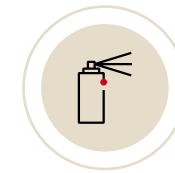
Waterproof apparel



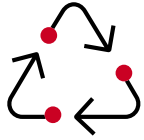
Carpets and textiles



Nonstick cookware

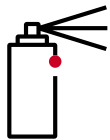


Pesticides and formulated products



Resource Conservation and Recovery Act (RCRA)

RCRA authorizes the EPA to control hazardous waste from initial production to end of life, i.e., generation, transportation, treatment, storage and disposal.²⁹ More information on RCRA is available [here](#).



Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates pesticides in the U.S., i.e., their registration, distribution, sale and use. A pesticide is defined as “any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, or intended for use as a plant regulator, defoliant or desiccant, or any nitrogen stabilizer.”³⁰

States will also have their own registration requirements for the sale of pesticides, which must be met in addition to those outlined in FIFRA.

Pesticides

- Must be registered
- Have labeling and packaging requirements
- Are subject to worker protection standards
- Are subject to federal and state regulations
- Violations may be subject to various types of enforcement



Before a pesticide is sold or distributed in the U.S., it must first be registered with the EPA. Before the EPA can register a pesticide under FIFRA, the applicant must show that using the pesticide “will not generally cause unreasonable adverse effects on the environment.”³¹

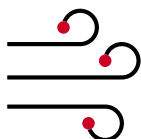


Emergency Planning and Community Right-to-Know Act (EPCRA)

The Emergency Planning and Community Right-to-Know Act (EPCRA) “requires industry to report on the storage, use and release of certain chemicals to federal, state, tribal, territorial and/or local governments.”³²

Retailers need to be aware of hazardous chemical inventory reporting under EPCRA, which applies to “any hazardous chemical used or stored in the workplace, [where] facilities must maintain an SDS.”³³ The reporting applies to any facility required to maintain safety data sheets (SDS) under the OSHA regulations for hazardous chemicals stored in the workplace.

A recent clarification issued by the EPA states that lithium-ion batteries are subject to EPCRA reporting requirements, which require SDS under OSHA’s Hazardous Communication Standards (HCS). In short, lithium-ion batteries, i.e., larger batteries and aggregated collections of batteries, require SDS.³⁴

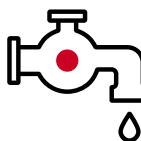


Clean Air Act (CAA)

Under the authority of the Clean Air Act (CAA), the EPA regulates some volatile organic compounds (VOCs) in household products. The EPA is authorized to regulate only those household products that photochemically react in the atmosphere to produce ozone, a component of smog.³⁵ Some states and certain counties have imposed VOC regulations, which may be more stringent than federal requirements.

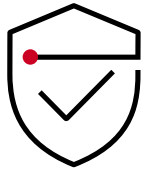
Regulated parties are responsible for:

- Definitions
- Labeling requirements
- Record keeping
- Reporting requirements³⁶



Safe Drinking Water Act (SDWA)

The Safe Drinking Water Act (SDWA) regulates the public drinking water supply in the U.S. The EPA has set legal limits for more than 90 contaminants in drinking water.³⁷ Further, states have the option of setting their own drinking water standards, provided that their standards are at least as stringent as the national standards.



Occupational Safety and Health (OSH) Act

Under the HCS, the OSH Act requires that a “chemical manufacturer, distributor or importer provide SDS for each hazardous chemical to downstream users to communicate information on these hazards.”³⁸ This includes retailers.

Even though it is not mandatory to collect SDS for nonhazardous products, several retailers request them to be authored or collect them from their suppliers in the event that a consumer or commercial customer asks for the SDS on a product.



Hazardous Materials Transportation Act (HMTA)

The Hazardous Materials Transportation Act (HMTA), overseen by the DOT, regulates the transportation of HAZMAT in commerce. Specifically, the HMR apply to “interstate, intrastate and foreign carriers by rail car, aircraft, motor vehicle and vessel.”³⁹





Consumer Product Safety Act (CPSA) and Consumer Product Safety Improvement Act (CPSIA)

The Consumer Product Safety Commission (CPSC) oversees the Consumer Product Safety Act (CPSA). In 2008, the enactment of the Consumer Product Safety Improvement Act (CPSIA) significantly amended CPSA. This update provided stronger support for children's products and toys, revised penalties for noncompliance and created the SaferProducts.gov website, which facilitates access to public information on unsafe products. CPSIA includes provisions addressing the following, among other items:

- Lead limits in paints and substrates
- Phthalates limits in toys and certain childcare articles
- Toy safety
- Durable infant or toddler product safety standards
- Third-party testing
- Certification
- Tracking labels⁴⁰

CPSIA emphasizes legislation around children's products. For retailers, there are strict requirements for:

- Documentation
- Reporting
- Labeling⁴¹

It is important for retailers to know that they have a legal obligation to report unsafe, hazardous and noncompliant products to CPSC.

Under the CPSA, CPSC has "the authority to pursue recalls and ban products under certain circumstances."⁴²





Federal Hazardous Substances Act (FHSA)

The Federal Hazardous Substances Act (FHSA) “also gives the CPSC the authority to regulate or ban a hazardous substance and toys or other articles intended for use by children under certain circumstances to protect the public.” Examples of products regulated under the FHSA:

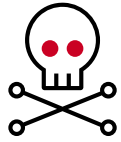
- Electrically operated toys
- Cribs
- Rattles
- Pacifiers
- Bicycles
- Children’s bunk beds⁴³



Labeling of Hazardous Art Materials Act (LHAMA)

Both the Labeling of Hazardous Art Materials Act (LHAMA) and FHSA “require that all art materials offered for sale to consumers of all ages in the United States undergo a toxicological review of the complete formulation of each product to determine the product’s potential for producing adverse chronic health effects and that the art materials be properly labeled for acute and chronic hazards.”⁴⁴





Poison Prevention Packaging Act (PPPA)

The Poison Prevention Packaging Act (PPPA) requires that certain substances be distributed in special packaging. Special packaging is “designed or constructed to be significantly difficult for children under 5 years of age to open.”⁴⁵



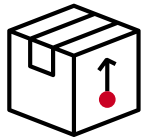
Federal Food, Drug, and Cosmetic Act (FD&C Act)

The U.S. Food and Drug Administration (FDA) has authority over the Federal Food, Drug, and Cosmetic (FD&C Act). Under the FD&C Act, cosmetics and their ingredients, except color additives, are not required to have “FDA approval before going to market, but there are laws and regulations that apply to cosmetics on the market in interstate commerce.”⁴⁶



Modernization of Cosmetics Regulation Act of 2022 (MoCRA)

The recent passage of the Modernization of Cosmetics Regulation Act of 2022 (MoCRA) significantly impacts the cosmetics industry. Signaled as the first major expansion since the FD&C Act, the new law focuses on expanding the safety requirements for cosmetics, such as product listings for ingredients used, labeling of fragrance allergens and facility registrations. It also gives the FDA new authorities, including access to records and mandatory recalls.⁴⁷



Fair Packaging and Labeling Act (FPLA)

Both the FDA and the Federal Trade Commission (FTC) administer the Fair Packaging and Labeling Act (FPLA). The FPLA was “designed to facilitate value comparisons and to prevent unfair or deceptive packaging and labeling of many household ‘consumer commodities.’”⁴⁸

The FDA administers the FPLA with respect to foods, drugs, cosmetics and medical devices.

The FTC administers the FPLA with respect to other “consumer commodities.”

Chemical management at the state level

In the absence of farther-reaching federal regulation, many U.S. states pursue their own efforts to fill in regulatory gaps. States can often move more quickly to introduce and pass regulations to reduce safety risks posed by products and meet consumer demand for safer and more sustainable products.

How U.S. states can regulate chemicals in consumer products

Common actions to address chemicals in consumer products by states include:

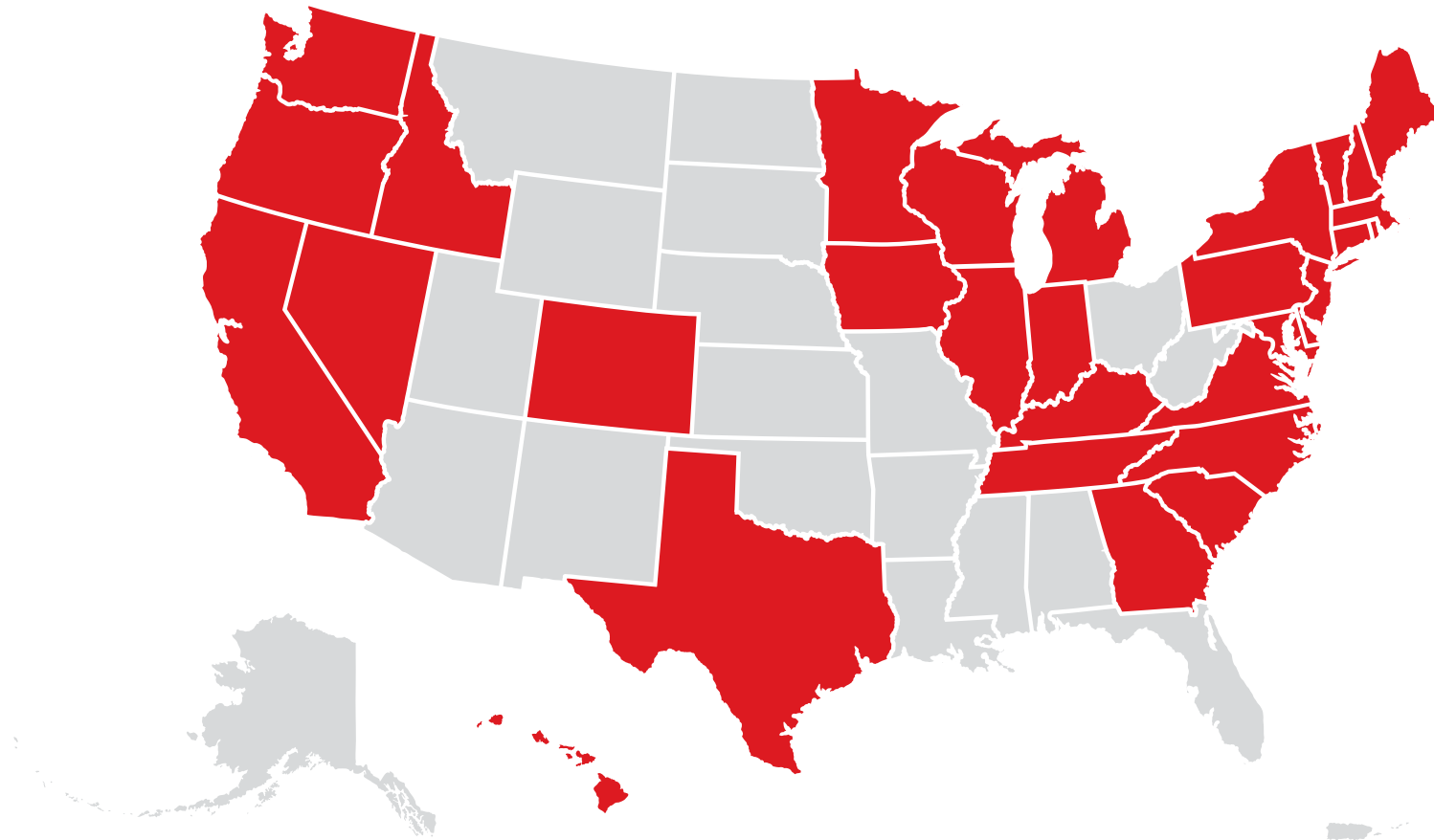
- Prohibited substance lists (or bans) that detail chemicals or chemical groups not permitted
- Reporting or notification requirements that generally require a business to provide reports either before selling or annually, detailing information on products containing regulated chemicals sold in the state
- Methods to inform a consumer about potential hazards, such as those requiring specific content to appear on a label on the product and/or its packaging or statements on a manufacturer or retailer website

Action is commonly taken on chemicals in several ways. The first is to target specific chemicals, such as lead or bisphenol A. Groups of chemicals may also be listed, as seen in state laws addressing phthalates or heavy metals. States may also regulate chemicals based on technical function, e.g., flame retardants, or known hazards, which allows them to address chemicals that might be endocrine-disrupting, carcinogenic, persistent in the environment, bioaccumulative or toxic, among other endpoints.



Several states develop consumer product regulations more often than others. California, Maine, New York, Oregon, Vermont and Washington are some of the states leading the development of consumer product safety chemical policies.

Product categories most frequently addressed include, but are not limited to, children's products and toys, cosmetics and personal care products. Over the last several years, many states have passed laws to reduce risks presented by PFAS in consumer products.



As of June 2023

- States with established programs or laws addressing chemicals in consumer products
- States without programs or laws addressing chemicals in consumer products

States with laws addressing chemicals in consumer products

Examples of state-level consumer product laws include:

- **Maine** – Toxic Chemicals in Children’s Products law⁴⁹
- **California** – Cleaning Product Right to Know Act of 2017⁵⁰
- **New York** – 1,4-Dioxane Limits for Household Cleansing Products, Personal Care and Cosmetic Products⁵¹

A state may also act against a wide breadth of chemicals. A firm example is California’s Safe Drinking Water and Toxic Enforcement Act of 1986 (also known as Proposition 65).⁵² Proposition 65 requires businesses operating in the state to warn Californians if they may be significantly exposed to a variety of state-identified chemicals. Exposure can occur through consumer products, materials in the home or workplace or through environmental interaction such as drinking water. There are more than 900 chemicals on the Proposition 65 list, all of which are known to be hazardous to humans and/or the environment.





What state activity means for retailers

The myriad of requirements among the states creates a patchwork of compliance obligations that concern retailers. Supply chains can be difficult to separate between states, so a holistic compliance strategy is recommended when practical. Understanding the state laws impacting products of interest is the first step toward developing or selling a compliant product, which is significant for own-branded products where a retailer is the responsible party. Even outside of codified legislation, many chemicals commonly regulated by state laws can be found on brands' restricted substance lists, and consumer pressure may encourage retailers to avoid chemicals of concern. The [“State Regulations of Chemicals in Consumer Products”](#) overview developed by UL Solutions is a great resource detailing many common state laws impacting consumer products.

Retailers and manufacturers of products struggle to keep up with the dynamic regulatory landscape. With this challenge so critical to the retail community, UL Solutions has invested in regulatory experts worldwide to monitor and update software regularly with the changing chemical regulations to help companies comply and manage the safe handling, storage, transport and disposal of products.

Learn more about WERCSmart,
the industry-leading product
compliance software.

Considerations for U.S. retail product compliance

Complying with evolving product compliance regulations can pose several practical challenges for retailers. Each product a retailer carries can face a particular set of changing regulatory requirements that vary by jurisdiction. For retailers, this can mean monitoring hundreds of regulations that can impact thousands of products. Key practical challenges can include the following:

1

Comprehensive technical knowledge is required to understand how chemical regulations apply through the product life cycle. Transportation, storage and end-of-life management represent critical functions for moving products through the supply chain. Each function requires technical expertise and an understanding of the chemical composition and hazards associated with the product.

2

Information needed for compliance is stored far upstream in the supply chain, many layers away from retailers. Many of the chemical-based regulations that affect consumer products are at the individual chemical level. Complete information is often not found on an SDS or a product label, requiring retailers to survey their supply chains to gather the information using antiquated and time-consuming methods like email and material questionnaires.



3

Lack of chemical transparency

creates a missed revenue opportunity for retailers. The inability to screen or evaluate the complete formulation of the product limits retailers' ability to make substantiated product claims, such as green claims or "free-of-intentionally-added" claims, which have been shown to increase sales in product categories such as personal care and cleaning products.



4

Retail compliance and stewardship teams

have limited resources for supporting emerging business models. To meet consumer demand and corporate growth objectives, many retailers are turning to additional business models beyond brick and mortar to connect with consumers. Item fulfillment centers, online marketplaces and other e-commerce strategies have greatly increased the catalog of and pace at which products are designed, sourced and sold. Retailers must ensure that all products comply with the complex regulatory framework in the U.S. throughout their life cycle, regardless of which channel they are sold in.

Building scalable product compliance programs in retail requires the following capabilities and processes:



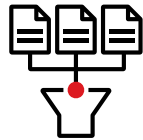
Supplier management system

Ability to efficiently collect critical product safety and chemical information on the products a retailer purchases for resale and the ingredients in the private-label products they produce



Regulatory monitoring capability

Understanding, tracking and managing hundreds of U.S. regulations and staying ahead of changing regulations for compliance and to protect your brand



Chemical screening of regulated products

An automated process for screening the full chemical and physical properties of a product against hundreds of regulations



Product database or regulatory tracking system

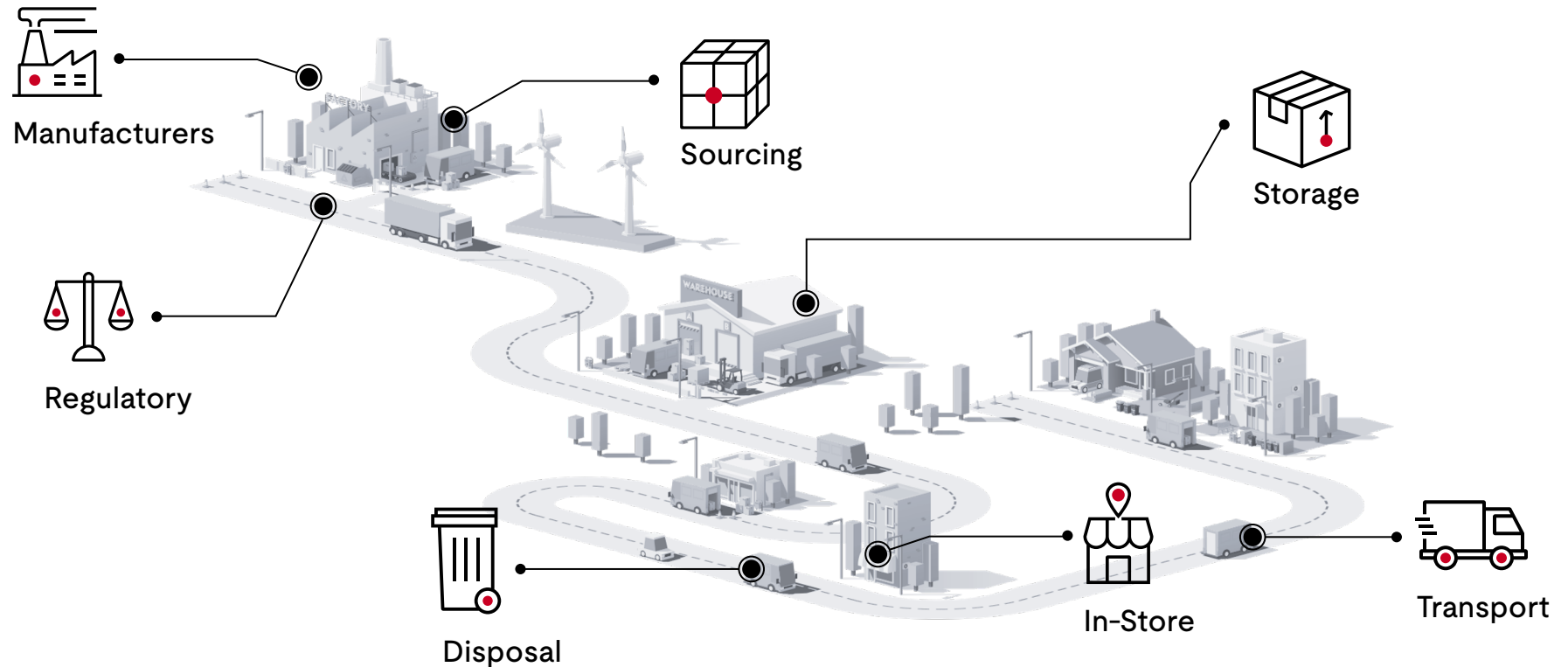
Retailers need to flag and track regulated products throughout their operations to manage their compliant sale, handling, transportation, storage and disposal



Data management and reporting capabilities

Tools to assess the health of a retailer's compliance program, manage data quality and generate reports needed for regulatory disclosure purposes

WERCSmart streamlines product compliance



UL Solutions connects the supply chain with software, expertise and data. Manufacturers enter product data into the secure WERCSmart product compliance platform, where products are systematically assessed against the latest global chemical regulations. Retailers can then use the data generated from WERCSmart to mitigate risks and help meet compliance needs across hundreds of jurisdictions. Further, retailers can better manage product storage, transport and disposal of their products. The detailed product information generated by WERCSmart also provides an avenue for retailers to curate safer and more sustainable products.

To learn more about our product compliance solutions for retailers, contact us at UL.SupplyChain@UL.com or visit UL.com/WERCSmart.

CHAPTER 2

Moving beyond compliance to create a strong product sustainability program



Introduction to product sustainability for retailers

As regulatory compliance for chemical management becomes more complex and consumer demand shifts to safer, more sustainable products, retailers are responding by adopting more ambitious chemical management policies and programs to curate their product assortments to avoid chemicals of concern.

A significant challenge that retailers face is that “chemicals of concern” are prevalent in nearly half of all formulated products. Chemicals of concern are “chemical substances found to be harmful or toxic to human health and the environment.”⁵³ Whether chemicals have been regulated or have become stigmatized in the eyes of consumers, retailers are expanding and diversifying the chemicals they wish to restrict in the products they sell, e.g., PFAS.



The demand for safer and more sustainable products

Consumers, nongovernmental organizations (NGOs) and regulators want safer and more sustainable products. Consumers are more aware of and sensitive to the health and environmental risks associated with harmful chemicals in the products they purchase. At the same time, they struggle to determine what chemicals are present in the products they wish to purchase, leaving them uncertain that they are purchasing products that are safer and more sustainable. Retailers have responded to the demands for safer and more sustainable products by sourcing, reformulating and/or creating relationships with brands that differentiate their products as safer and more sustainable.

To help consumers understand what ingredients are in their products, some readily accessible tools are available online, e.g., the Environmental Working Group's (EWG's) Skin Deep®.⁵⁴ Increased education, publicly available tools and mainstream media around chemical hazards and chemicals of concern are driving change among consumers.



NGOs work closely with consumers to affect change in the marketplace. Knowing that consumers want products that are safer and more sustainable, NGOs such as Toxic-Free Future have created “Mind the Store,” a program “to challenge the nation’s largest retailers to adopt policies that stop the use of the most hazardous chemicals and ensure products they sell are safe. The program urges retailers to eliminate toxic chemicals in products and packaging and develop comprehensive, safer chemicals policies.”⁵⁵

“Mind the Store” publishes an annual “Who’s Minding the Store? Retailer Report Card” that “evaluates and grades retailers on their chemical management policies.”⁵⁶ Retailers are awarded points in various categories.

The total number of points corresponds to a final letter grade from A+ to F.⁵⁷ The report provides information about the evaluated retailers, such as:

- Which retailers are leading the market movement toward safer chemicals
- How retailers can continue to implement and expand corporate chemical policies
- Which assessed retailers are lagging behind other assessed retailers

NGOs see retailers as efficient agents of change because their decisions about which products to sell or promote send manufacturers reformulation signals that have much more impact than individual consumer purchasing choices. Retailers that respond to consumer demand and adapt their assortments quickly have seen an increase in overall sales revenue.⁵⁸

In response to demands for safer and more sustainable products from consumers, NGOs, regulators and retailers are implementing programs to minimize the presence of chemicals of concern in the products they sell, which empowers consumers to make informed purchases and, in turn, builds trust and loyalty with their customers.



Top retailer product sustainability programs

Several leading retailers* are meeting demands for safer, more sustainable products. These retailers have found various ways to respond to such demands, including overall assortment curation, own-brand curation, development of chemical policies and restricted substances lists, promoting brands with third-party evaluations, etc.

Free of Amazon RSL Chemicals	Publicly Disclosed Amazon RSL Chemical(s)	Free Of Beautycounter Never List Chemical(s)	Publicly Disclosed Beauty Counter Chemical(s)	Free of Bed Bath & Beyond Priority Chemicals	Publicly Disclosed BBB RSL Chemical(s)	Free Of Credo Dirty List And Other Ingredients...	Free of CVS RCL Chemicals	Publicly Disclosed CVS RCL Chemical(s)	Free of Dollar General RSL Chemicals	Publicly Disclosed Dollar General RSL Chemical(s)
✓	—	✗	Disodium EDTA	✓	4-Hexylresorcinol	—	✗	Phenoxyethanol	✓	—
✓	—	✗	Disodium EDTA	✓	—	—	✗	Phenoxyethanol	✓	—
✓	—	✗	Disodium EDTA	✓	—	—	✓	—	✓	—
✓	—	✗	Disodium EDTA	✓	—	—	✓	—	✓	—
✓	—	✗	Disodium EDTA	✓	—	—	✓	—	✓	—
✗	Propylparaben	✗	Triethanolamine, Butylated Hydroxytoluene, Disodium EDTA, Propylparaben	✗	—	—	✗	Palmitic acid, Methylparaben, Propyla	✗	Propylparaben
✓	—	✗	—	✓	—	—	✓	—	✓	—

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Overall brand curation



Target Clean

Target Clean showcases eco-friendly, sustainable products.

Target Clean⁵⁹ has reframed the consumer shopping experience by allowing consumers to easily select products that are free of certain chemicals of concern. Target Clean groups products by function or brand and is not limited to Target-owned brands. Target Clean promotes products that avoid chemicals of concern to respond to growing consumer preferences for safer and more sustainable products. Target Clean is used in-store and online. In-store, consumers will find Target Clean products displayed in aisle end caps with branding for ease of access and promotion. Using aisle end caps calls attention to the displayed products, which often results in increased sales of the showcased Target Clean products. The mobile app supports the Target Clean shopping experience with easy, visible access to various clean product categories, e.g., beauty, household essentials, etc.



Amazon's Climate Pledge Friendly

Amazon's Climate Pledge Friendly provides sustainable shopping options and reduces waste.

Amazon has worked with third-party certifiers, to highlight products that meet sustainability standards in a program called Climate Pledge Friendly.⁶⁰ Amazon has also created its own certifications: Compact by Design and Pre-owned Certified. This program includes the chemical dimension of products but focuses more broadly on identifying products that are better from a climate change perspective, such as those with lower carbon footprints. For example, consumers can look for the Climate Pledge Friendly badge to identify qualifying products on product pages, which includes information on the number of third-party certifications and specifics on the certifications. Additionally, consumers can shop for Climate Pledge Friendly by category, e.g., apparel and accessories, baby, health and wellness, etc. Amazon promotes Climate Pledge Friendly products by displaying featured products and top brands with more sustainable products on its landing page.⁶¹

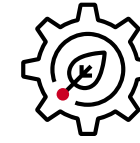


Walmart launched Built for Better (2021) and Clean Beauty at Walmart (2023)

Built for Better is “an online shopping destination that makes it easy for customers to identify and shop for products that are built better — for them and for the planet.”⁶² Consumers look for Built for Better icons while shopping and can trust that those products meet independent and authoritative standards that promote well-being and reduce environmental impact. Built for Better has two streams, each with its own logo for easy identification:

- Built for Better — For You
- Built for Better — For the Planet

Clean Beauty at Walmart is also an online shopping platform that showcases beauty products that don’t have a single ingredient that appears among the more than 1,200 ingredients on its Made Without List (MWL).⁶³ A dedicated online storefront for “clean” cosmetics highlights products that are free of these ingredients. The complete MWL list is available on the Clean Beauty at Walmart webpage.⁶⁴



Credo Clean Standard

The Credo Clean Standard is a robust product curation system where every product in the store must meet the standard. Credo does not onboard a product that does not meet its standard, so the entire product assortment meets Credo’s sustainability criteria. Credo has a Dirty List of more than 2,700 chemicals it prohibits or restricts in its products.⁶⁵



Own-brand curation (private-label brand)

Live Better by CVS Health

Live Better by CVS Health rolled out more than 80 products in 2020. The expanded health and wellness brand is committed to ensuring that all packaging is at least 80% recyclable.⁶⁶

Live Better products feature several popular and emerging ingredients — e.g., turmeric, kelp, maca, etc. — in addition to many of the products being:

- Labeled USDA-certified organic
- Non-GMO Project-certified
- Gluten-free
- Cruelty-free
- Vegan

Live Better goes beyond simply listing ingredients to provide background information on how products were sourced and sustainably manufactured.⁶⁷

The requirements that CVS issues to its vendors for its private-label manufacturing include various clean/wellness attributes, such as avoiding specific chemicals on CVS's restricted chemical list and/or developing specifications for preferences so producers can deliver on those preferences.

Clean at Sephora

Clean at Sephora features curated beauty products that are made without certain ingredients on Sephora's excluded substances list, e.g., phthalates and formaldehyde. Shoppers look for the Clean at Sephora seal in-store and online and know that products with the seal "offer a similar level of effectiveness as others in their beauty categories without the inclusion of ingredients you may be trying to avoid."⁶⁸

While there are several ways in which retailers can and have adapted more stringent regulations and met consumer demands for safer and more sustainable products, retailers adopting programs like these report that they boost product sales compared to conventional products that lack sustainability attributes to promote. Retailers benefit from both increased sales and enhanced brand reputations by actively curating their assortments.⁶⁹



+19%

product sales uplift after tagging products as sustainable



53%

of consumers have switched from a known brand to an alternative due to sustainability



+60%

click-through rate (CTR) increase after tagging products as sustainable



84%

of consumers are more loyal to a brand that aligns with their values

Creating a retail product sustainability program



Build on a strong regulatory compliance program to create a robust product sustainability program

A retail chemical compliance program provides the essential foundation for a robust product curation program.

Key elements include:

- Use of tools to systematically gather product composition data from the supply chain, including from manufacturers, intermediaries and raw material producers.
- Use of regulatory lists at the local, state, federal and international levels to identify chemicals of concern in your supply chain.
- Adoption of a corporate chemical policy as part of a broader corporate social responsibility (CSR) program; the chemical policy should include one or more restricted substances lists that identify the chemicals that producers should avoid.



Follow retailer best practices for implementing product curation programs

Leading retailers and brands engage in several activities to successfully manage products in their supply chains to better understand chemical ingredients and reduce or eliminate chemicals of concern:

- Request supplier authorization to use regulatory data for chemical policy and product curation programs.
- Provide clear vendor guidance about what data is needed, how it will be used and the commercial benefits of collaboration.
- Address consumer and NGO concerns by publishing a chemicals policy and restricted substances list.
- Help consumers find safer, healthier or greener products through consumer-facing marketing channels in-store and online.
- Add chemical composition requirements to product development specifications for private-label brands.
- Continuously track and communicate progress toward eliminating chemicals of concern.

Retailers often partner with leading consultants and organizations with chemical and regulatory expertise to assist in developing and maintaining their chemical compliance and sustainability programs. Together, they design effective communication strategies to obtain buy-in among critical internal stakeholders and use technology to gather chemical data across the supply chain.

PurView enables product sustainability



PurView is comprehensive software from UL Solutions that enables retailers to develop and implement chemical policy and sustainable product curation programs. With its advanced features and integration with WERC Smart data, PurView aligns with the best practices that leading retailers and brands follow.

PurView helps retailers move beyond compliance to meet the demands of the end consumers and achieve sustainability goals.

- **Create and implement your organization's chemical policy**
Design and implement a chemical policy that reflects your commitment to CSR and move beyond mere compliance with regulations. To achieve this, PurView enables you to manage and scale your chemical policy program across your assortment of national brands and private-label products.
- **Screen products for chemicals of concern**
With PurView, retailers can go beyond the product label and generic ingredients to screen a product's full formulation for chemicals of consumer concern and other priority chemicals, all while protecting suppliers' confidential information through WERC Smart's secure data engine.
- **Develop more sustainable products**
PurView allows for optimizing formulation and ingredient selection when researching and developing private-label products to meet compliance and sustainability goals.
- **Empower consumer-facing marketing programs**
PurView enables retailers to promote products across channels — in-store and online — based on sustainability attributes that matter to consumers. By leveraging the software, retailers can provide consumers with valuable information to help them find safer, healthier and greener products.

Learn how PurView from UL Solutions can help you build a strong sustainable product curation program. Visit UL.com/PurView or email us at UL.SupplyChain@UL.com

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