The Living Building Challenge (LBC) Red List
2022 Updates: A Guide for Project Teams

Highlights

- Effective April 1, 2022, ILFI is updating the Red List to include 4,844 PFAS (Per- and Polyfluoroalkyl Substances) Chemical Abstract Numbers, which were previously on the Priority Watch List, and is adding 5,947 new PFAS chemicals to the Priority Watch List to better represent the class.
- Building Project Teams will need to assess how these updates may impact their materials selections.
- A new, temporary exception has been added to facilitate dialogue and market transformation.
- If you're concerned about PFAS, start with Declare manufacturers to find products that do not contain them.

Background

The Living Building Challenge (LBC) Red List is a tool for building product transformation. It documents the "worst in class" materials, chemicals, and elements known to pose serious risks to human health and the environment.

PFAS (Per- and Polyfluoroalkyl Substances) have been linked to weakened immune systems, cancer, liver damage, and other health impacts. ILFI is adding 4,844 members of the PFAS class from the Priority Watch List to the Red List (in addition to 17 already on the Red List), and adding 5,947 new CASRNs to the Priority Watch List. This comprehensive listing of CASRNs includes those identified by the Organisation for Economic Co-operation and Development's (OECD) Comprehensive Global Database of PFAS, those included in the consolidated PFAS Master List compiled by the United States Environmental Protection Agency (US EPA), and additional substances in the PFAS compound group that are populated by the Pharos tool. The published Red List reflects the best available science, at a moment in time, and is the backbone of materials requirements in the Living Building Challenge, Core Green Building Certification, the Living Product Challenge, and the Declare label.

In the United States,, the Centers for Disease Control and Prevention's website indicates the agency has found PFAS (Per- and Polyfluoroalkyl Substances) in the blood of nearly all tested individuals, "...indicating widespread exposure to these PFAS in the U.S. population." A growing body of research has found links between exposures to PFAS and weakened immune systems, cancer, increased cholesterol levels, pregnancy-induced hypertension, liver damage, reduced fertility, and increased risk of thyroid disease. It's not only a problem in North America: because of the global economy, PFAS contamination has been found worldwide.

PFAS are appealing to a wide range of manufacturers. They are the non-stick, non-corrosive, and stain and water-repellant attributes listed on product cut sheets. But what makes these attributes attractive, also means the chemicals don't break down naturally in the environment.

Guidance and how to incorporate Red List updates

1. **Project teams registering for Living Building Challenge or Materials Petal certification after the publication of the 2022 Red List will be required to use that Red List to screen for the more comprehensive list of PFAS.** In recognition that PFAS may be currently unavoidable in certain materials, and that this might affect due diligence for Living Building Challenge teams, ILFI is releasing a temporary exception (described below) for use.

2. **Project teams pursuing the Living Building Challenge or Materials Petal certification are only required to use the Red List in effect at the time of certification registration to determine compliance for materials.** Project teams who registered prior to April 2022 may consider the addition of the PFAS CASRNs as optional vetting criteria.

3. **Project teams may elect to include Priority Watch List and Watch List chemicals in their product vetting criteria, but may not prioritize the avoidance of Watch List chemicals over avoidance of Red List chemicals.**

4. **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.** LBC and Materials Petal Project teams may still use any label that is Red List Free or Red List Approved until it expires.

Because of the pervasiveness of PFAS chemicals, ILFI is issuing a temporary exception for certain applications. The goal of the exception is to further our understanding of where PFAS chemicals are used and where these chemicals are currently unavoidable. Project teams are still strongly encouraged to avoid using the product unless determined essential to the project or specific application. During this time of transition, the focus is on rewarding manufacturers that participate in public ingredient transparency programs—such as Declare—as they tend to be leaders in finding solutions to create products that are better for human health. Additional materials will be excluded from this exception as soon as materials emerge that are free of Red List chemicals.

RL-022 PFAS Chemicals in Building Materials

A project team may use a product that contains PFAS chemicals, if all of the following product characteristics are true, and the project team complies with requirements for use of the exception below:

Required Product Characteristics

- The product is currently unable to meet performance requirements or perform its essential function without PFAS chemicals,
- There are no other Red List chemicals present, and
- The product has a published transparency label or publicly available ingredient list at 100 ppm (0.01%).

Requirements for Use of the Exception

To use this exception, project teams must:

- Provide a statement clearly articulating why the product was essential to meeting project performance requirements and couldn't be avoided,
- list the function of the PFAS chemical (e.g. stain repellant) if disclosed, and
- advocate to the manufacturer to design the PFAS chemical out of the current and future product formulations.

This exception does not apply to the following product categories, because ILFI is aware that compliant products exist, or that alternate product types provide a functional equivalency.

- Carpets, including broadloom and carpet tile
- Flooring, including Resilient and Hard Flooring
- Interior Ceiling Products
- Sealants, whether applied onsite or during fabrication.
- Upholstery
- Fabrics used for window or wall coverings
- Systems furniture
- Interior Paints

Additional information and resources

To help navigate PFAS in building materials, project teams can consult the following:

- Building a Better World: Eliminating Unnecessary PFAS in Building Products, Green Science Policy Institute
- PFAS Exchange, Silent Spring Institute
- Home Free, with particular guidance on flooring

- The U.S. EPA also has released information related to other labels and their approach to PFAS that can help practitioners.

Feedback and questions

- If you have feedback or questions, please contact lbc.support@living-future.org.
- For additional details about the Living Building Challenge Red List 2022 update, please visit https://living-future.org/declare/declare-about/red-list/.

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2022 RED LIST CHEMICAL CLASS CHANGES (SINCE JANUARY 2021)			
CHEMICAL CLASS	RED LIST	PRIORITY FOR RED LIST INCLUSION	WATCH LIST
Alkylphenols and related compounds	No changes.	No changes.	No changes.
Antimicrobials (marketed with a health claim)	No changes.	No changes.	No changes.
Asbestos compounds	No changes.	No changes.	No changes.
Bisphenol A (BPA) and structural analogues	2 CASRNs added from Priority List, 1 moved to Chlorinated Polymers.	25 CASRNs added from Watch List.	25 CASRNs added to Priority List.
California-banned solvents	No changes.	No changes.	No changes.
Chlorinated Polymers	No changes.	No changes.	No changes.
Chlorobenzenes	1 moved from Bisphenol A (BPA) and structural analogues.	No changes.	No changes.
Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs)	No changes.	No changes.	No changes.
Formaldehyde (added)	No changes.	No changes.	No changes.
Monomeric, polymeric, and organophosphate halogenated flame retardants (HFRs)	No changes.	No changes.	No changes.
Organotin Compounds	No changes.	No changes.	No changes.
Perfluorinated and Polyfluorinated Alkyl Substances (PFAS) / Perfluorinated compounds (PFCs)	4,844 CASRNs added from Priority List.	5,947 CASRNs added directly.	No changes.
Phthalates (orthophthalates)	No changes.	No changes.	No changes.
Polychlorinated biphenyls (PCBs)	No changes.	No changes.	No changes.
Polycyclic aromatic hydrocarbons (PAHs)	No changes.	No changes.	No changes.
Short-chain and medium-chain chlorinated paraffins	No changes.	No changes.	No changes.
Toxic heavy metals	No changes.	No changes.	5 CASRNs added directly.
Volatile organic compounds (VOCs) in wet-applied products*	No changes.	No changes.	No changes.
Wood Treatments containing creosote or pentachlorophenol	No changes.	No changes.	No changes.

*Volatile organic compounds (VOCs) in on-site wet-applied products are not banned, but must have VOC levels below the South Coast Air Quality Management District (SCAQMD) Rule 1168 for Adhesives and Sealants or the CARB 2007 Suggested Control Measure (SCM) for Architectural Coatings, as applicable.