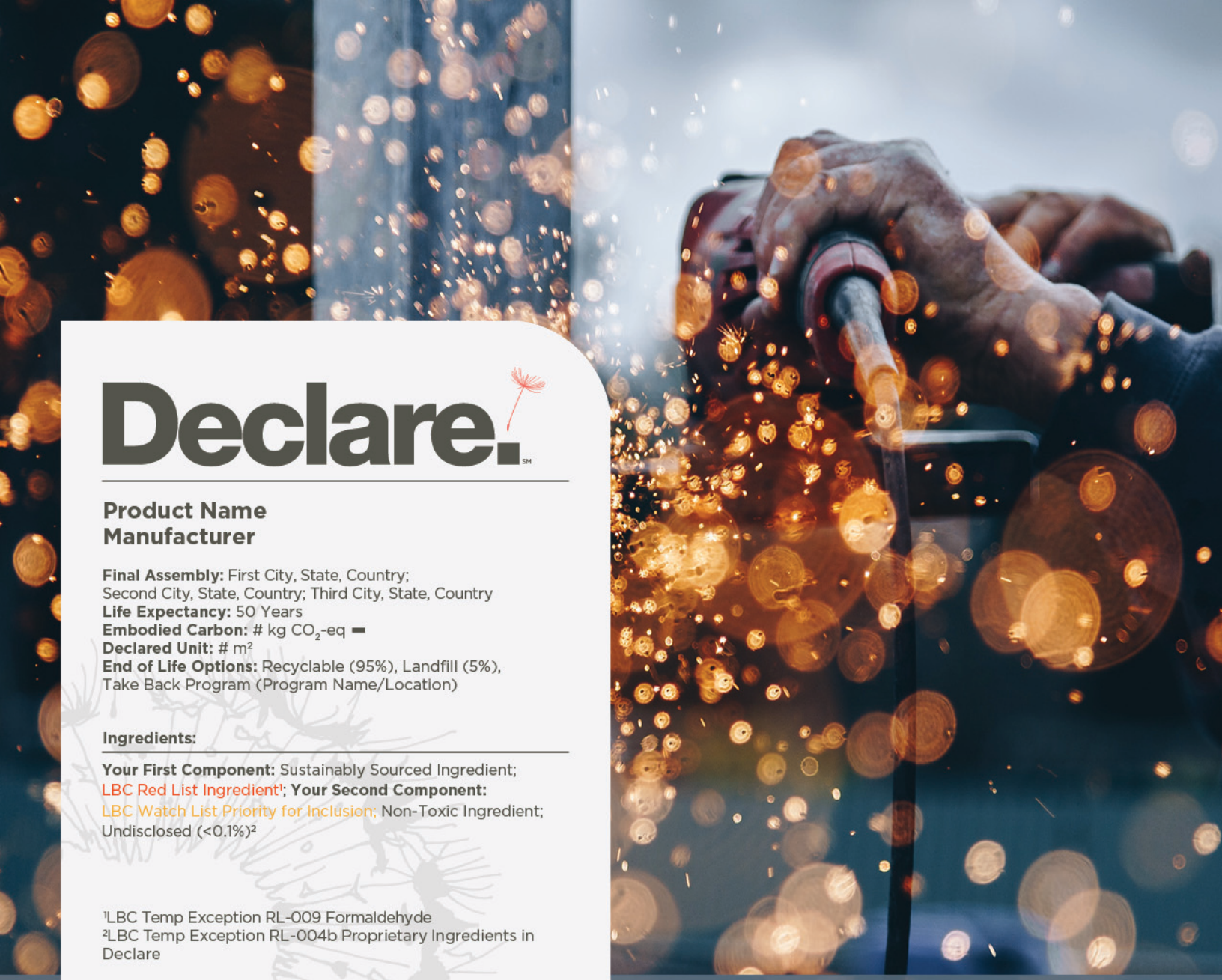


Declare.℠

Product Name
Manufacturer

Final Assembly: First City, State, Country;
Second City, State, Country; Third City, State, Country
Life Expectancy: 50 Years
Embodied Carbon: # kg CO_2-eq ▬
Declared Unit: # m^2
End of Life Options: Recyclable (95%), Landfill (5%),
Take Back Program (Program Name/Location)

Ingredients:

Your First Component: Sustainably Sourced Ingredient;
LBC Red List Ingredient[1]; **Your Second Component:**
LBC Watch List Priority for Inclusion; Non-Toxic Ingredient;
Undisclosed (<0.1%)[2]

[1]LBC Temp Exception RL-009 Formaldehyde
[2]LBC Temp Exception RL-004b Proprietary Ingredients in Declare

Living Building Challenge Criteria: Compliant

I-13 Red List:

☐ LBC Red List Free
■ LBC Red List Approved
☐ Declared

% Disclosed: 99.9% at 100ppm
VOC Content: # g/L

I-10 Interior Performance: CDPH Standard Method v1.2-2017
I-14 Responsible Sourcing: Product Available with FSC Chain of Custody

XXX-XXXX
EXP. 01 OCT 2021
Original Issue Date: 20XX

Third Party Verified

MANUFACTURER CLAIMS VERIFIED BY **THIRD PARTY VERIFIED ASSESSOR**
INTERNATIONAL **LIVING FUTURE** INSTITUTE℠ living-future.org/declare

DECLARE 2.0 MANUFACTURER'S GUIDE

INTERNATIONAL
LIVING FUTURE
INSTITUTE℠

Table of Contents

ILFI DECLARE MANUFACTURERS' GUIDE

Program Overview

A Declare label answers three questions:

1. Where does a product come from?
2. What is it made of?
3. Where does it go at the end of its life?
   Declare is a transparency platform and product database that is changing the materials marketplace.

For Manufacturers:

Declare is a targeted way to connect with future customers. We offer an expanded point-of-entry into groundbreaking regenerative projects and a powerful platform to connect with consumers. Benefits of Declare:

VISIBILITY
Declare serves a dedicated market of highly-visible:

- Living Building Challenge projects
- Architecture firms
- Corporations
- Municipalities

These groups use the Declare Database and Living Building Challenge Red list to make specification decisions.

TRANSPARENCY
Consumers value transparency. Declare is a tool to show customers that your product is one that they can trust.

For Designers and Specifiers

The tiring materials specification process just became much easier. We offer a free resource to help you make product selections. The Declare Database is:

TRANSPARENT
By offering a platform for public disclosure that surpasses any other materials label, Declare rises above the greenwash and enables a deep connection between suppliers and consumers.

SIMPLE
Declare takes complex chemical analysis and raw material source location information and provides it to consumers in an easy-to-use nutrition label.

FREE
Spreading the use of healthy materials is important to us. The Declare Database is free for everyone.

Legal Disclaimers

Copyrights and Trademarks

Declare is owned and operated by ILFI. Unless otherwise indicated, copyright of all information and other materials on Declare is owned by or licensed to ILFI. All rights are reserved. Certain marks and logos displayed on Declare are ILFI trademarks. Without ILFI's prior permission, or expressly listed below, ILFI trademarks and logos are not allowed to be displayed or used in any manner by any other person or entity. All trademarks and service marks referenced on Declare that are not owned by ILFI are the property of the respective owners.

Living Building Challenge™ (LBC or the Challenge) is a trademark of the International Living Future Institute (the Institute). The terms "Living Buildings" and "Living Building" are also trademarks of the Institute. No use of these terms is allowed without written permission from the Institute, and no project may claim to reach "Living Landscape," "Living Infrastructure," "Living Renovation," or "Living Building" status without review and approval by the Institute.

Label Use

Manufacturers that are provided a Declare label have the right to use the label on general marketing materials and registered product materials. The label cannot be used on or associated with any other product than the product designated on the label. The label cannot be modified, altered or otherwise tampered with in any way.

Program Terms and Conditions

All participating manufacturers must agree to the Declare Terms and Conditions Agreement before submitting Declare label applications for feedback or formal review.

To read the full Declare Terms & Conditions, visit https://living-future.org/wp-content/uploads/2019/07/19-0717-Declare-TC-Agreement.pdf

INTRODUCTION TO ILFI

The International Living Future Institute is an inspiring hub for visionary programs. Our mission is to lead and support the transformation toward communities that are socially just, culturally rich and ecologically restorative. Composed of leading green building experts and thought-leaders, the Institute is premised on the belief that providing a compelling vision for the future is a fundamental requirement for reconciling humanity's relationship with the natural world. The Institute runs the Living Building Challenge, Living Community Challenge, Living Product Challenge, Zero Energy Certification, Zero Carbon Certification, Core Green Building Certification, the Cascadia Green Building Council, Ecotone Publishing, Declare, JUST, and other leading programs.

INTRODUCTION TO DECLARE

The demand to understand the health impacts of building products is increasing. Human and environmental health considerations have emerged as crucial factors in material manufacturing and selection. Declare allows manufacturers of ecologically sound products to demonstrate market leadership in the growing movement toward product transparency and health and secure a competitive advantage through transparent ingredient reporting.

Declare offers manufacturers an expanded point of entry into the world's most groundbreaking sustainable projects. Over 450 teams currently pursuing the Living Building Challenge—widely accepted to be the most advanced green building standard in the world—will use the Declare database and label to select products that meet the requirements of the Living Building Challenge Materials Petal. The Declaration Status and summary of Living Building Challenge compliance on the label simplifies the process for materials specification and project certification, ultimately aligning with the Materials and Health + Happiness Petals of the Living Building Challenge.

For more about Declare, visit living-future.org/declare/declare-about/.

To access our Declare database, visit living-future.org/declare.

For Declare inquiries, contact our team at declare.support@living-future.org.

Declare and the Living Building Challenge

The Living Building Challenge acts to rapidly diminish the gap between current limits and end-game positive solutions. It aims to transform how we think about every single act of design and construction as an opportunity to positively impact the greater community of life and the cultural fabric of our human communities.

The Challenge is a philosophy first, an advocacy tool second and a certification program third. Within the larger Living Future Challenge framework that covers the creation of all human artifacts and edifices, the Living Building Challenge focuses on humanity's largest creations—its buildings. It is in essence a unified tool for transformative thought, allowing us to envision a future that is Socially Just, Culturally Rich and Ecologically Restorative.

The Living Building Challenge is comprised of seven performance categories, or "Petals": Place, Water, Energy, Health + Happiness, Materials, Equity, and Beauty. Petals are subdivided into a total of twenty

Imperatives, each of which focuses on a specific sphere of influence. This compilation of Imperatives can be applied to almost every conceivable building project, of any scale and any location—be it a new building or renovation of an existing structure.

To learn more about the Living Building Challenge, visit living-future.org/lbc.

For Living Building Challenge Inquiries, contact our team at LBC.support@living-future.org.

Summary of Changes in Declare 2.0

In October 2019, ILFI released Declare 2.0. This latest iteration of the program seeks to push the industry towards a more holistic approach to material health. Declare 2.0 allows manufacturers to report on previously unrecognized impact areas, such as embodied carbon and wood sourcing. Additional compliance pathways for chamber testing are also available for indoor products considered to have the potential to emit VOCs.

Along with the additional reporting information, adjustments have been made to the structure of the Declare label itself. All final assembly locations are now represented on the same label, and a product's Declaration Status is now solely tied to its compliance with the Red List Imperative and ingredient disclosure. Compliance with other applicable imperatives, including Healthy Interior Performance and Responsible Sourcing, are each referenced separately on the label.

With the latest iteration of the Red List, released with the latest version of LBC 4.0, came the LBC Watch List. The Watch List acts as a signal to manufacturers and project teams to identify chemicals and compound groups that ILFI, with support from our industry advisory partners, has identified for potential future inclusion on the LBC Red List. Watch List chemicals identified as "Priority for Red List Inclusion" are now flagged on the label in orange to increase awareness, but do not affect Declaration status or overall LBC Compliance. EPA Chemicals of Concern and REACH chemicals are no longer flagged in orange on the label.

Finally, the list of LBC Temporary Exceptions has been consolidated and streamlined to provide manufacturers with clear guidance surrounding each exception's applicability and purpose. Additionally, the process and criteria for obtaining a Temporary Exception are now publicly available for reference.

Program Explanation

Living Building Challenge Alignment

Declare is a voluntary self-disclosure program that aims to transform the building materials industry toward healthier products through ingredient transparency.

The Declare label evaluates a product according to its compliance with all Imperatives applicable to the selection of building products within the Living Building Challenge 4.0 standard, including:

- **Imperative 10**, Healthy Interior Performance, requires compliance with the California Department of Public Health (CDPH) Standard Method v1.1-2010 (or international equivalent) for all interior building products that have the potential to emit Volatile Organic Compounds (VOCs). The Declare label confirms a product's compliance with CDPH or an equivalent emissions standard.
- **Imperative 13**, Red List, requires that manufacturers disclose the ingredients in their products to ensure that they are free of Red List chemicals. Declare supports the Living Building Challenge by providing a transparent materials database that project teams can select from to meet the Red List requirements.
- **Imperative 14**, Responsible Sourcing, requires that manufacturers of wood products demonstrate sustainable extraction through certification with the Forest Stewardship Council, by meeting ILFI's definition of low risk or salvaged wood, or through the use of a formal LBC Exception.

LBC Compliant Products

If a product meets the applicable requirements for each Imperative above, the product is considered fully compliant with the Living Building Challenge, and will be noted as such on the Declare label graphic itself.

Additional Program Alignment

Products with an active Declare label also contribute to the following additional LBC 4.0 Imperatives:

- **Imperative 12**, Responsible Materials, requires project teams to install one unique Declare label product for every 200 square meters of project area.
- **Imperative 16**, Net Positive Waste, requires that the project meet aggressive material diversion rates throughout the design, construction, operation, and end of life phases of the building. The Declare label includes product end of life disposal options to help project teams make informed decisions on their specified products and their impact during the building's end of life phase.

Declaration Status Overview

A product's compliance with the requirements of the Red List Imperative is represented by the product's Declaration Status. There are three possible Declaration Statuses:

"LBC Red List Free" products disclose 100% of product ingredients plus residuals present at or above 100 ppm (0.01%) in the final product and do not contain any Red List chemicals. They have been shown to meet the requirements of the Living Building Challenge Red List Imperative.

Labels which demonstrate compliance with the Red List Free requirements will receive a corresponding sticker.

"LBC Red List Approved" products meet the written requirements of the Living Building Challenge Red List Imperative, but rely on one or more Exceptions to demonstrate compliance. A minimum of 99% of product ingredients plus residuals present at or above 100 ppm (0.01%) in the final product are disclosed. The product may contain one or more Red List chemicals if they fall under an existing, published LBC Temporary Exception. They have been shown to meet the requirements of the Living Building Challenge Red List.

"Declared" products disclose 100% of product ingredients plus residuals present at or above 100ppm (0.01%) in the final product, but contain one or more Red List chemicals that are not covered by an existing Exception. "Declared" labels require additional product research and vetting to locate a fully compliant product before the "Declared" product may be used on a Living Building Challenge project.

Program Alignment

LEED v4 and v4.1 Building Product Disclosure and Optimization—Material Ingredients, Option 1 & Option 2

Declare has been approved as a compliance pathway for the LEED v4 and v4.1 Building Product Disclosure

and Optimization Credit, Option 1. The LEED v4 and v4.1 credits call for the chemical inventory of a product to at least 1000ppm; Declare labels that achieve a declaration status of “LBC Red List Free” or “Declared” fulfill the credit disclosure requirements. Additionally, any fully disclosed “LBC Red List Approved” label and any “LBC Red List Approved” label using the I10-E4 Proprietary Ingredients Exception, with a minimum disclosure threshold of 99.9%, meets the LEED v4 and v4.1 Building Product Disclosure and Optimization Credit, Option 1 reporting requirements.

In 2018, Declare was also announced as a compliance pathway for LEED v4.1 Building Product Disclosure and Optimization Credit, Option 2. Declare labels that achieve Third Party Verification and a declaration status of “LBC Red List Free” fulfill the credit optimization requirements.

International WELL Building Standard

Declare products that are “LBC Red List Free” or “LBC Red List Approved”, have been approved as compliance pathways for the International WELL Building Standard v1 Feature 26 for Enhanced Material Safety and WELL v2 Feature 13 Enhanced Material Precaution. These Features takes a precautionary approach to hazards by emphasizing healthy material selection to minimize risks.

In addition, all active Declare labels contribute to WELL v2 Feature 14 Material Transparency. This Feature prioritizes supply chain and ingredient transparency to offer product specifiers the tools they need to make fully informed choices when selecting healthier products.

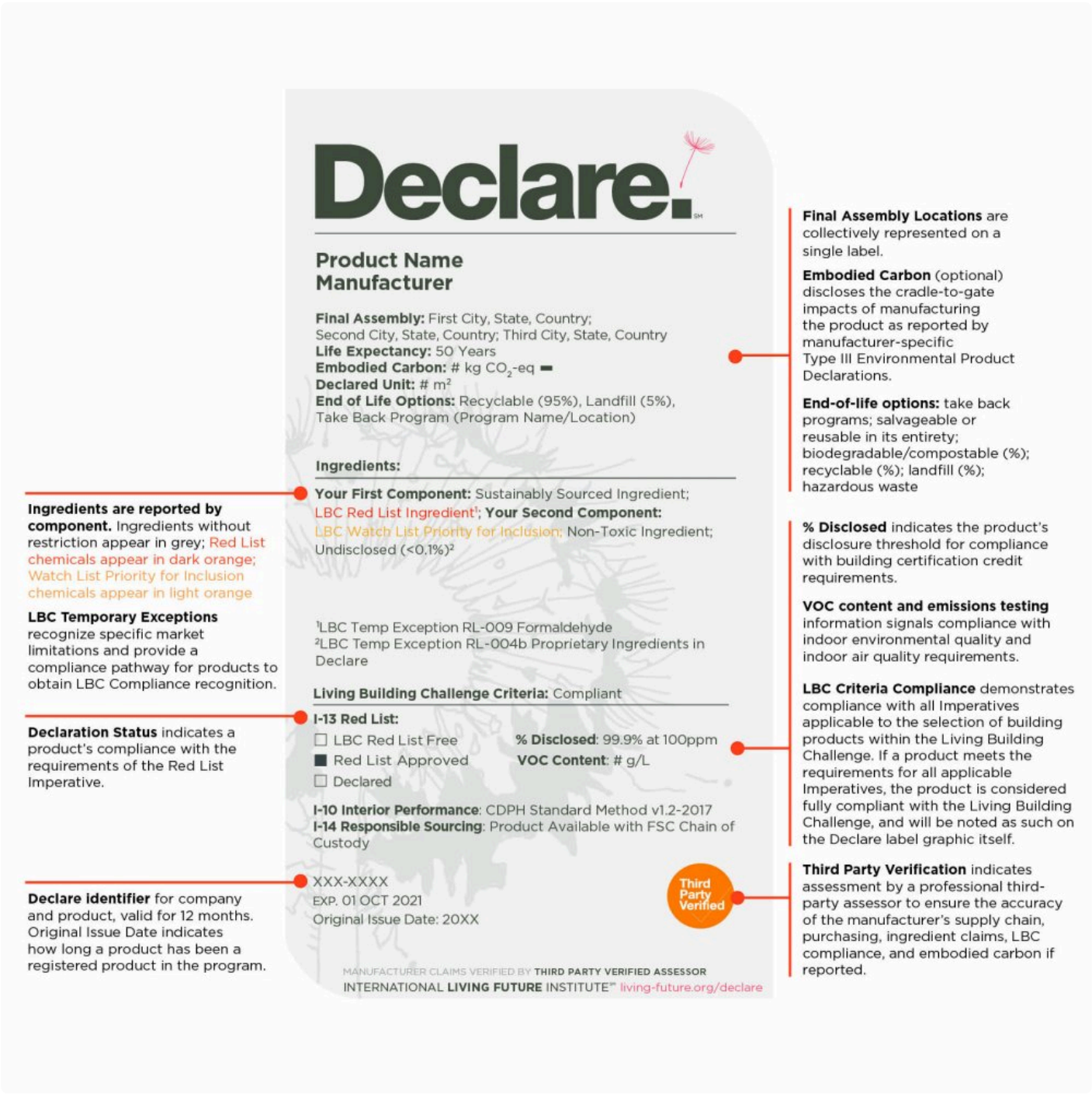
United States Environmental Protection Agency (EPA) Recommendations to Federal Purchasers

Declare is recognized by the US EPA in its Recommendations of Specifications, Standards, and Ecolabels for Federal Purchasers. The recommendations, which help federal purchasers identify and procure environmentally sustainable products and services, include Declare as a recommended standard for a range of low-emitting materials, including carpet, flooring products, furniture, and interior latex paint.

mindful MATERIALS

A group of leading architecture firms created the mindful MATERIALS initiative to provide a simple platform for manufacturers to communicate transparency and optimization for their products, while also providing designers a single place to search for materials. Declare product information is directly entered into the mindful MATERIALS database.

Reading the Declare Label



Product & Manufacturing Information

- Product Identifiers

- Final Assembly Location(s)
- Life Expectancy
- Embodied Carbon Data (Optional)
- End of Life Options

The top portion of the label helps consumers confirm they are specifying the product that matches the ingredients list. Life cycle information aligns with the Living Economy Sourcing and Net Positive Waste Imperatives of the Living Building Challenge. Carbon information aligns with the Energy + Carbon Reduction Imperative of the Living Building Challenge.

All Final Assembly Locations associated with a product can be represented on the same label. If four or more locations are provided within a submission, a summary will be provided by ILFI on the label graphic:

- All locations within the same country: “Multiple locations in *(name of country)*”
- All locations within the same continent: “Multiple locations in *(name of continent)*”
- Locations in differing continents: “Multiple global locations”

Each location will remain listed on the accompanying entry on the Declare database.

Ingredient Reporting

Ingredients may be reported in one list, or separated by component/part. Ingredients without restriction appear in grey; Red List chemicals appear in dark orange; LBC Watchlist Priority for Red List Inclusion chemicals appear in light orange. Corresponding percentage(s) of proprietary ingredients are listed in parentheses. LBC Temporary Exceptions are also listed under the ingredients when applicable.

When applicable, VOC content for wet -applied products will appear in this portion of the label.

Living Building Challenge Criteria & Compliance Indicators

The final portion of the Declare label evaluates and lists the product’s compliance with the product applicable Imperatives within the Living Building Challenge.

- I-13 Red List (Declaration Status)
- I-10 Interior Performance
- I-14 Responsible Sourcing

If a product is deemed compliant in the relevant Imperative criteria areas in this portion of the label, the

label will indicate overall compliance with the Living Building Challenge in dark orange.

Declare labels are active for 12 months, at which point the license requires renewal.

Labels which have undergone Third Party Verification will receive a corresponding sticker.

Frequently Asked Questions in Declare 2.0

Program Changes

What will change in Declare 2.0?

This latest iteration of the program seeks to push the industry towards a more holistic approach to material health. Declare 2.0 allows manufacturers to report on previously unrecognized impact areas, such as embodied carbon and wood sourcing. Additional compliance pathways for chamber testing are also now available, and will be explicitly stated on the label.

Along with the additional reporting information, adjustments have been made to the structure of the Declare label itself. A product's Declaration Status is now solely tied to its compliance with the Red List Imperative and ingredient disclosure. Compliance with other applicable imperatives, including Healthy Interior Performance and Responsible Sourcing, are each referenced separately on the label.

With the latest iteration of the Red List, released with the latest version of LBC 4.0, came the LBC Watch List. The Watch List acts as a signal to manufacturers and project teams to identify chemicals and compound groups that ILFI has identified for potential future inclusion on the LBC Red List. Watch List chemicals identified as "Priority for Red List Inclusion" are now flagged on the label in orange to increase awareness, but do not affect Declaration status or overall LBC Compliance.

Have there been any changes to the ingredient reporting requirements in Declare 2.0?

No. Each submission still requires disclosure of all ingredients present in the final product to 100ppm (0.01%) with a CASRN and percentage by weight. The Proprietary Ingredients Exception also still allows manufacturers to hold up to 1% of ingredients by weight as undisclosed on the label and database, provided they can confirm there are no Red List ingredients present in the proprietary content.

When can I switch to the new Declare 2.0 label?

All existing labels will be eligible for transition to the updated Declare label and program requirements at the time of renewal.

All new labels submitted on or after February 1, 2020 will be processed under Declare 2.0.

Am I required to switch to the new Declare 2.0 label at the time of renewal?

Yes. All labels renewing on or after February 1, 2020 must transition to Declare 2.0. The last Declare 1.0 labels should therefore all expire on February 1, 2021, when Declare 1.0 will sunset.

Have there been any changes to pricing?

There will be slight adjustments made to the Declare label pricing structure. ILFI has not increased the Declare fee structure in three years; these increases reflect inflation and cover increasing time and resources for ILFI to provide customer service, support its technology platform, develop additional program advancements and provide marketing support.

Declare 2.0 also has modified tiers and fees to incentivize scaling. Tiered pricing is now available when a manufacturer has 10-25 labels and more than 25 labels.

The annual fee for a new label license is:

1-9 Labels	10-24 Labels	25+ Labels
1000 USD/Label	750 USD/Label	500 USD/Label

Manufacturers looking to pursue 100+ labels should contact ILFI about customized reduced pricing options.

Renewals receive a 20% discount. This renewal discount is available whether or not there are changes to the Declare label.

The annual fee to renew a label license is:

1-9 Labels	10-24 Labels	25+ Labels
800 USD/Label	600 USD/Label	400 USD/Label

Example: If a manufacturer purchases 10 Declare labels, the first 9 labels will be priced at 1,000 USD/label, and the 10th will be priced at 750 USD. The total will amount to 9,750 USD. When the manufacturer renews the labels the following year, if the manufacturer still possesses between 10 and 25 labels, the subsequent renewal fee for each label will be 600 USD/label, or a total of 6,000 USD (for the example of 10 labels renewed).

Declaration Status and LBC Compliance Changes in 2.0

How has "Declaration Status" changed in Declare 2.0?

A product's Declaration Status is now solely tied to ingredient transparency and Red List compliance. Compliance with other applicable imperatives, including Healthy Interior Performance and Responsible Sourcing, are each referenced separately on the label.

What does "LBC Compliance" refer to in Declare 2.0?

"Living Building Challenge: Compliant" is now a holistic evaluation and designation given to a product that meets all applicable Imperative requirements of the Living Building Challenge. Compliance is determined separately from Declaration Status during ILFI's review of the product submission. This designation takes into account compliance with the **Red List Imperative, Healthy Interior Performance Imperative, and Responsible Sourcing Imperative.** If a product is not compliant with all three Imperatives, the word "Compliant" will not appear on the label, however the product may be compliant with some of the Imperatives.

If my formulation is remaining the same when I renew next year, is there a chance my Declaration Status could change? What about my LBC Compliance?

Declaration Status: Maybe, but likely not. Although some chemical classes were re-named and/or consolidated, no new unique CASRNs were added to the Red List at the time that LBC 4.0 was launched in May 2019. A product's Declaration Status is solely tied to a product's compliance with the Red List (not the Priority for Red List Inclusion list). The Red List will be updated in May 2020, and after that will move to a schedule of updates on January 1 each year to provide consistent timing, therefore manufacturers renewing on or after May 2020 should refer to the latest version of the Red List to determine compliance.

Additionally, VOC emissions testing is now represented under I-14 Healthy Interior Performance. Therefore, products that could achieve LBC Compliant or Red List Free status only due to emissions testing may now be eligible.

LBC Compliance: Maybe, but likely not. The only ways your product's compliance would be called into question would be if the product is wood-containing and does not meet one of the compliance options listed in the Manufacturer's Guide, or if your product utilizes an exception that is being consolidated to exclude your current application. We will reach out to the few manufacturers this applies to.

How can I find up-to-date LBC Temporary Exceptions?

All currently valid LBC Temporary Exceptions that apply to the Declare program will be listed in the online Declare Manufacturer's Guide starting on February 1, 2020. ILFI will also release the full suite of LBC Materials Petal Exceptions in March of 2020 which will include any Red List exceptions that cannot be used by Declare Manufacturers, but can be used by project teams to justify the use of a product with Red List Ingredients in it on an LBC Materials Petal Project.

Am I required to report embodied carbon data for my Declare label? Will I be penalized if I don't include carbon data?

Embodied carbon reporting on a Declare label remains in pilot phase and will not be included on Declare 2.0 labels until further notice. When the option is opened to additional manufacturers, it will remain an optional reporting field, and will not affect Declaration Status or LBC Compliance. If a manufacturer opts to not include carbon data, the applicable fields will not appear on the label graphic or accompanying database entry.

Program Submission Changes

Has the submission process on Toxnot changed at all?

No. The process of creating a new submission and submitting for renewal has not changed— the new and updated fields will be visible on the "Declare Summary Data" page.

PROGRAM REQUIREMENTS AND CONTENTS

General Product Information Reported

The following identifying product information must be included in each Declare application:

Product Name

Manufacturers should report the product name(s) or product family name. The product name listed on the Declare label should be easy for specifiers to reference back to specific product SKUs.

Product Manufacturer

Product manufacturer is tied to the manufacturer company name listed on the Toxnot account by default and will match the manufacturer name listed in the Manufacturer filter on the Declare database.

Final Assembly Location(s)

All product final assembly locations applicable to the product formula listed in the Declare application must be represented. Products manufactured in a location that has not been listed are not considered products with an active Declare label.

All final assembly locations listed for a product will be represented on the Declare label and accompanying entry on the Database. Up to three distinct locations will each be listed on the label graphic. If 4+ locations are provided in a given submission, the locations will be summarized on the label graphic using the following conventions:

- All locations within the same country: “Multiple Locations in *(name of country)*”
- All locations within the same continent: “Multiple Locations in *(name of continent)*”
- Locations in differing continents: “Multiple Global Locations”

Each location will remain listed on the Declare Database entry.

Life Expectancy, in years

Manufacturers should report the expected life of the product, in years, from manufacturing to the end of its useful life and/or the end of the product’s warranty period.

Product End of Life Options

A minimum of one product end of life option must be reported. Packaging and process materials should not be reported within end of life options.

Take Back Program: To be used when the manufacturer or industry trade group offers a mechanism both implemented and overseen by a manufacturer/trade group to assume physical responsibility of a product, product component, and/or packaging at the end of their useful lives with the intent to reuse or recycle the items received into new useful goods. Manufacturers must list the specific Take Back Program within the submission, when applicable.

Salvageable/Reusable in its Entirety: To be used when a product or assembly of a particular service that is capable of being reused without significant remanufacturing or alteration after it has been retired from its initial consumer-based installation or function.

Biodegradable/Compostable: To be used when all or a portion of the product is composed of organic matter that can be naturally broken down by microorganisms and the product does not contain any ingredients that would negatively alter the natural ecosystem. If only a portion of the product is biodegradable/compostable, the manufacturer must report the percentage by weight of the portion.

Recyclable: To be used when a product, or portion thereof, can be processed into new saleable goods. If only a portion of the product is recyclable, the manufacturer must report the percentage by weight of the portion.

Hazardous Waste: To be used when a product, or a portion of a product, is considered hazardous to humans or the environment and requires specific end of life processing to mitigate risk of exposure to hazardous ingredients. The portion of the product that requires hazardous waste processing must be reported if selected.

Landfill: To be used when a product, or a portion of a product, has no other end of life option and the product, or a portion of the product, must be sent to municipal landfill for disposal. The manufacturer must report the percentage by weight of the portion. By default, unreported percentages will be listed as landfill.

CSI MasterFormat Classification

Manufacturers must select the applicable CSI Masterformat Division that applies to the referenced product. In many cases, a CSI Masterformat section number is also required.

Product Description

Manufacturers must submit a product description. It is recommended that the product description include product attributes and performance characteristics relevant to the specification of the product for the sustainable construction industry. Manufacturers may also list color/finish options, ordering or specification instructions, and any other helpful details to identify, specify, order, install, or maintain the product. The description may be used to specify any product options that are excluded from inclusion in the Declare label.

Product Image (optional)

Manufacturers also have the recommended option of submitting a product image as part of the Declare submission.

Product Specific Information Reported

Manufacturers report the following information, as applicable, as part of the Declare submission.

Ingredients present at or above 100 ppm (minimum program requirement)
VOC content for site-installed, wet applied products- as applicable (minimum program requirement)
Emissions testing results or certificate of compliance – as applicable (Impacts LBC Compliant Status)
Sourcing confirmation for wood – as applicable (Impacts LBC Compliant Status)
Embodied Carbon (optional)

Ingredient Information Reported

Disclosure Threshold

Declare requires the disclosure of all intentionally added ingredients plus residuals at or above 100 ppm. Within Declare, disclosure is defined as public disclosure on the label and in the Declare database of the chemical name, associated CASRN, and the percentage or percentage range by weight for each ingredient, in regards to the finished product. Naturally occurring impurities, and process chemicals do not need to be reported, will not be listed on the label, and will not be used to determine if a product's Declaration Status.

All Declare labels MUST demonstrate this content disclosure for at least 99% of the total product by weight, with allowance for up to 1% proprietary ingredient withholding. *Note*: if the Proprietary Ingredients Exception is used, the product cannot contain any Red List chemicals that are not covered by an LBC Temporary Exception as products with a Declaration Status of "Declared" must disclose 100% of ingredients.

Product ingredients that quality for Special CASRN Reporting Requirements may be exempt from reporting CAS Numbers and will still be considered fully disclosed when the special requirements are met.

Ingredient Names

Manufacturers must list the generic name for the components/parts and chemicals reported. Manufacturers may not list the trade name or brand name of supplied components or their ingredients without the expressed written consent of the supplier. The exception to this requirement is a supplier with an active Declare label. Manufacturers may reference the Declare ID for components that have already been disclosed through Declare.

Ingredient Percentages

All ingredients must be reported with a fixed percentage by weight or percentage ranges. If reported using a percentage range, the percentage delta may not exceed 20. For example, Nylon 6 may be listed as present from 14-34%, but not as 25-48% as this exceeds the range of 20. Ingredient ranges may be appropriate in order to accurately represent available product dimensions, multiple raw material suppliers, or slight changes due to multiple manufacturing locations. Ingredient ranges may also be used to mask the exact formulation of a product on the public database listing.

Ranges exceeding a delta of 20 must be justified and have their rationale submitted to declare.support@living-future.org for approval. Examples of approved cases include:

- A manufacturer uses a single label to represent multiple available wood species options for a countertop. Since the wood range represents component options, the range of each wood type represented should each be listed as present from 0-95%.
- A carpet tile contains 60% thread, composed of some percentage of Nylon 6 and Nylon 6,6 which are used interchangeably in the supply chain. Listing both Nylon 6 and Nylon 6,6 as present from 0-60% represents this variability.

Listing Multiple Products

A product family, or multiple products, can be listed on a single Declare label if each of the products has identical content, or the content differences between the products do not exceed 10% of the total mass of the product.

All other information on the Declare label, except final assembly location, must be consistent across all listed products, including Responsible Sourcing and Healthy Interior Performance compliance.

Special CASRN Reporting Requirements

Biological Ingredients: Biological ingredients such as wood and agrifiber do not require disclosure of a CASRN unless the ingredient is already registered with Chemical Abstract Services, in which case the number should be reported.

Electronic Components: Small electrical components do not require CASRN reporting, but the manufacturer must verify that these components are RoHS compliant. These components must be documented using the Small Electrical Components Exception. All products with small electrical components will therefore result in a Declaration Status of “Red List Approved” or “Declared”.

Float Glass: Float glass does not require CASRN reporting, but all glass coatings/interlayers/films must be reported.

Geological Materials: Geological materials such as natural granite do not require disclosure of a CASRN; manufactured stone products require disclosure of CASRNs for all resins/binders/sealers in the product.

Metal Alloys: Metal alloys that do not have an assigned CASRN do not require CASRN reporting, but the alloy number must be reported. Materials that are registered with Chemical Abstract Services, such as carbon steel and stainless steel, should be reported with a CASRN.

Recycled Content: Recycled content should be reported using all known primary ingredients; a CASRN should be reported as applicable (based on guidance above).

Reaction Products: When a reaction occurs during the manufacturing of the product, the final reacted substance must be reported with a CASRN. If any residual reaction substances remain in the product above 100 ppm that are not covered by the CASRN of the reaction substance, they must also be reported with a CASRN.

Impurities: There are instances when a Red List chemical is present in a product because it naturally occurs in the product’s raw materials or was unintentionally added through certain manufacturing or reclamation processes. Impurities do not require reporting on a Declare label.

Small Product Hardware: Small metal hardware must be reported with the metal type (i.e. steel), but reporting an alloy number is not required. Hardware materials with an applicable CASRN must report the CASRN.

Site-Installed, Wet Applied Products

VOC Content Reporting

All site-installed, wet applied products must report regulatory VOC content in grams per liter.

Products that exceed the CARB 2007 Suggested Control Measure (SCM) for Architectural Coatings or South Coast Air Quality Management District (SCAQMD) Rule 1168 for Adhesives and Sealants applicable limits are not considered compliant with the requirements of the Red List Imperative of the Living Building Challenge and as such will result in a Declaration Status of “Declared” as long as 100% of product contents are disclosed and all other program requirements are met.

Reference: https://ww3.arb.ca.gov/coatings/arch/approved_2007_scm.pdf

Living Building Challenge Compliance

In addition to ingredient disclosure and Red List avoidance, the Declare label also evaluates a product according to its compliance with all Imperatives applicable to the selection of building products within the Living Building Challenge 4.0 standard, including 1-13 Red List, 1-10 Healthy Interior Performance and 1-14 Responsible Sourcing. Labels that read “**Living Building Challenge**: Compliant” are compliant with all three of these Imperatives, as applicable.

I-10 Compliance: Interior Products with the Potential to Emit VOCs

Product Chamber Testing for Interior Products

All building products that have the potential to emit Volatile Organic Compounds (VOCs) and are intended for installation within the building envelope (defined as interior of the wall and roof vapor barrier) must supply a laboratory certificate of compliance with an Approved Product Emissions Standard.

> If a building product, for which chamber testing is required, does not supply a laboratory certificate of compliance or conformant product certification, it will not be considered compliant with the Healthy Interior Performance Imperative of the Living Building Challenge, and will be identified as such on the Declare label.

Although product VOC emissions compliance no longer impacts a product’s Declaration Status and

compliance with LBC Imperative I-13 Red List under Declare 2.0, emissions testing may be required to demonstrate compliance with certain LBC Temporary Exceptions, such as RL-009 – Formaldehyde.

Conformant Certifications That Use CDPH as Testing Standard

- SCS Indoor Advantage Gold, EC 10.2 Standard Addendum
- FloorScore, EC 10.2 Standard Addendum
- Collaborative for High Performance Schools (CHPS), Procedures and Standards for Product Inclusion Version
- NSF 332
- UL Greenguard Gold, UL 2818 and UL 2821
- Intertek Sustainability, Clean Air

Other certifications or test reports may be submitted to declare.support@living-future.org for evaluation. Please provide a clear explanation of their conformance with CDPH or AgBB Scheme testing methods.

LBC Temporary Exception: Product Air Testing in Oceania

LBC Temporary Exception: Product Air Testing in Oceania

Products manufactured in, having a final point of assembly in, and distributed within the Oceania region, defined as Australia, New Zealand, Melanesia, Micronesia, and Polynesia, may demonstrate compliance with the Healthy Interior Environment Imperative by testing to ISO 16000, ISO 10580, or ASTM D5116. Products must demonstrate they are low emitting by providing a testing report from a certified lab that demonstrates the emission factor is equal to or less than:

- tVOCs= 450 µg/m³
- Formaldehyde =60 µg/m³
- Manufacturers must also advocate to the testing lab to offer CDPH or AgBB chamber testing for their products to help build demand for these testing schemes.

I-14 Compliance: Wood Containing Products

Wood Sourcing

To fully align with the Responsible Sourcing Imperative within the Materials Petal of the Living Building Challenge, all wood containing products are required to confirm compliance with one of the following:

- FSC Chain of Custody *(documentation upload required for reference)*
  - According to the Forest Stewardship Council (FSC), FSC Chain of Custody is “a certification which traces the path of products from forests through the supply chain, verifying that FSC-certified material is identified or kept separated from non-certified material throughout the chain.”
  - REF: https://us.fsc.org/en-us/certification/chain-of-custody-certification
- Salvaged Wood Content
  - Salvaged wood is defined as wood already extracted from the forest and used for some purpose. Down and dead trees are not considered salvaged.
- Low Risk Wood
  - Low risk is defined as a source country with a score of 80 or higher as reported on The Nature, Economy and People Connected tool, where the country has laws and a low rating for both the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) and Protected Sites and Species Sub-categories, and laws in at least 13 additional Sub-categories, including one law in each of the five Categories.
  - Note: The laws assessed can be found by clicking on the country image on the map and downloading the Timber Legality Risk Assessment. Each Risk Assessment contains a summary table of the findings, which identifies the Legal Categories and Sub-categories assessed. An entry of N/A on the table means that the country does not have laws related to the Sub-category.
- One or more Responsible Sourcing Exceptions

If a wood containing product is unable to confirm compliance with one of the above, it will not be considered compliant with the Responsible Sourcing Imperative of the Living Building Challenge, and will be identified as such on the Declare label.

Embodied Carbon (Optional Reporting Field)

Embodied carbon reporting in Declare was introduced as a pilot program in 2019 and remains in pilot phase until further announcement. The following guidelines are for review and reference only. For

manufacturers interested in learning more and disclosing their embodied carbon impacts when the program opens following the conclusion of the pilot phase, please contact the Declare Support team with this information at declare.support@living-future.org.

Embodied Carbon Reporting

Embodied carbon is now an optional reporting field for manufacturers in the Declare program. Embodied carbon and interpretations of environmental impact with this metric are meant to complement the ingredient transparency information that forms the basis of Declare. Manufacturers that do not have embodied carbon information to report, or that have chosen not to disclose this information, are not penalized with respect to declaration status or overall LBC compliance.

Embodied carbon data for building products in Declare come from Type III facility-specific or product-specific cradle-to-grave Environmental Product Declarations (EPDs) completed to a relevant Product Category Rule (PCR) that are published by product manufacturers/declaration holders, or by ISO 14025 program operators that have completed the third-party verification and registration of the EPD, as defined in ISO 14025, ISO 14044, and ISO 21930 and/or EN 15804. The American Center for Life Cycle Assessment (ACLCA) maintains a list of active ISO 14025 program operators: https://aclca.org/pcr/program-operators/

EPDs that are cradle-to-gate (Modules A1-A3) only, or cradle-to-gate with optional modules are considered non-compliant to Declare requirements for embodied carbon reporting at this time.

The Declare label reports the declared unit and the global warming potential (GWP) (expressed in units of kg CO2-eq) associated with the A1-A3 product stage module. Declared units reported on Declare labels do not take into account performance criteria or product functional equivalence considerations for the referenced baseline. The declared unit is obtained from the EPD and should be one of the following:

- an item, an assemblage of items, for example, 1 window (dimensions of items shall be specified);
- mass (kg or metric tonne), for example, 1 000 kg or 1 t of cement;
- length (m), for example, 1 m of pipe, 1 m of a beam (dimensions of elements shall be specified);
- area (m2), for example, 1 m2 of wall elements, 1 m2 of roof elements (dimensions of elements shall be specified);
- volume (m3), for example, 1 m3 of timber, 1 m3 of ready-mixed concrete.

If a different unit is declared, the EPD should also provide information on how to convert this unit into one of the above accepted formats; the converted unit will be displayed on the Declare label.

Project teams should consult the EPD (linked to on the Declare database) for functional units (when available and reported) as the preferred basis for product EPD comparisons. Without options to report

product function information on a Declare label, project teams should consult other programs and materials for further information and guidance on making comparisons of products with similar functional units with cradle-to-grave impact information.

> [ISO 21930, section 7.1.3]: *"When the precise function of the product or scenarios at the construction works level is not stated, or is unknown, a declared unit may be used instead of the functional unit. The declared unit provides a reference by which product, material and energy flows (input and output data) of the information module of a construction product's LCA results and any other information are normalized to produce data expressed on a common basis."*

For Declare products with multiple final assembly locations, an asterisk denotes the locations for which the embodied carbon data (that meet the above reporting requirements for Declare) is valid.
Additional information that will be listed on the Declare database in the product description include:

- Impact assessment tool/method used
- Link to the published EPD

Declare Embodied Carbon Indicator Guide

A graphic indicator will appear next to the product's GWP to identify its cradle-to-gate embodied carbon impact relative to the material category upper limit as proposed by the Embodied Carbon in Construction Calculator (EC3), an open-source EPD database and building planner tool that enables a performance-based approach to evaluating embodied carbon reductions in design, procurement, and construction. The EC3 tool collects EPDs and is developing methodologies and parameters to enable comparability of EPD data and propose product type limits and improvement targets. When manufacturers renew the Declare label for its product, ILFI will reconfirm the continued validity of all associated EPD and PCR submissions and reevaluate this performance to the EC3-determined product type baseline at that time.

 = above product type baseline

 = below product type baseline

 = within product type baseline range

 = no product type baseline calculated or available

ILFI will review and approve additional baseline calculations and benchmarks on an ongoing basis. Refer to the LBC 4.0 Energy Petal Handbook for the latest guidance and reference to approved calculators and

product type baselines.

Product Type Categories

Products are considered to be in the same product type category for comparison purposes if their third-party verified EPDs follow the same Product Category Rule (PCR) that conforms to the requirements of comparability of ISO 21930 and ISO 14025.

> [ISO 21930, section 6.3]: *"The product group covered by a sub-category PCR shall be described unambiguously. The definition may consider product functionality (e.g. conveyance of materials through pipes), typical production processes (e.g. mining or oil refinery) or applications (e.g. for use in cold climates). If there is potential ambiguity in the product sub-category, the description shall also state which products are not covered by the sub-category PCR."*

Declare labels will reference product type baselines (defined as the 80% upper limit GWP of the material category) and material categories of the EC3 database when available and applicable. **As of December 2019, the product categories represented in EC3 include:**

- Structure: Concrete, Steel, Wood
- Enclosure: Aluminum, Glass Panes, Insulation, Gypsum Wall Board
- Finishes: Carpet

Additional Product Type Baselines Not Currently Represented

For product types or functions where the EC3 calculator has not determined an embodied carbon baseline, industry representatives and project teams can submit a proposed product baseline, defined by one of the following:

- ILFI-approved baseline tool or methodology
- Proposed by the project team or industry representative, based on a review of comparable products in the same material category and represent common supply chain and manufacturing data, and declared unit for the product type*.

*Note that additional product baselines must be submitted to ILFI for approval, and must disclose the baseline methodology, data source(s), data uncertainty and statistical significance of the study.

ILFI will periodically review the baselines referenced within Declare labels and determine whether there more stringent product baselines are required to continue pushing various building product industries to

work toward mitigating product embodied carbon.

Embodied Carbon Notes for Manufacturers

For Declare manufacturers: All EPDs should meet the protocols for scope, preparation and external third-party verification as outlined in ISO 14025 or ISO 21930, and EN 15804. All EPDs referenced should be as current as possible, and at a minimum shall not expire for one year (i.e. before the expiration date of the Declare label). With respect to data quality, underlying LCA data must be sourced from within the last ten years prior to the publishing of the EPD, and utilize specific data from the country or countries/regions of actual production where possible. Manufacturers should continue to move toward the use of supply chain-specific upstream data to inform LCA and EPD development. ILFI continues to contribute to discussions of best practices in data quality measurement and reporting.

For LPC manufacturers: Manufacturers that have completed a third-party verified LCA through the Living Product Challenge and either do or do not have a third-party verified EPD will be able to include embodied carbon on the product’s Declare label without a baselien reference indicator.

PROGRAM CLARIFICATIONS

Unintentional Trace Amounts

There are instances when a Red List ingredient is present in a product because it naturally occurs in the product's raw materials or was unintentionally added through certain manufacturing or reclamation processes. Therefore, as a general rule, products should have no "intentionally added" Red List ingredients. Intentionally added ingredients are defined as each discrete chemical, polymer, metal, bio-based material, or other substance added to the product by the manufacturer or suppliers that exists in the product as delivered for final use. Although trace amounts of unintentional ingredients are allowed, a full list of all intentionally added ingredients is still required. The following products are known to fall under this Clarification:

Materials with Naturally Occurring Trace Amounts

- Clay
- Minerals
- Wood
- Gypsum

Product with Unintentional Trace Amounts from Manufacturing

- Recycled steel
- Galvanized metal
- Portland cement
- Fly ash
- Magnesium oxide board
- Paint

Recycled Content

Recycled content requires disclosure of all known ingredients in the recycled content feedstock. At minimum, the primary recycled ingredient must be reported. Unknown residuals in recycled content are considered unintentional trace amounts that may be present in the product, including potential HFRs. Thorough reporting of all ingredients, including pre-consumer waste generated by the manufacturer, is

required.

Pre-consumer recycled content generated by the product manufacturer must be reported with all intentionally added ingredients at or above 100ppm. Recycled content from within the manufacturer’s own feedstock may not use the intentional trace amounts clarification.

DECLARE PROGRAM IMPERATIVE EXCEPTIONS

Although the aim of Declare and the Living Building Challenge is to move the building industry toward the complete phase-out of all chemicals on the Red List, the Living Building Challenge recognizes that there are current limitations in the building materials marketplace. The following temporary Exceptions are applicable to Declare manufacturers and have been granted by the Living Building Challenge to reflect current market limitations in the industry to develop alternatives. Exceptions are temporary and will be removed if new products and formulations become available. If a material contains a Red List item but has been granted a temporary Exception, the Red List chemical will still be listed on the ingredient label in red lettering. A footnote will be added identifying the specific Exception and stating that the product is “Red List Approved”. Exceptions listed on the label are valid for one year.

In order to uphold Declare as the guiding light in product transparency, exceptions have been updated in Declare 2.0 to hold manufacturers to a more stringent standard than LBC project teams. All exceptions have been re-vetted; some Declare 1.0 exceptions have been retired, and others have been updated to reflect changes in the products industry. All active labels listing previous exceptions are valid until the time of renewal.

Updated exceptions are currently under review by ILFI; subtopics with full exception language content coming soon.

Exceptions and Declaration Status

The use of one or more Temporary Exceptions by a manufacturer will impact a product’s Declaration Status and cannot result in a status of “LBC Red List Free”. Additionally, no products that disclose less than 99% of ingredients by weight may participate in the Declare program due to the limits of the Proprietary Ingredients Temporary Exception.

LBC Red List Free: An “LBC Red List Free” Declare label contains no LBC Red List ingredients, discloses 100% of contents by weight and makes use of no LBC Temporary Exceptions.

LBC Red List Approved: An “LBC Red List Approved” label discloses between 99% and 100% of contents by weight. The specific “% disclosed” may be found on the label to the right of the Declaration Status under I-13 Red List. “LBC Red List Approved” labels may make use of any LBC Temporary Exceptions alone or in combination, but they may not contain any Red List ingredients that are not covered by an existing

Exception.

For a somewhat complex example, a structural composite wood product that contains an electronic component, could obtain a status of “LBC Red List Approved” if:

- it discloses 99%+ of contents,
- demonstrates that it complies with the Formaldehyde Exception requirements, and
- demonstrates RoHS compliance to use the Small Electrical Components Exception
- *and* it contains no Red List ingredients that are not covered by an LBC exception.

Declared: A “Declared” label discloses 100% of contents by weight and necessarily includes Red List ingredients that are not covered by an existing Exception. It may also incorporate the use of any combination of Exceptions, except for the Proprietary Ingredients Exception as this would result in disclosure of less than 100% of contents.

The use of the Proprietary Ingredients Exception (and therefore disclosure of less than 100%) in combination with the presence of any Red List ingredients not covered by an Exception will prevent a product’s achievement of a Declare label until either the proprietary content, or the Red List ingredients, are removed.

CREATE AND MAINTAIN A DECLARE LABEL

Toxnot and Declare

Starting in 2018, ILFI partnered with Toxnot, a technology partner with a focus on product transparency and hazards screening. Toxnot has an existing data management platform that aligns with the needs of Declare manufacturers and allows ILFI to better scale the Declare program, while easing the burden of technology management.

Toxnot is an integrated software platform to streamline chemical transparency for products. Through Toxnot, it's easy to upload the data you need from an ERP/PLM or excel sheet and pull chemical content information from suppliers using customizable surveys. Use regulatory list data to ensure compliance with regulations and hazard data to optimize your product chemistry. Report out using the product transparency standards, such as Declare and HPD. Toxnot increases operational efficiency around chemical transparency efforts, enabling manufactures to find better, safer materials for their products. Toxnot also powers the Declare label submission process. Through ILFI Premium Membership, each manufacturer receives access to create, submit, and maintain Declare labels. This access can be seamlessly integrated with the rest of Toxnot's capabilities if a manufacturer chooses to upgrade.

Toxnot manages the platform and supports Declare customers' IT needs; ILFI manages the Declare program, sets the technical standard, and provides customer service and support related to program requirements.

For Toxnot inquiries, contact the Toxnot team at support@toxnot.com.

5 Simple Steps to Declare

1. Go to living-future.org/membership, select the "Premium Membership" and pay the annual premium membership fee.
2. Navigate to Toxnot at toxnot.com or navigate to the platform through the ILFI Member Dashboard. Connect your ILFI Membership to Toxnot. Toxnot membership is included with ILFI Premium Membership.
3. Create your product application on the Toxnot platform.
    a. Build your Bill of Materials (BOM) by importing a CSV file or manually inputting product data by CASRN.
    b. Create a draft Declare label by opening a product from your library and selecting Report >

Declare Template > Preview

c. Submitting label to ILFI:
    i. Select “Share for Feedback” to get feedback on your product entry before submitting and paying for the label. Use this when you are looking for feedback only, before label creation or publication.
    ii. Select “Submit for Approval” to submit the label for approval to ILFI. Use this when you are ready to pay for your label and begin the formal review process.

4. Submit your label for review, and pay the corresponding label fee. Enter any coupon codes and pay for the full value or the remaining fee using a credit card. Payment is required before submissions can be reviewed by ILFI. It is recommended that manufacturers pay by credit card for quickest turnaround time, however, invoices can be sent by ILFI upon request. Manufacturers that require a written invoice to process payment may request an invoice by contacting the Declare Support team at declare.support@living-future.org. Please allow additional processing time for product labels paid via invoice.
5. Approve the drafted labels through Toxnot.
    a. A draft of all new labels must be approved by the manufacturer prior to publishing.
    b. Manufacturers will be able to review and approve labels on Toxnot.
    c. Any product changes requested after approval and publishing are subject to a label redraft fee.
    d. The Declare Support team will review the information within the submission, follow up with any questions or comments, and produce the draft Declare label for review.
    e. Once approved, ILFI will publish the label(s) and accompanying entry to the public-facing Declare database.

Program Fees

Declare 2.0 has modified pricing tiers and fees to incentivize scaling.

New Labels:
1-9 Labels: $1,000/label
10-24 Labels: $750/label
25+ Labels: $500/label

The Declare new label fee corresponds with each label. A single label covers a product, or product family, and all final assembly locations associated with that product or product family.

Renewals:
1-9 Labels: $800/label
10-24 Labels: $600/label

25+ Labels: $400/label

As an example, if you choose to purchase 10 Declare labels, the first 9 labels will be priced at $1,000/label, and the 10th will be priced at $750. The total will amount to $9,750. When you renew the subsequent year, if you still possess between 10 and 25 labels, the subsequent renewal fee for each label will be $600/label, or a total of $6,000.

The Institute does not review applications or draft labels before the product application is formally submitted and all fees are paid.

Fees are subject to changes. Once a new product is submitted and paid for, there are no refunds.

Renewals

The Declare label license is valid for a 12-month period. Between 60 days prior to and 30 days after the label's expiration date, the label will be considered "Eligible for Renewal". Products will be identified as such on Toxnot, and may be submitted for renewal during this period.

To renew your Declare label, visit Toxnot and select the product or products you wish to renew from your "Publications" library. Products that are not renewed within the 90-day window referenced above will be required to pay the full label fees as if it was a new label.

Unpublishing of Expired Labels

As of February 1st, 2020, ILFI is updating its policy on unpublishing labels.

ILFI sends notifications to manufacturers (to the owner of the product submissions in Toxnot) about the renewal timeline of their label(s) at the following times:

- 60 days prior to the expiration date
- 30 days prior to the expiration date
- On the expiration date

The manufacturer will be made aware in each of these three emails that 30 days past the label expiration date, the label will be unpublished from the Declare database unless there are extenuating circumstances approved by the Institute.

Once unpublished from the website, the label may be re-published for the full new label fee. If there is an issue with the point of contact used to communicate to the manufacturer account, or if ILFI fails to send these notifications, ILFI will honor the renewal pricing and update the label expiration date accordingly.

Mid-Cycle Update Policy

Changes to product formulation invalidate the Declare label and require the manufacturer to resubmit documentation and pay a product license fee.

To encourage companies to develop nontoxic alternatives, the fee is waived if the change is to remove a Red List ingredient or provide additional transparency. Manufacturers that change their product chemistry and are able to move up a Declaration Status or remove all proprietary ingredients are eligible for the fee waiver.

Changes to product chemistry that do not result in an improvement in Declaration Status will be subject to a mid-cycle update fee. Requested changes to a product name, listed manufacturer, life expectancy, end of life options, or company name are subject to a partial label redraft fee.

Formal Clarification Requests on Declare Claims

When a manufacturer, supplier, consumer or organization feels the reporting requirements of Declare have not been fully met by a manufacturer, or they have formal questions regarding a product or supply chain claim, they may submit a formal request for clarification. The formal clarification request must include a thorough explanation of the contents or claim in question, along with the product manufacturer name and Declare ID. Formal clarification requests must be submitted directly to the Declare Support team by emailing declare.support@living-future.org. The formal clarification request must include the contact information of the individual or organization representative submitting the request; anonymous requests will not be processed.

The submitted clarification request will be reviewed by the Institute's Declare team and, if warranted, the Institute's Program team. Following this review, the request will be submitted to the manufacturer for response. The manufacturer in question has 30 days from the day the request is forwarded by the Institute to respond and provide appropriate documentation or the label will be temporarily suspended. The manufacturer response will be reviewed by the Institute and sent to the individual or organization responsible for submitting the original clarification request.

If errors are found, the label must be redrafted and published to the Declare database. If the label error or errors are determined to be the fault of the manufacturer or manufacturer’s consultant, labels will be redrafted and published at the expense of the manufacturer. Redrafted labels require full vetting by the Declare team and will be processed and invoiced as a full label. If the label error or errors are determined to be the fault of the Institute, labels will be redrafted and published free of charge.

DECLARE THIRD PARTY VERIFICATION (3pV)

The International Living Future Institute has collaborated with approved program third-party assessors to provide manufacturers with the opportunity for third-party verification of Declare label claims. This optional program offers an additional level of confidence and risk mitigation through the review of all ingredients, supply chain information, and Declare label claims.

Labels with the Declare third-party verified mark and those listed in the database as “Third-Party Verified” have been assessed by a professional third-party assessor to ensure the accuracy of the manufacturer’s supply chain, purchasing, and ingredient claims.

Manufacturers must provide supplier confirmation of all ingredient claims to the contracted assessor. Manufacturers can use the supply chain reporting tools within Toxnot to collect and report the required supplier backup for verification; alternately manufacturers may compile supplier data and transfer to the assessor by email or agreed upon digital platform. Final approval of the Declare claims must be made by the assessor through Toxnot.

Third-Party Verification Overview

The International Living Future Institute has collaborated with approved third-party assessors to provide manufacturers with the opportunity for an independent, objective verification of Declare label claims. This optional program offers an additional level of confidence and risk mitigation through the review of all ingredients, supply chain information, and Declare label claims.

Assessors review and confirm the Declare application for completeness and accuracy. All published manufacturer product data; chamber testing results (when applicable); and manufacturer purchase orders and/or supplier contracts are reviewed. The product ingredient disclosure is reviewed to confirm accuracy. The assessor ensures all program requirements are met and suppliers are contacted to confirm disclosed materials and any proprietary ingredients are free of Red List chemicals. The final assessor-confirmed Declare application is then reviewed by ILFI before the Declare label is published.

The third-party verified assessors confirm manufacturer ingredient claims and add a layer of accountability and rigor to the program. The program gives product specifiers additional confidence in the products they are selecting.

Assessment Requirements and

Documentation Collection Process

All Declare third-party verification claims must be reviewed by an ILFI-approved Assessor. The Assessor must have a current signed agreement with ILFI and be an ILFI Premium Member in good standing. Here are the steps in the process:

1. The Assessor will review the manufacturer-provided documentation confirming:
    - All ingredients/materials included in the product at 100ppm or greater are represented
    - CASRNs are provided for all applicable ingredients/materials and reported correctly
    - All required product and manufacturer information has been provided
    - Any additional required testing data, such as air chamber testing or tests specifically called out in applied Red List Exceptions, have been provided and are current.
2. The Assessor will coordinate with the manufacturer to collect all applicable supplier data to verify the constituent chemistry of all raw materials within their products.
    - The Assessor will verify the full Product Inventory, to 100ppm, and confirm 100% of ingredients have been reviewed.
    - As ILFI has a 1% by weight allowance for proprietary ingredients/materials, the Assessor will review and verify a manufacturer's Product Inventory to 100ppm and determine that 1% or less of the product consists of proprietary chemistries and all proprietary chemistries are free of Red List chemicals.
3. The Assessor will vet the bill of materials against the Red List, assuring all ingredients/materials that appear on the Red List and Watch List Priority for Inclusion are identified.
    - The full list of Red List CASRNs is published to the ILFI website. The full list of Red List and Watch List Priority for Inclusion CASRNs are included in the Declare submission platform.
4. The Assessor will complete a supply chain review, documentation collection, and a verification of information. The Assessor will request the following information from participating Declare manufacturers:
    - Product inventory, product recipe and/or bills of material for the specified products being assessed. All information will be reported down to the 100 ppm level to verify constituents are listed in accordance with the Declare program requirements.
    - Supplier formulation confirmation for each ingredient/materials listed on the bill of materials. Any combination of the following may be used to confirm 100% of a finished product's formulation:
        - SDS or MSDS sheets for raw material ingredients within the Product Inventory/Recipe/BOM.
        - A written statement from the supplier listing the ingredient/material name and CASRN for all ingredients/materials in the supplied material to 100ppm of the finished product pursuing a Declare label.

    - Reaction ingredients with a written statement from the manufacturer or supplier's chemist detailing the inputs and results of the reaction.
    - Testing data confirming the materials make-up of the finished part/material. Testing data must explicitly show what is present in the product; testing data may not be used to simply show the absence of chemicals of concern.
    - Small product hardware must be reported with an ingredient name and CASRN, when appropriate. Alloy numbers do not require reporting for metal small product hardware. Inventory or verification are not required for components that meet the definition of small product hardware. Product hardware will impact Declaration Status if Red List chemicals are used.
- Materials purchase confirmation for each ingredient/material present in the final product at or above 100ppm. The following may be used to demonstrate purchasing compliance:
    - Purchase Orders from each supplier to validate the material they supplied is purchased by the product manufacturer.
    - Executed supplier contracts for parts/components whose formulation is specified as part of contract.
    - For parts/components with testing data confirming the formulation, ingredient/material purchasing confirmation is not required.
- Supplier contact information including contact name, phone number and email address for suppliers or complete supplier surveys through Toxnot.
- Product emissions chamber testing for all interior products with the potential to emit; emissions testing against CDPH Standard Method v1.2-2017 or approved equivalent. All equivalent emissions test must be either published as acceptable by ILFI or approved in writing prior to product submission.
- Confirmation of RoHS compliance for electrical components, including testing data or certification markers
- Confirmation of FSC Chain of Custody for any FSC Certified Wood claims.
- All additional documentation as required by applicable LBC Red List Exceptions.

5. The product's bill of materials should be drafted through the manufacturer's Toxnot account. ILFI will then assign the assessor the role of "Partner" to allow for review of the full Declare application and electronic sign-off by the assessor for all Declare submission claims prior to drafting of the Declare label.
6. The product is submitted for review by ILFI once all Declare fees are paid. ILFI will confirm all required product data is provided and notify assessor of any missing information. The label is drafted and returned to assessor and manufacturer for review. The drafted label must be approved by both the assessor and manufacturer prior to publication.
7. Changes to the above written assessor Toxnot workflow must be approved by ILFI in writing prior to product submission.

Declare Third-Party Verification License Fees

All Declare license fees and membership dues are due to ILFI at the time of label publication. The fees listed in the Manufacturers' Guide charged by ILFI, additional fees may be charged and invoiced separately by the assessor; all verification fees are set individually, by approved program Assessors.

Declare labels are valid for 12 months, after which confirmation that the product formulation has not changed is required. A renewal fee equal to one-half the price of the full label fee is due at the time of renewal. Renewal fees related to the assessment and confirmation for Third Party Verified Declare labels are set by the assessor and will be invoiced by the assessor directly.

Declare Third-Party Assessor Qualifications and Partnership Agreement

All Declare third-party assessors must meet one of the following criteria:

- Member of the Living Product Challenge Ecosystem, in good standing
- Approved Verifier through the Health Product Declaration Collaborative Third-Party Verification program. Both the organizational and individual qualification criteria must be met.
- Firm or personal invite from ILFI based on assessor reputation.

In addition, all of the following criteria must be met:

- Declare Assessor (individual or firm) holds a Premium ILFI Membership and remains a member in good standing
- Assessor has signed and returned the ILFI Declare Assessor Agreement
- Assessor has reviewed and understands the Declare Manufacturer's Guide
- Assessor has reviewed and understands the Declare Terms and Conditions Agreement for manufacturers
- Assessor has completed all required Declare program training hosted by ILFI

Declare Third-Party Verification and the Living Product Challenge

All manufacturers attempting the Living Product Challenge (LPC) are required to hold a third-party verified Declare label for all products attempting LPC, unless exempted per a formal program Exception. For

manufacturers attempting the Living Product Challenge it is recommended that a member of the LPC Ecosystem act as the assessor for the product attempting LPC certification, or confirm with the Ecosystem auditor that the assessor partnership is approved. LPC products not assessed by the selected LPC Ecosystem auditor may require re-review as part of LPC certification. A Third Party Verified Declare label is not required prior to the start of LPC Certification, but may expedite the Living Product Challenge certification process.

PARTNERSHIPS AND ADDITIONAL SERVICES

Declare International Partner Program

To meet the increasing demands for transparent building materials in international markets, the Institute has partnered with capacity-building organizations to provide outreach and support to international markets. The Declare International Partner Program provides local resources and expertise, along with label translation services, to manufacturers and suppliers in select markets. For additional details and a full list of Partner markets, visit living-future.org/declare/declare-about.

Declare Label Translation Protocol

As a supplement to the Declare International Partner Program, the Institute has launched a Declare Label Translation Protocol for manufacturers interested in translating their Declare labels in multiple languages. Manufacturers must adhere to the following criteria:

- All Declare labels must be published in English, at minimum. The English version of the Declare label is considered the original.
- Language translations available by a signed Declare International Partner must be completed by the International Partner. Contact ILFI for the complete list of international partners that offer translations.
- Languages not available for translation by a signed Declare International Partner may be completed by a translation service of the manufacturer's choice, with advanced written approval from ILFI.
    - Manufacturers must contract with a translating service directly.
    - ILFI will send all relevant Declare forms/files for translation in Word and Excel format.
    - The manufacturer must provide translated files back to ILFI as Word/Excel documents
    - The manufacturer/translator is responsible for including any font files, as applicable.
- Translations are considered a new format of the existing Declare label and license. They will be issued using the same Declare ID as the original label.
    - Translations of this label are under the original license and should not be counted as separate labels.
- The ILFI label drafting fee for translated labels is $500/language; the renewal fee for translated labels is $250/language.
    - The ILFI fee includes formatted files for translation, redrafted/formatted jpeg and eps files, updated Declare database entry, and linking to the language filter on the Declare database.

    - Renewal of translated labels may only include updates to the Declare ID and expiration date. Any changes to the product information or ingredient list will incur the full translation fee.
- ILFI will provide all translated and reformatted jpeg/eps files to the manufacturer for review and approval prior to publishing.
    - It is recommended that the manufacturer send the final jpeg file(s) to the hired translation company prior to approval. Changes required after approval and publishing may incur a label redraft fee.

GLOSSARY

The following terms and definitions apply to the Declare program.

Ingredient

The term “ingredient” is synonymous with a “substance.” A substance is a matter of constant composition best characterized by the entities (molecules, formula units, atoms) it is composed of and by its physical properties such as density, refractive index, electric conductivity, melting point, etc. (i.e., intentionally used substances, intentional reaction products, impurities). Ingredients are commonly identified by a single Chemical Abstract Services Registry Number (CASRN).

Systems Furniture

Systems furniture is defined as a modular furniture system that might include work surfaces, cabinetry, file systems, flexible partitions and office chairs to create or furnish a series of office workspaces. Only those furniture elements that are designed for repetitive use in commercial office environments (regardless of the number of times they are used in the project) must comply with LBC requirements.

Small Electrical Components

A small electrical component is defined as any discrete component shipped as a unit from a supplier with any number of terminals or leads. These leads connect to create an electronic circuit with a particular function. Small electrical components may be active, passive or electromechanical.

Manufacturer installed cable, wiring, and wall plugs are not considered small electrical components.

Small Product Hardware

Small product hardware consists of a single ingredient and is required for the connection of components within a product. Individual pieces of product hardware are less than 0.5% of the weight of the finished product and no more than 5% by weight of the complete product.

PROGRAM RESOURCES

The Living Building Challenge Red List

The Red List represents the “worst in class” materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem that are prevalent in the building products industry. The Institute believes that these materials should be phased out of production due to health/toxicity concerns. While there are certainly other items that could be added, this list was determined by selecting items with the greatest potential impact if they were significantly curbed or eliminated from the building industry. The International Living Future Institute worked with the Healthy Building Network and the Pharos Project to develop the Red List, and new items will be added as research and information becomes available.

The original Red List, launched in 2006, has been updated again with the release of LBC 4.0 in May 2019. Although no new unique CASRNs were added to the Red List, ILFI referenced best available science and leveraged the work outlined by leading restricted substances lists and international chemical legislation to establish a list of twenty chemical groups that represent the worst in class chemicals prevalent in the building products industry. The result is a Red List that aligns with the collective knowledge of the industry and references these chemical groups in a unified and aligned voice.

New Red List Classes:
Antimicrobials (Marketed with a health claim)
Organotin Compounds
Polycyclic Aromatic Hydrocarbons
Medium Chain Chlorinated Paraffins
BPA Structural Analogues

New Groupings of Existing Classes:
Chlorinated Polymers is now used as an overarching class to call out polymers such as PVC, PVDC, Chloroprene and CPVC.
Toxic Heavy Metals is now used as an overarching class to identify Cadmium, Chromium VI Compounds, Lead (Added), Mercury and Arsenic
Arsenic is removed from “Wood Treatments containing Arsenic, Creosote and Pentachlorophenol” due to its new location in Toxic Heavy Metals.

New Naming of Existing Groups:
Many groups were altered to reflect more commonly accepted naming conventions for identified classes. For example, Halogenated Flame Retardants became “Monomeric and Polymeric Flame Retardants” to

emphasize the inclusion of both types. Additionally, California Banned Solvents and VOC's are listed separately to distinguish between the reporting requirements of the two groups.

While any material can be listed in the Declare database, a Living Building Challenge Project cannot contain any of the following materials or compounds:

- Antimicrobials (Marketed with a Health Claim)
- Alkylphenols and Related Compounds
- Asbestos Compounds
- Bisphenol A (BPA) and Structural Analogues
- Chlorinate Polymers, Including PVC, PVDC, Chloroprene (Neoprene), and CPVC
- Chlorobenzenes
- Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)
- Formaldehyde (added)
- Monomeric, and Polymeric and Organophosphate Halogenated Flame Retardants (HFRS)
- Organotin Compounds
- Perfluorinated Compounds (PFCs)
- Phthalates (Orthophtalates)
- Polychlorinated Biphenyls (PCBs)
- Short Chain and Medium-Chain Chlorinated Paraffins (SCCPs & MCCPs)
- Toxic Heavy Metals
- Wood treatments containing Creosote or Pentachlorophenol
- Volatile Organic Compounds (VOCs) in wet applied products

There are also temporary Imperative Exceptions for Red List items due to current limitations in the materials economy. A full list of Declare program Temporary Exceptions can be viewed in the Exceptions topic of this document.

The list of CASRN that correspond with each Red List item is available on the Declare website: living-future.org/declare/declare-about/red-list/#red-list-cas-guide.

Red List Summary Statements

ANTIMICROBIALS (MARKETED WITH A HEALTH CLAIM)

Antimicrobials are a series of chemicals designed to kill or inhibit the growth of bacteria. Antimicrobials were frequently used in soaps until the FDA banned them in 2016, but they are increasingly popular in building materials, including countertops, paints, and doorknobs. Some antimicrobials are endocrine disruptors, and have been shown to impair learning and weaken muscle function. Antimicrobials are often used as a

preservative in building materials but the health benefits of their use have not been established. Antimicrobials used in building materials are regulated by the EPA as a pesticide, falling outside of the scope of the FDA's ban.

REF: http://assets.ctfassets.net/t0qcl9kymnlu/3JYr0nH8G4iU8QkEAQ8qoq/48c9b83efd49ccc28f66790057679fc4/Antimicrobial_WhitePaper_PerkinsWill.pdf

ALKYLPHENOLS AND RELATED COMPOUNDS

Alkylphenols are a large family of organic compounds used in a wide variety of products, including cleaning products, beauty products, contraceptives, coatings, fragrances, thermoplastics, carbonless copy paper, and agrochemicals. Most concerns are focused on alkylphenol ethoxylates (APEs), which bioaccumulate and have been shown to cause endocrine disruption in fish. APEs are in cleaning products that end up in waterways from wastewater treatment effluent. Some alkylphenols, especially nonylphenol, are being phased out in Europe, and more research into their impacts is needed. A few governments with environmentally preferable purchasing programs restrict or ban APEs

REF: http://www2.mst.dk/Udgiv/publications/2013/04/978-87-92903-99-0.pdf

ASBESTOS COMPOUNDS

Asbestos is a mineral fiber that is used in a variety of construction materials for its strength and heat resisting capabilities. It is often found in wall insulation, vinyl floor coverings, paint compounds, roofing, heat-resistant fabrics, and automobile brakes. Exposure occurs as asbestos fibers are released into the air during use, demolition, work, building, or repair of asbestos-containing materials. Asbestos is a known human carcinogen, increasing risks of lung cancer, mesothelioma, and asbestosis.

REF: http://www2.epa.gov/asbestos/learn-about-asbestos#asbestos

BISPHENOL A (BPA) AND STRUCTURAL ANALOGUES

Bisphenol A (BPA) is used to manufacture polycarbonate (clear, hard) plastics and epoxy resins. The plastics are used in many consumer products, such as drink bottles, DVDs, eyeglass lenses, electronics, car parts, and other products that must not break easily. Epoxy resins are used for lining food cans and water pipes, and for many sales receipts. Most recent testing has shown the largest health-related concern to be potential impacts on the brains, behavior, and prostate glands of fetuses, infants, and small children. Most health organizations advise against the use of BPA for baby bottles and related products. BPA has also been found in breast milk. Additionally, chemicals with similar attributes and toxicity, such as Bisphenol S (BPS), are often a legal and "regrettable substitution" for BPA, and pose many of the same risks as BPA.

REF: https://www.fda.gov/food/food-additives-petitions/bisphenol-bpa-use-food-contact-application

CHLORINATED POLYMERS, INCLUDING PVC, PVDC, CHLOROPRENE (NEOPRENE MONOMER), AND CPVC

PVC's vinyl chloride monomer building block is a known human carcinogen, according to the US Department of Health and Human Services. In addition, PVC is a Persistent Organic Pollutant Source Material. Due to its chlorine content, PVC often contains other Red List ingredients, such as cadmium, lead, and phthalates. The manufacture and disposal of chlorinated polymers can result in the production of dioxins and disposal phases. Dioxins are some of the most potent toxins known to humans, with no known safe limit for exposure and a strong propensity for bioaccumulation. In addition, dioxins are highly persistent in the environment.

Chloroprene is a Persistent Organic Pollutant Source Material. Due to its carbon- chlorine base, chloroprene contributes to the creation of dioxins at different points in its life cycle (often manufacturing and/or disposal). According to the World Health Organization, dioxins are some of the most potent toxins known to humans, with no known safe limit for exposure and a strong propensity for bioaccumulation. In addition, dioxins are highly persistent in the environment.

Chlorinated Polyethylene (CPE) and Chlorosulfonated Polyethylene (CSPE) are Persistent Organic Pollutant Source Materials: due to their carbon-chlorine bases, these products contribute to the creation of dioxins and furans at different points in their life cycle (often manufacturing and/or disposal). According to the World Health Organization, dioxins are some of the most potent toxins known to humans, with no known safe limit for exposure and a strong propensity for bioaccumulation. In addition, dioxins are highly persistent in the environment. Similarly, furans accumulate in animal fat, concentrating as they travel up the food chain. Non-chlorinated polyethylene products are readily available in many product categories.

REF (dioxins): http://www.who.int/mediacentre/factsheets/fs225/en/index.html
REF: https://toxtown.nlm.nih.gov/text_version/chemicals.php?id=84

CHLOROBENZENES

Chlorobenzene is used primarily as a solvent, a degreaser for auto parts, and a chemical intermediary for making other chemicals, so exposures are primarily a risk to workers making or using it. Most exposures are through inhalation of fumes. Short-term exposure can cause headaches, sleepiness, nausea, numbness, muscle spasms, and in extreme cases, unconsciousness. Chronic (long-term) exposure can cause increased signs of neurotoxicity (numbness, etc.) and irritation of the upper respiratory tract. In animals, chronic exposure has also caused kidney and liver damage. Chlorobenzene is broken down by sun and bacteria in the environment and does not accumulate in the food chain.

REF: https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=488&tid=87

CHLOROFLUOROCARBONS (CFCs) AND HYDROCHLOROFLUOROCARBONS

According to US EPA, the depletion of the Earth's protective ozone layer by chlorofluorocarbons (or CFCs) is responsible for an increased incidence of skin cancer, cataracts, impairment of human immune systems, and damage to wildlife. CFCs have been banned from production in the United States since 1995.

REF (CFC effects on ozone): http://www.epa.gov/ozone/science/sc_fact.html
REF (ozone depletion and human health): http://www.who.int/globalchange/climate/summary/en/index7.html

Hydrochlorofluorocarbons (HCFCs) are potent ozone-depleting compounds. While less destructive than the now-banned chlorofluorocarbons, HCFCs are targeted for gradual phaseout by the US EPA, with a total ban going into effect in the year 2030. According to US EPA, the depletion of the Earth's protective ozone layer is responsible for an increased incidence of skin cancer, cataracts, impairment of human immune systems, and damage to wildlife.

REF: https://www.epa.gov/ods-phaseout

FORMALDEHYDE (ADDED)

Formaldehyde is classified by the International Agency for Research on Cancer and the State of California as a known human carcinogen. Common health effects at low levels of exposure to this volatile organic compound include irritation and sensitization, and the compound also acts as an asthma trigger. Long-term exposure is associated with nasal cancers and leukemia.

REF: http://www.cancer.gov/cancertopics/factsheet/risk/formaldehyde

MONOMERIC, AND POLYMERIC AND ORGANOPHOSPHATEHALOGENATED FLAME RETARDANTS (HFRS)

Halogenated Fire Retardants (HFRs) are a broad class of flame retardants containing chlorine or bromine that have aroused concern due to their exponential accumulation in human beings in recent years. HFRs are persistent bioaccumulative toxins, meaning that they accumulate in organisms and the broader environment, often reaching alarmingly high concentrations as they travel up the food chain. In addition, certain halogenated products have shown evidence of harm to humans and other animal species. According to the Washington State Department of Ecology, for example, the toxicity endpoints of concern for Penta-PBDE include adverse effects on neurological development, reproduction, thyroid hormone disruption and possible liver toxicity.

HFRs include PBDE, TBBPA, HBCD, Deca-BDE, TCPP, TCEP, Dechlorane Plus, and other retardants with bromine or chlorine. Boron is not an HFR and is allowed. Many products, including virtually all foam insulations, contain HFRs.

REF: https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Addressing-priority-toxic-chemicals/PBDE

ORGANOTIN COMPOUNDS

Organotin compounds are a class of substances containing a bond between tin and carbon. Organotin compounds are used in the production of PVC, silicone rubber, and polyurethane. Exposure can cause memory loss, eye irritation, and liver damage. Certain organotin compounds are neurotoxins and acute exposure can be lethal. Organotin compounds are persistent in the environment and pose a threat to aquatic life at elevated concentrations. Animal studies have indicated organotin compounds might damage the immune and nervous systems.

REF: https://ntp.niehs.nih.gov/ntp/htdocs/chem_background/exsumpdf/organotins_508.pdf
REF: http://www.epa.gov/hg/effects.htm

PERFLUORINATED COMPOUNDS (PFCS)

PFCs are chemical compounds that exist in many variations with many uses, such as surface treatments to repel water and stains, acids used in chemistry and research, in the semiconductor industry, and in some medical imaging devices. Many of them are greenhouse gases and bioaccumulate in the environment, but are not stored in human body fat. Most exposure is from contaminated food or products that contain PFCs. Animal studies show endocrine disruption, immune function issues, liver and pancreas damage, and developmental problems.

REF: http://www.niehs.nih.gov/health/materials/perflourinated_chemicals_508.pdf

PHTHALATES

Mounting evidence from animal studies show the hormone-disrupting potential of phthalates, primarily orthophthalates, prompting the National Research Council to urge the US Environmental Protection Agency to pursue a “cumulative risk assessment” of this class of chemicals to determine their interactivity. Testing by the Centers for Disease Control and Prevention shows that phthalates are nearly ubiquitous in the US population, with highest concentrations in women and in children aged 6 to 11 years. The endocrine disrupting nature of phthalates has implications for childhood and reproductive development, as well as cancer incidence. The European Union and over a dozen countries have banned the use of phthalates in children’s products, as has the State of California.

REF: https://toxtown.nlm.nih.gov/text_version/chemicals.php?id=24
REF (cumulative risk assessment): http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=12528

POLYCHLORINATED BIPHENYLS (PCBS)

PCB manufacturing in the United States stopped in 1977 but the compound is long-lasting in the environment (mostly in soils) around old manufacturing and disposal sites, in old electrical transformers and electrical devices, and in fish and their predators. PCBs make good coolants, lubricants, and insulators for electrical equipment of all kinds. They are known to cause cancer in animals and are probable human carcinogens, but exposure tends to be limited to people who worked in the electrical industry many years ago, lived close to manufacturing sites, and/or ate contaminated fish. Health effects also include acne-like skin conditions and neurobehavioral and immunological changes in children.

REF: https://www.atsdr.cdc.gov/csem/csem.asp?csem=30&po=10

SHORT-CHAIN and medium-chain CHLORINATED PARAFFINS (SCCPS & MCCPS)

SCCPs are most commonly used as lubricants and coolants in metal cutting and forming operations and are also used, along with MCCPs, as secondary plasticizers and flame retardants in plastics, such as PVC. Human exposure can be occupational, via inhalation of metalworking mists, or through contaminated food and dermal contact. Environmental exposure is usually from manufacturing activities, such as production, disposal, incineration, spills into waterways, and sewage effluent. SCCPs and MCCPs are persistent and very bioaccumulative in sediment. They have been found in marine mammals, other biota, and human breast milk in both industrial and remote areas. Toxic effects on mammals can include liver, hormone, and kidney damage that over a long term could lead to cancer in those organs.

REF: https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/short-chain-chlorinated-paraffins

TOXIC HEAVY METALS

Toxic heavy metals, including arsenic, cadmium, chromium (VI), lead (added), and mercury, pose a number of threats to health.

Arsenic is a carcinogen and can cause developmental issues. Inorganic arsenic is not only an acute toxin; it is a known human carcinogen.

The US Department of Health and Human Services and the International Agency for Research on Cancer have determined that cadmium is a known human carcinogen associated with lung cancer. Additionally, acute and long-term exposures can lead to lung and kidney damage, bone loss, and hypertension. In

sufficient quantities, cadmium is lethal. Cadmium's extreme toxicity means that overexposure can occur even when only trace amounts are present, such as during smelting and electroplating activities.

Chromium, primarily used in chrome plating materials, can cause breathing problems as well as nasal and lung cancer. Although chromium is a naturally occurring element and chromium III (trivalent chrome) is an essential nutrient, chromium (VI) (hexavalent chrome) can cause serious health issues, especially for factory workers who can inhale or ingest it during manufacturing. There has been concern about it in drinking water and, lacking EPA maximum allowable levels, the State of California set a public health goal for it. Chromium (VI) is used primarily for chrome plating of metals for decorative or protective finishes, making stainless steel, leather tanning, anti-corrosive agents for paints, and in textile dyes and pigments. Long-term or high-level exposure through inhalation can cause nasal irritation and ulcers, breathing problems, and nasal and lung cancer in unprotected workers. Ingestion can cause anemia and/or stomach tumors. Skin contact can cause skin ulcers and allergic reactions.
According to the Agency for Toxic Substances and Disease Registry, the environmental levels of lead have increased more than 1000-fold over the last three centuries, due almost exclusively to human activities. Lead exposure is damaging to virtually every organ and system in the human body, but is particularly damaging to the brain and central nervous system—profoundly so for young children and developing fetuses. Lead exposure is correlated with decreased IQ and delayed learning in children; scientific research has identified no safe level of lead exposure, and effects are irreversible.
According to the World Health Organization, mercury produces a suite of ill effects, including harm to the nervous, digestive, and immune systems, and even death. WHO lists children and developing fetuses as especially vulnerable to damage from mercury. Mercury bioaccumulates in the environment, eventually reaching concentrations thousands of times more intense than ambient levels.

REF: https://www.sixclasses.org/videos/certain-metals
REF: https://www.atsdr.cdc.gov/phs/phs.asp?id=18&tid=3
REF: http://www.inchem.org/documents/iarc/vol58/mono58-2.html
REF: https://www.osha.gov/SLTC/hexavalentchromium/
REF: http://www.who.int/mediacentre/factsheets/fs379/en/
REF: http://www.epa.gov/hg/effects.htm

VOLATILE ORGANIC COMPOUNDS (VOCS) IN WET APPLIED PRODUCTS

VOCs are members of a large group of organic chemicals that can evaporate into the indoor air under normal temperature conditions and into the outdoor air, causing environmental impacts such as photochemical smog. Their health effects vary widely, from respiratory irritants to human carcinogens (such as formaldehyde), which is a concern since they are ingredients in many products in the built environment. On-site wet applied products (paints, adhesives, and sealants) are of particular concern because they can directly impact the health of installers who may not be using breathing or dermal protection, unlike in-factory

wet applied materials that are (usually) applied with worker and environmental protections in place.

REF: http://www.epa.gov/iaq/voc2.html

WOOD TREATMENTS CONTAINING CREOSOTE OR PENTACHLOROPHENOL

Many conventional wood treatments introduce a litany of human health and environmental problems. The traits that make wood treatments effective at retarding rot and insect damage are also effective at damaging many other forms of life. According to the US Department of Health and Human Services, creosote exposure is associated with skin and scrotum cancer in humans, and liver, kidney, and gestational problems in laboratory animals. Pentachlorophenol is linked to liver and immune system damage in humans, and reproductive and thyroid damage in laboratory animals.

REF (creosote): https://www.atsdr.cdc.gov/phs/phs.asp?id=64&tid=18
REF (pentachlorophenol): https://www.atsdr.cdc.gov/phs/phs.asp?id=400&tid=70

The Watch List

With the release of the Living Building Challenge 4.0, ILFI introduced the LBC Watch List. The intent of the Watch List is to signal to manufacturers and project teams that ILFI has identified certain chemicals and compound groups for potential inclusion in the LBC Red List. The Watch List does not impact a product's Declaration Status, or the ability of project teams to use products that contain these chemicals on LBC projects. The Red List remains the enforceable screening list.

The Watch List fills an important gap in the identification and prioritization of chemicals for possible Red List inclusion. Chemicals on the Watch List have to be designated as "Priority for Red List Inclusion" for at least 12 months before they can be added to the Red List. This will allow manufacturers to engage in R&D efforts to phase these chemicals out of their products prior to inclusion on the Red List, contributing to the collective goal of a healthier materials economy. The chemicals on the Watch List will serve as a warning for at least one year and may or may not be added to the Red List with each annual revision of the Red List that ILFI will release on an annual basis.

ILFI believes that this transparency will result in a Red List that is regularly reviewed for alignment with best available science and market realities, and serves to push the industry further and faster towards a future free of toxic chemicals and materials.

Reference Links

The Living Building Challenge: https://living-future.org/lbc/

The Living Product Challenge: https://living-future.org/lpc/

The Declare Database: https://living-future.org/declare/

The Declare About Page: https://living-future.org/declare/declare-about/

Toxnot: https://toxnot.com/

Connect ILFI Membership to Toxnot: http://help.toxnot.com/reporting/connect-your-ilfi-membership-and-toxnot-account

Toxnot and Declare: http://help.toxnot.com/reporting/declare-labels

Submission, Review, and Publishing: http://help.toxnot.com/reporting/declare-label-submission-review-and-publishing

The Pharos Project: https://www.pharosproject.net/

Health Product Declaration Collaborative: http://www.hpd-collaborative.org/

US Green Building Council, LEED v4: http://www.usgbc.org/leed-v4

California Department of Public Health Standard Method V1.1-2010: http://standards.nsf.org/apps/group_public/download.php/11782/CDPH-IAQ_StandardMethod_V1_1_2010%5B1%5D.pdf..

California Department of Public Health Standard Method V1.2-2017: https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/CDPH%20Document%20Library/CDPH-IAQ_StandardMethod_V1_2_2017_ADA.pdf

AgBB Health-related Evaluation Procedure for Volatile Organic Compounds Emissions from Building Products: https://www.umweltbundesamt.de/sites/default/files/medien/355/dokumente/agbb_evaluation_scheme_2015.pdf

South Coast Air Quality Management District, Rule 1168:

http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1168.pdf

California Air Resources Board 2007 Suggested Control Measure for Architectural Coatings: https://www.arb.ca.gov/coatings/arch/Approved_2007_SCM.pdf

Declare Online Education: https://living-future.org/online-learning/?program=declare