

The Living Building Challenge (LBC) Red List 2025 Update: A Guide for Project Teams

Highlights

- **Changes to the Red List:** No changes were made to the Red List.
- **Changes to the Priority List:**
 - If they were not already on the Red or Priority Lists, the following regulated chemicals were added to the Priority List, either directly or advanced from the Watch List: Chemicals listed by the [Stockholm Convention](#), the [Rotterdam Convention](#), the [Montreal Protocol and Kigali Amendment](#), EU REACH [Annex XIV - Authorisation List](#), EU REACH [Annex XVII - Restricted List](#) - selected entries, and the Persistent, Bioaccumulative and Toxic chemicals banned by U.S. [Toxic Substances Control Act \(TSCA\) 40 CFR 751](#).
 - 2073 chemicals with toxic heavy metals (arsenic, cadmium, hexavalent chromium, lead, and mercury) were directly added to the Priority List.
 - 137 organophosphate flame retardants were directly added to the Priority List.
- **Changes to the Watch List:**
 - Some chemicals from the selected regulatory lists above were already on the Watch List and advanced to the Priority List.
- No new I-13 Red List Imperative exceptions are being introduced at this time.

About the Red List

The LBC Red List is a list of chemicals representing the “worst in class” substances prevalent in the building industry that pose serious risks to human health and the environment. The Red List is organized by chemical class and lists individual chemicals by Chemical Abstract Registry Number (CASRN). Since its inception in 2006, the Red List has

been an intuitive tool for communicating the need to stop using chemicals that cause harm. The Red List is the backbone of materials requirements in the Living Building Challenge, the Living Product Challenge, and the Declare label.

2025 Red, Priority, and Watch List Update

Living Future worked with [Habitable](#) (formerly known as the Healthy Building Network) and our [Material Health Technical Advisory Group](#) to generate and review the changes to the Lists.

Research and engagement with technical advisors and the scientific and manufacturing communities are needed before advancing more chemicals from the Priority List to the Red List or the new chemical classes from the Watch List to the Priority or Red Lists.

No changes were made to the Red List in 2025.

However, effective February 1, 2025, the following changes were made to the Priority List:

- Chemicals from several regulatory lists that are not already on the Red List have been added to the Priority List, to advance the full regulatory lists to the Red List in early 2026.
 - Living Future will align its program rules with the regulations' allowable thresholds and exemptions for specific chemical entries.
- The inventory of Toxic Heavy Metals on the Priority List was updated with 2073 additional CASRN (chemicals with arsenic, cadmium, hexavalent chromium, lead, and mercury). Living Future intends to advance most of the Toxic Heavy Metals to the Red List in 2026.
 - Several cadmium-containing pigments will now be flagged on the Priority List and will likely advance to the Red List in 2026.
 - Brass was demoted from the Priority List to the Watch List. We plan to do a larger study in the future to determine the program rules for alloys.
- 137 Organophosphate Flame Retardants (OPFR) were added to the Priority List. In 2026, a subset of these chemicals will advance to the Red List while the rest will be demoted to the Watch List.
 - The OPFRs regulated by the U.S. [Toxic Substances Control Act](#) and in polyurethane foam in the [state of Washington](#) will advance to the Red List in 2026.

Please visit the [Red List web page](#) to download the updated Red List CASRN Guide.

Guidance and how to incorporate Red List updates

1. No changes were made to the Red List this year. Project teams registering in 2025 to pursue the LBC Materials Petal certification will be using the 2024-2025 Red List to screen products. Project teams pursuing the LBC Materials Petal are only required to use the Red List in effect at the time of project registration with Living Future to determine compliance for materials.
2. Project teams may elect to include Priority List and Watch List chemicals in their product vetting criteria, but may not prioritize the avoidance of Watch List chemicals over the avoidance of Red List chemicals.
3. As the Red List updates to include new chemicals, it is possible that the Declare status on a product's Declare label might be inconsistent with the updated Red List because labels are in effect for 12 months, independent of the calendar year. Please view Imperatives [I13](#) and [I14](#) in the LBC 4.0 Handbook for information about how this affects project requirements.

Regulatory lists added to the Priority List in 2025

Stockholm Convention: Persistent Organic Pollutants

The Stockholm Convention, adopted in 2001, requires the elimination or restriction of selected persistent organic pollutants, including several pesticides, industrial chemicals, and chemical processing byproducts.

From the Stockholm Convention website:

“Persistent Organic Pollutants (POPs) are organic chemical substances; that is, they are carbon-based. They possess a particular combination of physical and chemical properties such that, once released into the environment, they:

- remain intact for exceptionally long periods (many years);
- become widely distributed throughout the environment as a result of natural processes involving soil, water, and, most notably, air;
- accumulate in living organisms including humans, and are found at higher concentrations at higher levels in the food chain; and
- are toxic to both humans and wildlife.

Exposure to POPs can lead to serious health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease and damages to the central and peripheral nervous systems.”

The Stockholm Convention POPs list includes several classes of chemicals that were already included on the Red List - for example, polychlorinated biphenyls (PCBs), short-chain chlorinated paraffins, chlorobenzenes, pentachlorophenol, etc. Although the listed POPs have mostly been phased out of use, including the full Stockholm Convention list within the Red List is important to ensure its complete alignment with the most accepted international definitions of POPs.

<https://chm.pops.int/>

Rotterdam Convention: Banned or Severely Restricted Chemicals subject to the Prior Informed Consent Procedure

The objective of the Rotterdam Convention, adopted in 1998, is to “promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals to protect human health and the environment from potential harm and to contribute to their environmentally sound use, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties.”

Annex III of the Rotterdam Convention lists the pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons and are subject to the PIC procedure. Annex III contains many of the persistent organic pollutants listed by the Stockholm Convention. It also lists asbestos, several per- and polyfluoroalkyl Substances (PFAS), halogenated flame retardants, lead, mercury, organotin compounds, and other classes included in the Living Future Red List.

Although many of the chemicals in Annex III are severely restricted and rarely used, including the full Rotterdam Convention list within the Red List is important to ensure its complete alignment with the accepted international definitions of hazardous chemicals.

Some of the chemicals listed in the Rotterdam Convention are restricted as pesticides, but allowed to be used as industrial chemicals. We intend to write our program rules to align with this - for example, certain pesticide dust formulations containing thiram are disallowed under the Convention; however, thiram is allowed for use as a vulcanizing agent for rubber.

<https://www.pic.int/>

Ozone Depleting Substances as defined by the Montreal Protocol and the Kigali Amendment

The 1987 [Montreal Protocol on Substances that Deplete the Ozone Layer](#) is a successful international agreement to phase out the use of ozone-depleting substances, including chlorofluorocarbons (CFCs), halons, and hydrochlorofluorocarbons (HCFCs) - gases often used in refrigeration and air conditioning. With over 190 signatories, including the U.S., the treaty put the ozone layer on the path to a full recovery. However, hydrofluorocarbons (HFCs) replaced the CFCs and HCFCs in many applications - these are also potent greenhouse gases that contribute to climate change.

The 2016 [Kigali Amendment](#) to the Montreal Protocol is an international agreement to phase down the production and consumption of HFCs by 80-85% by 2047. The U.S. ratified the Kigali Amendment in 2022 and manages the reduction of HFCs under the AIM Act.

While the original Red List included CFCs and HCFCs, it did not completely include all ozone-depleting [substances](#) listed by the U.S. EPA, and it did not include the HFCs commonly used in HVAC systems (such as R410a, a mixture of HFC-32 and HFC-125). Adding the full list of ozone-depleting substances as well as the HFCs listed in the Kigali Amendment will help Living Future to write program rules aligning with its climate goals and advocate for an industry shift toward natural refrigerants.

<https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances>

<https://www.epa.gov/ozone-layer-protection/recent-international-developments-under-montreal-protocol>

<https://www.epa.gov/climate-hfcs-reduction/background-hfcs-and-aim-act>

EU REACH Annex XIV - full Authorization List

The European Union's (EU) Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), adopted in 2007, is a law that aims to protect human health and the environment from the risks posed by chemicals.

Annex XIV of the REACH regulation is a list of substances of very high concern (SVHC) that cannot be placed on the market in the EU unless prior authorisation is granted.

The REACH regulation designates substances as Candidate SVHCs if they meet the criteria for classification as carcinogenic, mutagenic, or toxic for reproduction (CMR) category 1A

or 1B; or if they are persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB); or if they cause an equivalent level of concern as CMR or PBT/vPvB substances.

SVHCs from the Candidate list are added to Annex XIV via a public consultation process, and are prioritized based on their PBT or vPvB properties; wide dispersive use; or high volumes.

Including the EU REACH Annex XIV in the Red List will align it with the leading international protective chemicals regulation.

<https://eur-lex.europa.eu/legal-content/en/TXT/HTML/?uri=CELEX:02006R1907-20231201>

<https://echa.europa.eu/authorisation-list>

EU REACH Annex XVII - Restricted List - selected entries related to the building industry

The European Union's (EU) Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), adopted in 2007, is a law that aims to protect human health and the environment from the risks posed by chemicals.

Annex XVII is a list of substances restricted for specific uses because the manufacture, placing on the market, or use of a substance on its own, in a mixture, or in an article poses a risk to human health or the environment that is not adequately controlled. The restricted uses in Annex XVII include many building materials, but also specifically restrict different chemicals' use in fertilizers, children's toys, jokes and hoaxes, and cosmetics. The REACH regulation creates a process for preparing, reviewing, evaluating, and incorporating public comments on proposed restrictions.

The Red List already included several chemicals restricted in Annex XVII, including asbestos, mercury, lead, arsenic, cadmium, and chromium VI compounds, creosote, alkylphenol ethoxylates, polycyclic aromatic hydrocarbons, phthalates, per- and polyfluoroalkyl substances, etc.

In 2025, Living Future selected additional entries from Annex XVII related to use in the building industry to add to the Priority List:

- Entry #5. Benzene
- #17. Lead sulfate

- #31. Creosote
- #28-30. Category 1 carcinogens, mutagens, and reproductive toxicants (restricted at various defined concentrations in mixtures and articles supplied to the general public - use is “restricted to professional users”)
- #48. Toluene (restricted in adhesives and spray paints only)
- #54. 2-(2-methoxyethoxy)ethanol (DEGME) (used in paint strippers)
- #56. Diisocyanates (restricted for the general public, but allowed in manufacturing and construction by professional users if adequate training on their hazards and safe handling is provided)
- #60. Acrylamide (restricted in grouting only)

Several of the Annex XVII entries restrict the use of a chemical only at certain concentration levels or for certain uses or users. Before advancing these to the Red List, Living Future will carefully consider how best to represent the nuances of these restrictions in the program rules.

<https://eur-lex.europa.eu/legal-content/en/TXT/HTML/?uri=CELEX:02006R1907-20231201>

<https://echa.europa.eu/substances-restricted-under-reach>

Persistent, Bioaccumulative, Toxic chemicals banned by TSCA

Section 6(h) of the Toxic Substances Control Act (TSCA) requires the United States Environmental Protection Agency to take action to reduce exposure to certain chemicals that are persistent, bioaccumulative and toxic (PBT). This section restricts the use of six chemicals.

Two of the restricted chemicals, methylene chloride (CAS 75-09-2), often used in paint strippers, and Decabromodiphenyl ether (CAS 1163-19-5), a flame retardant used in wire and cable casings and building and construction materials, are already on the Red List.

In 2025, Living Future is adding the rest of the TSCA PBT chemicals to the Priority List, with the intention of advancing them to the Red List in 2026:

- 2,4,6-Tris(tert-butyl)phenol ([2,4,6-TTBP](#), CAS 732-26-3) – an antioxidant in fuel additives and fuel injector cleaners as well as an additive in oil and lubricants
- Phenol, isopropylated phosphate (3:1) ([PIP 3:1](#), CAS 68937-41-7) – a flame retardant in plastics and as a functional fluid in aircraft and industrial machinery

- Pentachlorothiophenol ([PCTP](#), CAS 133-49-3) – a substance with applications in the rubber industry
- Hexachlorobutadiene ([HCBD](#), CAS 87-68-3) – a solvent in rubber manufacturing and in hydraulic, heat transfer or transformer fluid

<https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/persistent-bioaccumulative-and-toxic-pbt-chemicals>

<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-R/part-751>

Feedback and questions

If you have feedback or questions, please contact declare.support@living-future.org.

For additional details about the Living Building Challenge Red, Priority, and Watch List 2025 update, please visit <https://living-future.org/red-list/>.