



BIFMA e3-2008 Furniture Sustainability Standard

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Acknowledgments

The Business and Institutional Furniture Manufacturers Association (BIFMA) International and NSF International would like to thank the extraordinary group of stakeholders that came together to assist in the development of this standard:

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Foreword¹

This Standard was developed by the Joint Committee on Business and Institutional Furniture Sustainability using the consensus process described by the American National Standards Institute.

The Committee was created by the Business and Institutional Furniture Manufacturers Association (BIFMA) and NSF International.

NSF and BIFMA developed this Standard in order to provide the marketplace with a meaningful standard that would harmonize sustainability standards for the office furniture industry and help to distinguish environmentally preferable business and institutional furniture. The Standard was designed to allow for multiple levels of achievement, to provide an open alternative to proprietary protocols.

Suggestions for improvement of this Standard are welcome. Comments should be sent to Chair, Joint Committee on Business and Institutional Furniture Sustainability, c/o NSF International, Standards Department, P. O. Box 130140, Ann Arbor, Michigan 48113-0140, USA.

Business and Institutional Furniture Manufacturers Association (BIFMA)

Established in 1973, the Business and Institutional Furniture Manufacturers Association (BIFMA) International's mission is to lead, advocate, inform, and develop standards for the North American office and institutional furniture industry. BIFMA serves businesses that are primarily engaged in design, development, marketing, and fulfillment of office and institutional furniture products.

BIFMA is a not-for-profit organization that provides an effective forum for Members to cooperate and collaborate on appropriate industry issues. We develop voluntary product and industry standards that support safe, healthy and sustainable environments; publish key industry statistics; advocate for legislation and government regulation that have a direct impact on the health of the industry; and facilitate meaningful dialog and education to support our core services and the industry we serve.

NSF International

NSF International, an independent, not-for-profit organization helps protect you by certifying products and writing standards for food, water, and consumer goods (www.nsf.org). Founded in 1944, NSF is committed to protecting public health and safety worldwide. NSF is a World Health Organization Collaborating Centre for Food and Water Safety and Indoor Environment; and an American National Standards Institute (ANSI) accredited standards developer. Additional services include safety audits for the food and water industries, management systems registrations delivered through NSF International Strategic Registrations, organic certification provided by Quality Assurance International and education through the NSF Center for Public Health Education.

¹ The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. Therefore, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

BIFMA e3-2008 Furniture Sustainability Standard

1 General

1.1 Purpose

The purpose of this voluntary Standard is to provide measurable market-based definitions of progressively more sustainable furniture by establishing performance criteria that address environmental and social aspects throughout the supply chain.

1.2 Scope

This Standard provides a pathway towards sustainability by establishing measurable criteria for multiple levels of achievement and/or performance.

This Standard is applicable to all business and institutional furniture; this includes but is not limited to moveable walls, systems furniture, desking systems, casegoods, tables, seating, and accessories. The Standard is also applicable to materials and components manufactured by suppliers to furniture manufacturers.

This Standard is applicable to business and institutional furniture manufactured in one facility or multiple facilities, one country or multiple countries. It addresses product-based characteristics in the general areas of materials, use of energy, human and ecosystem health, and social responsibility impacts.

2 Normative References

The following documents contain provisions that, through reference in this text, constitute provisions of this standard. At the time of publication, the indicated editions were valid. All standards are subject to revision, and parties are encouraged to investigate the possibility of applying the recent editions of the standards indicated below.

- ANSI/BIFMA M7.1-2007, *Standard for Formaldehyde & TVOC Emissions From Office Furniture Systems, Components and Seating*, <http://www.bifma.org/standards/standards.html>
- ANSI/BIFMA X7.1-2007 *Standard for Formaldehyde and TVOC Emissions of Low emitting Office Furniture Systems and Seating* <http://www.bifma.org/standards/standards.html>
- California Code of Regulations, Title 24, Part 6 *California's Energy Efficiency Standards for Residential and Nonresidential Buildings*, <http://www.energy.ca.gov/title24/>
- California Indoor Air Quality *Specifications for Open Panel Office Furniture, 2006* http://www.dhs.ca.gov/iaq/VOCS/CA_FurnitureBid-EnvIAQ.htm
- California Integrated and Waste Management Board, *Sustainable (Green) Building, Special Environmental Requirements Specification* , Section 01350 <http://www.ciwmb.ca.gov/greenbuilding/Specs/Section01350/>
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) *Appendices I or II*, www.cites.org
- ISO 11469, *Plastics -- Generic identification and marking of plastics products* www.iso.org
- ISO 14001, *Environmental management systems -- Requirements with guidance for use*, www.iso.org
- ISO 14025, *Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures*, www.iso.org
- ISO 14040, *Environmental management -- Life cycle assessment -- Principles and framework*, www.iso.org
- ISO 14044, *Environmental management -- Life cycle assessment -- Requirements and guidelines*, www.iso.org
- United States Green Building Council LEED – *Existing Buildings: Operations & Maintenance Rating System*, www.usgbc.org

3 Definitions

3.1 air pollution: The presence of contaminants or pollutant substances in the air that interfere with human health or welfare, or produce other harmful environmental effects.

3.2 biodegradable: Capable of decomposing under natural conditions.

3.3 byproduct: Material, other than the principal product, generated as a consequence of an industrial process or as a breakdown product in a living system.

3.4 carcinogen: Any substance that can cause or aggravate cancer.

3.5 chemicals of concern: A chemical that makes a significant contribution to one or more of the following life cycle impact categories (Refer to Annex B):

- persistent, bioaccumulative, and toxic (PBT); and/or
- reproductive toxicant; and/or
- carcinogen; and/or
- endocrine disruptor.

3.6 child labor: Exploitation of workers under the minimum legal age for employment in the country where the facility operates.

3.7 conformity assessment: Demonstration that specified requirements relating to a product, process, system, person, or body is fulfilled.

3.7.1 first party conformity assessment: Conformity assessment activity that is performed by the person or organization that provides the object.

3.7.2 second party conformity assessment: Conformity assessment activity that is performed by a person or organization that has a user or purchaser interest in the object.

3.7.3 third party conformity assessment: Conformity assessment activity that is performed by a person or body that is independent of the person or organization that provides the object, and of the user or purchaser interests in that object.

3.8 cradle-to-gate: A term used to describe the LCA boundary encompassing the life cycle stages of raw material extraction and conversion to a bulk form or a generic shape.

3.9 criteria (air) pollutants: The 1970 amendments to the Clean Air Act required EPA to set National Ambient Air Quality Standards for pollutants known to be hazardous to human health. EPA has identified and set standards to protect human health and welfare for six pollutants: ozone, carbon monoxide, total suspended particulates, sulfur dioxide, lead, and nitrogen oxide. The term, "criteria pollutants" derives from the requirement that EPA must describe the characteristics and potential health and welfare effects of these pollutants. It is on the basis of these criteria that standards are set or revised.

3.10 design for the environment (DFE): The systematic integration of environmental attributes into the design of products and processes. There are three unique characteristics of DFE:

- The entire life-cycle is considered
- Point of application is clearly in the product realization
- Decisions are made using a set of values consistent with industrial ecology, integrative systems thinking or another framework.

3.11 ecosystem: The interacting system of a biological community and its non-living environmental surroundings.

3.12 environment: The sum of all external conditions affecting the life, development, and survival of an organism.

3.13 environmental aspect: An element of an organization's activities, products, or services that can interact with the environment.

3.14 environmental policy: A statement by the organization of its intentions and principles in relation to its overall environmental performance, which provides a framework for action and for the setting of its environmental objectives and targets.

3.15 environmental management system: The part of a company's overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining the environmental policy.

3.16 forced labor: Compulsory prison or debt bondage labor. Lodging of deposits or identity papers by employers or outside recruiters for the purpose of restricting or preventing the individual from leaving employment.

3.17 fossil fuel: Fuel derived from ancient organic remains. Some examples are peat, coal, crude oil, and natural gas.

3.18 gate-to-gate: A term used to describe the product boundary encompassing the fabrication and assembly of business and institutional furniture. For purposes of the assessment, the entry gate is the receiving dock of the first facility where basic materials used in the manufacture of the furniture (e.g. steel, particleboard, fabric, laminate, etc.) begins the conversion to furniture components. The end gate is the shipping dock where the ready-to-install furniture is transported for distribution to the end user. The gate-to-gate assessment will include transportation of intermediate materials and components between facilities where more than one physical location is included in the manufacturing process.

3.19 greenhouse gas (GHG): Gases related to human activities that accelerate the greenhouse effect (as defined in Credit 6.9.1).

3.20 hazardous substances (materials):

- Any substance that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive.
- Any substance designated by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or is otherwise released into the environment.

3.21 legacy products: Business and institutional furniture products manufactured for sale prior to the publication date of this standard.

3.22 life cycle: The total impact of a system, function, product, or service from the extraction of raw materials through its end-of-life management.

3.23 life cycle assessment (LCA): A tool for the systematic evaluation of the environmental aspects of a product or service system through all stages of its life cycle consistent with ISO

14040. An analytical tool to implement life cycle thinking, inclusive of both product and process. An LCA is generally quantitative and requires that the results be normalized to a functional unit.

3.24 life cycle inventory (LCI): A process of quantifying energy and raw material requirements, atmospheric emissions, waterborne emissions, solid wastes, and other releases for the entire life cycle of a product, process, or activity.

3.25 life cycle thinking: A conceptual approach that addresses environmental problems from a whole-systems or holistic perspective. The essential difference from an LCA is that the results are not normalized to a functional unit, and the results may be expressed qualitatively or quantitatively.

3.26 maintenance chemical: A chemical not directly used in the manufacturing of the product (e.g. forklift engine oil).

3.27 package: A container providing a means of marketing, protection, or handling of a product and shall include a unit package, an intermediate package, and a shipping/transport container as defined in American Society for Testing and Materials (ASTM) D 996. "Package" shall also mean and include such unsealed receptacles as carrying cases, crates, cups, pails, rigid foil, and other trays, wrappers and wrapping films, bags, and tubs.

3.28 post-consumer: Generated by households, or by commercial, industrial, and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes return of materials from the distribution chain.

3.29 post-industrial (pre-consumer): Diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.

3.30 pollution: This is generally, the presence of a substance in the environment that because of its chemical composition or quantity prevents the functioning of natural processes and produces undesirable environmental and health effects.

3.31 process chemical: Used in the direct manufacturing of the product and is not intended to be incorporated into the product as shipped (e.g. prep solvent prior to powdercoat).

3.32 product chemical: Incorporated in or on the product as shipped (e.g. wood finish).

3.33 recovered material: Waste materials and byproducts that have been recovered or diverted from solid waste, but does not include materials and byproducts generated from, and commonly reused within, an original manufacturing process.

3.34 recyclable: Capable of minimizing waste generation by recovering and reprocessing usable products that might otherwise become waste.

3.35 recycle: To minimize waste generation by recovering and reprocessing usable products that might otherwise become waste (e.g. aluminum cans, paper and bottles, etc.).

3.36 recycled-content materials: Materials that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (post-industrial) or after consumer use (post-consumer).

3.37 remanufacturing: Restoring products to usable condition by replacing or repairing parts as needed.

3.38 renewable energy: Energy from a source that is replenishable and replenished on some reasonable time scale. Potential renewable energy sources include, but are not limited to wind, solar, heat from the earth's interior, oceans, rivers, and biomass.

3.39 renewable material: A material that is replenishable and replenished on some reasonable time scale. Renewable material sources include, but are not limited to wood, grass fibers, plant-based plastics, and bio-based fuels.

3.40 reusable packaging: Packaging that has been conceived and designed to accomplish within its lifecycle a minimum number of trips or rotations, is refilled or used for the same purpose for which it was conceived, with or without the support of auxiliary products present on the market enabling the packaging to be refilled: such reused packaging will become packaging waste when no longer subject to reuse.

3.41 social responsibility (or equity): The identification of issues, the development of standards, and the implementation of programs that address corporate responsibility for the ethical treatment of employees, communities, and other stakeholders.

3.42 solid waste: Non-liquid, non-soluble materials ranging from municipal garbage to industrial wastes that may contain complex and sometimes hazardous substances.

NOTE: For purposes of this standard, this definition is not intended to match the EPA Resource Conservation and Recovery Act (RCRA) definition.

3.43 source reduction: A pollution prevention technique that eliminates the potential for pollution at the source, or where the polluting material enters the product or service cycle.

3.44 stakeholders: People who are (or might be) affected by any action taken by an organization. Examples include customers, owners, employees, associates, partners, contractors, suppliers, and related people or located nearby.

3.45 sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their needs.

3.46 toxic: Presenting an unreasonable risk of injury to human health or the environment.

3.47 waste: Unwanted materials left over from a manufacturing process, or refuse from places of human or animal habitation.

4 Assessing Conformance, Evaluation, and Assessment Criteria

Organizations that choose to assess their business and/or institutional furniture products to this standard can achieve first party, second party, or third party conformity assessment. Organizations can show continuous improvement by moving products to higher levels of conformance.

The manufacturer of the applicant product can determine the scope of conformance to the extent that the scope can be clearly communicated to potential purchasers of the product. The scope of conformance can be defined based on geographic location. A product that is manufactured in one location can be included, while the same product manufactured in another location could be excluded. In this case, the credits that are based on “facility” or “corporate” characteristics (such as energy use, water use, and health and safety management) shall be evaluated based on the activities only at the location included in the scope of conformance (see 3.18 definition of Gate-to-Gate).

The scope of assessment is Gate-to-Gate unless otherwise specified within individual credit language. The applicant shall clearly specify cut-off criteria for inclusion of inputs and outputs and the assumption on which the cut-off criteria are established in the scope of assessment. The intent of the Standard is to encourage reduction in environmental impact and credits are not awarded for operations that are within the Gate-to-Gate boundaries or within the individual credit language boundaries, but are excluded from the applicants’ scope of assessment. The standard does not provide credit for outsourcing of pollution. The scope of conformance can also be defined based on product options or characteristics. For example, wood/veneer options could be included while laminate/non-wood options are excluded, or vice versa.

Representative (worst-case) Sample Selection

For manufacturers wishing to demonstrate compliance for a specific product(s), only that product shall be evaluated.

A manufacturer may demonstrate compliance of a broad set of products by using the results from a limited number of representative models. A range, series, or category of products with varying characteristics may be grouped together for evaluation purposes if the products can be expected to perform similarly during evaluation (e.g. having the same general construction, materials, and manufacturing processes). Evaluation models shall be selected from the group based on those that can be expected to have the highest propensity for environmental impact. A case-by-case product line analysis by the manufacturer in consultation with the laboratory and/or certification agency is required, taking into consideration any special attributes, materials, methods of manufacture/construction, etc.

4.1 Elements

This Standard is divided into four basic elements consisting of various prerequisites and credits that are potentially available to organizations seeking product conformance to the standard. The four basic elements are:

- materials;
- energy and atmosphere;
- human and ecosystem health; and
- social responsibility.

4.2 Prerequisites

Each element has one or more prerequisites that are required as the minimum performance against the standard and applicants/products shall meet all prerequisites in each element in order to proceed. Once the prerequisite(s) are met, products may achieve additional credits toward multiple levels of achievement in each element by meeting the specified performance requirements.

4.3 Credits

Beyond the prerequisites, there is no minimum number of credits from any of the four major elements required to demonstrate conformance to this Standard. The required credits can come from any of the four elements.

4.4 Points

Each credit has one or more points that accumulate toward a level of conformance. In addition to a minimum number to total points required for each conformance level, there is also a minimum number of product related points for each level. See Annex D for a listing of product related credits and points.

4.4.1 Levels of Conformance

- 1 (Silver) 32 to 44 total points; at least 5 of which are product related points
- 2 (Gold) 45 to 62 total points; at least 11 of which are product related points
- 3 (Platinum) 63 to 90 total points; at least 18 of which are product related points

4.5 Baseline and Normalization Values

Some points require improvements against a baseline. Applicants have flexibility in defining the unit of measure they use to demonstrate improvement. Once an applicant defines the unit of measure, they must consistently use that throughout the standard whenever the normalization method is applied. For purposes of this standard, the baseline is the average of any 36 consecutive months within the previous 72-month period.

4.6 Frequency of Evaluation

Products must be reevaluated if significant changes to materials, processes or the facility occur that affect the eligibility for any credit within the scope of conformance at the time of the change. Regardless, the frequency of conformance evaluation shall not exceed three years.

5 Materials

5.1 Prerequisite

The organization shall implement a design for environment (DFE) program. The prerequisite is met if a DFE program is implemented at the time of the assessment. The DFE program shall, at a minimum, consist of the following elements: renewable materials; recycled materials; recyclable and biodegradable materials; end of life management; water management and energy efficiency.

5.2 Climate Neutral Materials

The organization shall increase the use of climate neutral materials. The applicant shall receive one point if it demonstrates that at least 30% of the final product weight is comprised of climate neutral materials. Materials are climate neutral when there is zero net greenhouse gases (GHG) measured in terms of CO₂ equivalent, emitted over the life cycle of the material. GHG impact is calculated utilizing life cycle assessment (LCA) and then is neutralized utilizing certified emission reductions (CERs), verified emissions reductions (VERs), or reductions registered with the California Climate Action Registry (CCAR). The offsets must equal or exceed the GHG produced during extraction, processing, manufacture, and transport of the product.

For the purposes of this credit, the LCA scope must include the following boundary elements (reference: ISO 14040):

- acquisition of raw material
- inputs and outputs in the main manufacturing/process sequence
- distribution/transportation

For the purposes of this credit, the LCA scope need *not* include:

- use and maintenance of finished product
- disposal of process wastes and products
- recovery of used products
- additional operations, such as lighting and heating

For the purposes of this credit, the offset quality must meet at least one of the following:

Offset Quality Mechanism	Web Address/Notes
Gold Standard CER	http://www.cdmgoldstandard.org/
CER	http://cdm.unfccc.int/index.html
Gold Standard VER	Voluntary Carbon Standard (VCS), with added sustainable development criteria
VER	http://www.v-c-s.org
CCAR	http://www.theclimateregistry.org/

Note- The Climate Registry is a nonprofit partnership developing an accurate, complete, consistent and transparent greenhouse gas emissions measurement protocol that is capable of supporting voluntary and mandatory greenhouse gas emission reporting policies for its Members and Reporters.

It will provide a verified set of greenhouse gas emissions data from its Reporters supported by a robust accounting and verification infrastructure.

5.3 Life Cycle Assessment

The organization shall encourage use of Life Cycle Assessments (LCA) to inform product design and development, and to optimize materials choices. The organization may complete an LCA for the furniture product being assessed. By fulfilling one of the three criteria below, the applicant can earn a maximum of three points in this credit, as detailed below.

5.3.1 The applicant shall receive one point if it provides evidence that the company has incorporated the life cycle assessment frame work into product design by applying the first two of the four LCA components in ISO 14040 and ISO 14044 (Goal & Scope Definition and Life Cycle Inventory). The LCA boundary must encompass extraction of raw materials through end of product life.

5.3.2 The applicant shall receive two points if it provides evidence that the company has completed an LCA utilizing all four components in ISO 14040 and ISO 14044. At a minimum, the impact categories must include Global Warming Potential.

5.3.3 The applicant shall receive three points if it demonstrates compliance to 5.3.2 and provides evidence that the company has completed an independent third-party review of its LCA.

5.4 Efficient Use of Materials

The organization shall reduce the quantity (mass) of raw materials used in the manufacture of products. Material efficiency is calculated for the materials comprising 80 percent of the weight of the products to be assessed. This credit is focused on the substantial conversion of raw material (e.g. sawing, routing, machining, forming, stamping, molding, cutting, and sewing) and does not cover the extraction and initial processing of raw materials.

By fulfilling one of the two criteria below, the applicant can earn a maximum of two points in this credit, as detailed below.

5.4.1 The applicant shall receive one point if it demonstrates a Material Efficiency of 60%.

5.4.2 The applicant shall receive two points if it demonstrates a Material Efficiency of 70%.

$$\text{Material Efficiency} = [(\text{Input Mass} - \text{Waste Mass}) / (\text{Input Mass})] \times 100\%$$

Process aids and incidental consumables (e.g. gloves, sand paper) are not included in the calculation. Waste Mass includes materials sent to recycling.

5.5 Rapidly Renewable Materials

The organization shall increase the use of rapidly renewable materials that are obtained from bio-based sources and decrease dependency on petroleum-based materials. Rapidly renewable materials reach commercial maturity in 10 years or less. In order to qualify for these points the product to be assessed must contain at least 1 percent rapidly renewable material by weight or volume. By fulfilling one or both of the two criteria below, the applicant can earn a maximum of two points in this element, as detailed below:

5.5.1 The applicant shall receive one point if it selects rapidly renewable materials for use as an element of a new or existing product.

5.5.2 The applicant shall receive two points if it demonstrates compliance to 5.5.1 and ensures that rapidly renewable material production waste is not destined for disposal.

5.6 Bio-based Renewable Materials - Sustainable Wood

In order to qualify for these points the product to be assessed must contain at least 5 percent wood by weight. The organization shall encourage environmentally responsible forest management and will not specify species listed in CITES Appendices I or II. By fulfilling one of the two criteria below, the applicant can earn a maximum of two points in this credit, as detailed in 5.6.1 and 5.6.2. The objective evidence is the documentation provided by the supplier.

5.6.1 Basic Level

The applicant shall receive one point if either:

- A minimum of 50 percent of the total wood weight of the product conforms to Sustainable Forestry Initiative (SFI), Canadian Standards Association (CSA), or another qualified organization’s sustainable forest practices; or
- A minimum of 20 percent of the total wood weight of the product conforms to Forest Stewardship Council (FSC) responsible forest practices.

5.6.2 Advanced Level

The applicant shall receive two points if either:

- A minimum of 75 percent of the total wood weight of the product conforms to SFI’s, CSA’s, or another qualified organization’s sustainable forest practices; or
- A minimum of 30 percent of the total wood weight of the product is compliant to FSC responsible forest practices.

5.7 Recycled Content

The organization shall increase the amount of recycled content material incorporated into products and packaging. By fulfilling the criteria below, the applicant can earn a maximum of three points in this credit, as detailed below.

5.7.1 Basic Level

The applicant shall receive one point if either:

- It incorporates recycled content materials into the product so that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 30 percent of the total weight of the materials in the product; or
- It incorporates recovered materials into the product at or above the levels specified in the recovered materials content requirements listed below in Table One.

Note: An applicant product may not meet the Table One-Recycled Materials Content Requirements solely based on its steel content, or if it is made from more than 50% (by weight) extruded aluminum.

TABLE ONE- Recovered Materials Content Requirements

Product	Material	Post-consumer Content (%)	Total Recycled Content
Furniture structure	Steel	16	25
Furniture structure	Aluminum ¹	--	75
Cellulose Loose-Fill and Spray-On	Post-consumer Paper	75	75
Particleboard/ Fiberboard component ²	Wood or wood composite	--	80
	Agricultural fiber		90
Fabric	PET	See Note ³ Below	100
Plastic furniture component	Various (non-fabric)		20
Remanufactured or Refurbished Furniture	Various	25	25
Acoustical Material	Various		20

¹ This limit does not apply to extruded aluminum.

² Particleboard and fiberboard used in the wood components of office furniture may also contain other recovered cellulosic materials, including, but not limited to, paper, wheat straw, and bagasse. The percentages of these materials contained in the product would also count toward the recovered materials content level of the item.

³ The 100% post-consumer content requirement of the CPG for PET fabric is not replicated here.

Note: Post consumer and total recycled percentages are expressed as weight percent of total material specified.

5.7.2 Advanced Level

The applicant shall receive two points if it demonstrates compliance to either requirement in 5.7.1 and either:

- It incorporates recycled content materials into the product so that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 50 percent of the total weight of the materials in the product; or
- It demonstrates that the recovered content of its product exceeds the levels specified in the recovered materials content requirements listed in Table One by at least 20 percent in each material category, relevant to the product being assessed; if 100 percent recovered content has not already been achieved.

Note: this second option shall not be available for products made entirely of steel or made from more than 50% (by weight) extruded aluminum.

5.7.3 Packaging

The applicant shall receive one point if it incorporates recovered materials into packaging at or above the levels specified in the recovered materials content requirements as listed in Table Two:

TABLE TWO- Recovered Materials Content Requirements

Product	Material	Post-consumer Content (%)	Total Recycled Content (%)
Packaging	LDPE, LLDPE	25	35
	HDPE	25	35
	PET	10	25
	Corrugated Cardboard	25	40

5.8 Recyclable and Biodegradable Materials

The organization shall increase the use of recyclable and biodegradable materials in the product.

The applicant shall receive one point if it:

- Identifies and quantifies the amount by weight of recyclable and biodegradable materials in the product. All qualifying recyclable and biodegradable materials shall be clearly labeled or otherwise identified in a manner that facilitates easy identification of materials during disassembly; and
- Verifies availability of recycling/biodegradation facilities (excluding waste to energy) for recyclable and biodegradable materials in product in at least six of the ten U. S. EPA regions (see annex A for map of regions).

Note: labeling/markings of plastic components, to support identification and recycling, shall be completed in accordance with ISO 11469.

5.9 Extended Product Responsibility

5.9.1 Design for Durability/Upgradeability

The applicant shall earn one point if it maximizes the useful life of the product to make it easy to refurbish and upgrade for multiple uses by the original or subsequent users. In order to accomplish this, the organization shall adopt and publicize a policy stating that it will design and manufacture products that have a long useful life; can withstand repeated service, repair, and handling; and has standardized product parts and components available to facilitate maintenance, servicing, and reassembly. The organization's policy may allow for the replacement of design components and reuse of functional components. The product to be assessed must be covered by the policy.

5.9.2 Design for Remanufacturing

The applicant shall earn one point if it designs products to ensure that they can be remanufactured. The products shall be designed in a modular fashion to facilitate the

replacement of components that are subject to wear or breakage, likely to go out of style, or likely to be upgraded. In order to earn a point in this credit, the organization shall conform to all three of the requirements below in its design for remanufacturing:

- Product disassembly instructions are publicly available;
- Disassembly is possible with standard tools and does not require special training; and
- Disassembly can occur in a reasonable amount of time.

5.9.3 Design for Recycling

The organization shall maximize the degree to which materials from the product that cannot be reused or remanufactured can be recycled into value-added products. In order to earn a point in this credit, the organization shall conform to all four of the requirements below in its design for recycling:

- Product disassembly instructions are publicly available;
- Disassembly is possible with standard tools and does not require special training;
- Disassembly of the product can occur in a reasonable amount of time; and
- Product parts are labeled, or otherwise identified, to facilitate separation by material content, and identification of any materials that may require special handling.

5.9.4 Other Facilitation Efforts

By fulfilling one or both of the two criteria below, the applicant can earn a maximum of three points in this credit, as detailed below:

5.9.4.1 Research on Recovery Options

The applicant shall receive one point if it researches and publishes information on the highest value recovery opportunities for its legacy product lines and the materials that comprise them.

5.9.4.2 Buy-back/Take-back/Leasing

The applicant shall receive one point if it makes a buy-back or take-back program part of its strategic sales strategy for products it is selling or leasing. The applicant shall receive a second point upon providing proof of implementation. The applicant may involve a third party in the buy-back/take-back program. The applicant shall ensure that the program is managed consistently with its own environmental programs.

5.10 Solid Waste Management

The applicant shall receive a maximum of two points based on its published and implemented solid waste diversion program for landfill disposal (this credit does not apply to hazardous waste). The applicant shall receive:

- One point for a 100 percent diversion goal.
- One point for achieving 100% diversion for product to be assessed for solid waste generated from fabrication and assembly of product components. Not included are solid wastes generated from raw material extraction and conversion; process aids (for example sandpaper, gloves, spray booth filters) and packaging.

5.11 Water Management

The intent of this section is to focus on process water only. Process water includes water used for pre-treatment (e.g. phosphating wash line), water-based adhesive processes, cooling water, water-jet cutting operations, and spraybooth over-spray capture systems. In order to qualify for water management credits, the applicant must prove that process water was used in the manufacturing of the product to be assessed, at any point in time during the past six years. The applicant must state whether the assessment is being completed for the applicants' own facilities, and/or facilities operated by a supplier (using process water for the product to be assessed).

5.11.1 Water Inventory of Factory

The applicant shall receive one point if it establishes a baseline process water inventory to document water sources/withdrawals, uses, and discharges for the facility where the finished product is assembled or manufactured.

5.11.2 Water Efficiency

The applicant shall receive one point if it implements program(s) to maximize process water efficiency to reduce the burden on the water supply and local wastewater treatment systems for the facility where the finished product is assembled or manufactured. The organization shall provide objective evidence that water efficiency improvement goals have been established for the facility within the past 6 years. Performance against the goals must be tracked. Absolute reductions in total water usage must be documented.

5.11.3 Wastewater Discharge

The applicant shall receive two points if it achieves zero net process water usage or wastewater discharge rates for the facility where the finished product is assembled or manufactured.

6 Energy and Atmosphere

6.1 Prerequisite

Top management of the organization shall develop and implement an energy policy that shall establish the organization's overall direction in terms of its commitment to energy conservation and performance. The policy shall:

- Be appropriate to the nature and scale of the organization's activities, products, and services;
- Include a commitment to continual improvement;
- Include a commitment to comply with relevant local, state, and federal regulations, and with other requirements to which the organization subscribes;
- Provide the framework for setting and reviewing objectives and targets; and
- Be documented, implemented, and communicated.

The policy should focus on the organization's mission, vision, and core values. Specific local or regional conditions should be considered, as should the organization's image and the views of other interested parties. Other interested parties may include suppliers, employees, shareholders, customers, consumers, local communities, environmental groups, lenders, and regulators.

6.2 Building Energy Performance Baseline

6.2.1 The applicant shall receive one point if it conducts a building energy baseline from historical energy use data, for buildings directly associated with manufacturing and/or final assembly of the product being assessed. This would include all energy sources used such as electricity, natural gas, propane, etc.

6.2.2 The applicant shall receive up to two additional points if it conforms to 6.2.1 and conducts a building energy baseline from historical energy use data for facilities such as warehouses, office building, showrooms, supply partner facilities (other than final assembly), that are associated with the product being assessed.

Note: one point for each facility, maximum of two points.

6.3 Building Energy Performance Rating

6.3.1 The applicant shall receive two points if it demonstrates an EnergyStar equivalent rating of at least 60, for buildings directly associated with manufacturing and/or final assembly of the product being assessed; calculated using the method described in the LEED-EB Reference Guide, Credit EA 1.

6.3.2 The applicant shall receive up to two additional points if it conforms to 6.3.1 and demonstrates an EnergyStar rating of at least 60 for facilities such as warehouses, office buildings, showrooms, supply partner facilities (other than final assembly) etc., that are associated with the product being assessed. This is calculated using the method described in the LEED-EB Reference Guide, Credit EA 1, or improves the energy efficiency by 35% over the baseline calculated in credit 6.3.1.

Note: one point for each facility, maximum of two points.

6.4 LEED Certified Facility

6.4.1 The applicant shall receive one point for each facility that has achieved USGBC Leadership in Energy and Environmental Design (LEED) certification.

Note: one point for each facility, maximum of two points.

6.5 Embodied Energy

6.5.1 Cradle-to-Gate Analysis

The applicant shall receive one point for assessing the amount of embodied energy consumed for the materials used within the product. The assessment is to be completed using publicly available Life-Cycle Inventory (LCI) data that exist for each material.

6.5.2 Gate-to-Gate Analysis

The applicant shall receive one point for conducting a Life-Cycle Inventory (LCI) of the amount of energy associated with the processes used during manufacturing of the product.

6.5.3 Embodied Energy - 10% Reduction

The applicant shall receive one point for a 10% reduction from 6.5.1 or 6.5.2 of energy associated with raw material production (Cradle-to-Gate) or energy reduction with the processes used during manufacturing of the product (Gate-to-Gate).

6.6 Finished Product Energy Consumption

Note: This credit applies only if the product line being assessed includes lighting products.

6.6.1 Lighting Products

The applicant shall receive one point if its lighting products meet Title 24 of the 2007 California Energy Code as described in Part 6, Energy Efficiency Standards for Residential and Nonresidential Buildings; and section 5.13 of the 2005 Nonresidential Compliance Manual.

6.7 Transportation

6.7.1 Inbound Transportation

The organization shall earn one point if it develops, documents, and implements technologies and strategies that help carriers save fuel, reduce air pollution, and reduce emissions when receiving materials and components to the manufacturing facility and distributing between facilities(s).

6.7.2 Outbound Transportation

The organization shall earn one point if it develops, documents, and implements technologies and strategies that help carriers save fuel, reduce air pollution, and reduce emissions when distributing finished goods.

6.8 On-site and Off-site Renewable Energy

The applicant may receive up to a maximum of four points for using increasing levels of on-site and off-site renewable energy or renewable energy certificates to help reduce greenhouse gases and other environmental impacts associated with fossil fuel energy use. This may be accomplished by a combination of individual actions by the organization or its suppliers for the

sum of the points allocated to those individual actions. Example: One point would be awarded for implementing 1% of on-site renewable energy. An additional point would be awarded for meeting the 10% of the total energy requirements with renewable power or certificates over the conformance period.

6.8.1 The applicant shall receive one point if it uses on-site renewable energy for 1% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 5% of its energy requirement for buildings directly associated with the manufacturing and/or final assembly of the product being assessed.

Off-site renewable energy sources are as defined by the Center for Resource Solutions (Green-e certified power marketer, a Green-e accredited utility program, Green-e certified tradable Renewable Certificates) or the equivalent.

6.8.2 The applicant shall receive an additional point if it uses on-site renewable energy for 2% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 10% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

6.8.3 The applicant shall receive an additional point if it uses on-site renewable energy for 3% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 15% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

6.8.4 The applicant shall receive an additional point if it uses on-site renewable energy for 4% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 20% of its total energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

6.9 Greenhouse Gases

By fulfilling the following criteria, the applicant can earn up to six points in the Greenhouse Gases (GHG) section.

6.9.1 Greenhouse Gases Inventory Baseline

The applicant shall receive one point if it establishes a baseline for GHG emissions from such activities as energy use, industry processes, including all emissions sources of the six major

GHGs below. Calculation of the baseline shall be based on the boundaries established by the applicant within the facility where manufacturing and/or final assembly of the product being assessed occurs.

- Carbon Dioxide (CO₂)
- Methane (CH₄)
- Nitrous Oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

6.9.2 Greenhouse Gas Reduction by 2% or 4%

The applicant shall receive an additional point if it conforms to 6.9.1 and reduces greenhouse emission inventory by 2% on an absolute basis, or 4% on a normalized basis, from the baseline for all emissions sources of the six previously listed GHGs.

6.9.3 Greenhouse Gas Reduction by 4% or 8%

The applicant shall receive an additional point if it conforms to 6.9.1 and reduces greenhouse emission inventory by 4% on an absolute basis, or 8% on a normalized basis, from the baseline for all emissions sources of the six previously listed GHGs.

6.9.4 Greenhouse Gas Reduction by 6% or 12%

The applicant shall receive an additional point if it conforms to 6.9.1 and reduces greenhouse emission inventory by 6% on an absolute basis, or 12% on a normalized basis, from the baseline for all emissions sources of the six previously listed GHGs.

6.9.5 Greenhouse Gas Voluntary Reporting Program

The applicant shall receive two points if it participates in a voluntary GHG Reporting program, where companies annually inventory and report their GHG emissions; and voluntary commitment to reducing their GHG emissions. EPA Climate Leaders Program, Chicago Climate Exchange, or similar programs are acceptable.

7 Human and Ecosystem Health

7.1 Prerequisites

7.1.1 Demonstration of Compliance

The organization shall screen all facilities for compliance with environmental and health and safety requirements of their products and processes. The organization shall evaluate compliance with all applicable environmental and health and safety regulations that govern toxic and hazardous substance use and risk management associated with human and ecosystem health. The organization or any representative of the organization shall not have any human or ecosystem health related criminal violations within the previous three years. Any human or ecosystem health related criminal violation at an acquired company that preceded the date of acquisition shall not preclude an organization from participating in this standard.

7.1.2 Key Chemical, Risk, and EMS Policies

The organization shall adopt a policy statement. The policy statement shall be publicly available and communicated to all persons working for or on behalf of the organization. In addition to the previously mentioned topics, the organization shall document the following:

- An environmental policy that includes commitments to prevention of pollution, continuous improvement, and compliance with applicable regulations and other obligations;
- A chemical management policy that includes a statement of how the company assesses and reduces human and ecosystem health impacts; and
- Incorporation of life-cycle thinking into company policies.

7.2 ISO 14001 or Equivalent

The applicant shall receive two points if it documents conformance with

- ISO 14001 *Environmental Management Systems – Specification with guidance for use*,

OR

- an environmental management system that contains the following elements for all facilities associated with the product being assessed.
 1. Environmental policy
 2. Environmental aspects
 3. Legal or other requirements
 4. Objectives and targets
 5. Implementation
 6. Management review

7.3 Chemical Management Plan (CMP) – Facility

The organization shall establish a CMP to manage chemicals in products and processes. By fulfilling one of the following three criteria, the applicant can earn one point as detailed below.

- The applicant shall receive one point if it develops and implements a system for inventory tracking and control of process, product, and facility management chemicals that includes acquisition, use, storage, transportation, and final disposition; or
- The applicant shall receive one point if it adopts as part of best management practices (BMPs) chemical hazard recognition using appropriate parts of the Process Safety Management Standard (OSHA Std. 29 CFR 1910.119) and/or EPA Risk Management Plan (RMP) (40 CFR Part 68); or
- The applicant shall receive one point if its CMP contains a documented action plan for emergency planning and response that includes the basic reporting requirements of SARA Title III (U.S. Code Title 42- The Public Health and Welfare, Chapter 116 – Emergency Planning and Community Right to Know).

7.4 Effects of Product, Manufacturing Process, and Maintenance Chemicals

The organization shall design safer products and processes by using design for the environment (DFE) protocol to identify and assess the human health and ecosystem health impacts of chemicals of concern by using reference lists in normative Annex B. Evaluation may take place at the:

- Product level; and/or
- Manufacturing process level; and/or
- Maintenance/operations level.

The intent of the identification and assessment process is for the product manufacturer to collect data from the supply chain. The chemical constituents are to be reported and referenced by Chemical Abstracts Service Registry Number (CASRN). Chemical constituents of metal alloys can be based on generic composition defined by appropriate standards organizations. No further review of wood and other natural fibers is required; however, products using these materials shall report added chemical constituents as defined below.

7.4.1 Product Level (Material Specification)

The organization shall identify all chemical constituents of the materials incorporated in to the product within its gate to gate boundary in its ready to install state, and shall assess them for human and ecosystem impact. By fulfilling one or more of the following criteria, the applicant can earn a maximum of four points as detailed below.

7.4.1.1 Basic Level

The applicant may earn one point if it identifies and assesses all MSDS reportable chemicals as defined by OSHA 29 CFR 1910.1200 for materials that add up to 95% by weight of the final product.

Or

7.4.1.2 Intermediate Level

The applicant may earn three additional points if it identifies and assesses all chemicals of concern within its gate-to-gate boundary down to 100 ppm, using the list from normative Annex B, for materials that add up to 99% by weight of the final product.

Or

7.4.1.3 Advanced Level

The applicant may earn points if it identifies and assesses all chemical constituents within its gate to gate boundary down to 100 ppm for materials that add up to (maximum total of 4 points for 7.4.1):

- 75% by weight of final product (two points); or
- 90% by weight of product (three points); or
- 99.9% by weight of product; (four points).

7.4.2 Manufacturing Process Level (Process Chemicals)

The applicant shall receive one point if it identifies and assesses all process chemical constituents down to 1000 ppm of at least three manufacturing processes associated with the manufacture of the product, within the gate-to-gate assessment (either by the organization itself or its supply chain), and assesses them for human and ecosystem impact, and exposure during application consistent with applicable hazard assessment requirements. Manufacturing processes do not cover the extraction and initial processing of raw materials. If there are only one or two manufacturing processes then all process chemical constituents must be identified and assessed.

7.4.3 Maintenance/Operations Level

The applicant shall receive one point if it identifies and assesses all chemical constituents down to 1000 ppm of 50% (by purchase amount) of all maintenance and operating chemicals not directly used in the manufacture of the product, and assesses them for human and ecosystem impact. This credit applies at the facility where manufacturing or final assembly occurs.

7.4.4 Chemical Reduction Strategy

The applicant shall receive one point if it develops a strategy to improve public and environmental health by reducing the use of materials and processes with significant life cycle impacts. The strategy shall be based on the findings of 7.4.1, 7.4.2, and 7.4.3. Significance shall be based on quantity of chemical used, relative impact, applicable impact categories, likelihood of impact, and feasibility.

7.5 Reduction/Elimination of Chemicals of Concern

The organization shall minimize the impact on human and ecosystem health of chemicals used in or associated with production of furniture.

7.5.1 Elimination from Products

The organization shall document that the product does not contain chemicals of concern, as listed in Annex B in the following classifications down to 100 ppm. The applicant shall receive two points for each classification that is shown not to be present above 100 ppm (maximum eight points available):

- persistent, bioaccumulative, and toxic (PBT)
- reproductive toxicant
- carcinogen
- endocrine disruptor

7.5.2 Reduction or Elimination from Manufacturing Processes

Following from credit 7.4.2, the applicant can earn points by reducing and/or eliminating chemicals of concern that exist below 1000 ppm are recognized as being:

1. persistent, bioaccumulative, and toxic (PBT); and/or
2. reproductive toxicant; and/or
3. a carcinogen; and/or
4. an endocrine disruptor (ED); and/or

(For 1-4 see Annex B)

5. Potential Acidification;
6. Potential Aquatic Toxicity;
7. Potential Eutrophication;
8. Potential Global Warming;
9. Potential Photochemical Smog Formation;
10. Potential Stratospheric Ozone Depletion; or
11. Potential Terrestrial Toxicity.

Note – An informative reference for Acidification, Aquatic Toxicity, Eutrophication, Global Warming, Photochemical Smog Formation, Stratospheric Ozone Depletion, or Terrestrial Toxicity impact chemicals is available in the guidance document.

The applicant can earn points by fulfilling the criteria below but shall not receive more than four total points for 7.5.2 regardless of how many criteria it fulfills beyond this limit.

7.5.2.1 On initial certification, the applicant shall receive:

- One point for demonstrating a 5 – 9% reduction on an absolute basis, or a 10-19% reduction, on a normalized basis, in chemical(s) in one or more of the above categories;

Or

- Two points for demonstrating a 10 – 15% reduction on an absolute basis, or 20-29% reduction, on a normalized basis, in chemical(s) in one or more of the above categories;

Or

- Three points for demonstrating a 16 – 19% reduction on an absolute basis, or 30-39% reduction, on a normalized basis, in chemical(s) in one or more of the above categories;

Or

- Four points for demonstrating a reduction of 20% or more, on an absolute basis, or 40% or more, on a normalized basis, in chemical(s) in one or more of the above categories; or the elimination of chemicals in one or more of the above categories.

On re-certification, the applicant shall earn points in this category by demonstrating further reductions in increments of 5% (on an absolute basis), or 10% on a normalized basis, by showing the levels of reduction detailed above in a different set of chemicals without an increase in the former set of chemicals.

7.5.2.2 An applicant can earn points if it documents that the manufacturing processes used to manufacture the product do not contain any chemical of concern (see Annex B) at a concentration greater than 1,000 ppm in one or more of the listed classifications. The applicant shall receive one point for each of the classifications in 7.5.2 (1-4) that is shown to be absent above this concentration.

A chemical is relevant to 7.5.2 if it is present and/or released at any stage of the manufacturing processing of the final product. Presence or release during processing may be intentional or unintentional; direct or indirect (e.g., intentionally added chemicals or background levels). For the purposes of 7.5.2, a chemical of concern shall be considered successfully phased out if the presence or release of the chemical in the process is below 1000 ppm. Where reduction is achieved by substitution, there shall be no net increase of chemicals from any of the above categories.

7.5.3 Reductions from Maintenance/Operations level

Following from credit 7.4.3, the applicant can earn a point by reducing and/or eliminating chemicals of concern listed in normative Annex B that are recognized as being:

1. persistent, bioaccumulative, and toxic (PBT); and/or
2. reproductive toxicant; and/or
3. a carcinogen; and/or
4. an endocrine disruptor (ED); and/or
(For 1-4 see Annex B)
5. Potential Acidification;
6. Potential Aquatic Toxicity;
7. Potential Eutrophication;
8. Potential Global Warming;
9. Potential Photochemical Smog Formation;
10. Potential Stratospheric Ozone Depletion; or
11. Potential Terrestrial Toxicity.

Note – An informative reference for Acidification, Aquatic Toxicity, Eutrophication, Global Warming, Photochemical Smog Formation, Stratospheric Ozone Depletion, or Terrestrial Toxicity impact chemicals is available in the guidance document.

On initial certification, the applicant shall receive:

- One point for demonstrating a 20% reduction or more, on an absolute basis, or 40% or more on a normalized basis, in chemical(s) in one or more of the above categories; or eliminating chemical(s) in one or more of the above categories.

On re-certification, the applicant shall earn a point earned in this category by demonstrating further reductions in increments of 10%, on an absolute basis, or 20% on a normalized basis, by showing the levels of reduction detailed above in a different set of chemicals without an increase in the former set.

This credit applies at the facility where manufacturing or final assembly occurs.

7.5.4 Reduction of Hazardous Wastes and Air Emissions

The scope of these credits shall include:

- Finishing (e.g. plating, coating, gluing, associated cleaning/degreasing and assembly) of the product and components.

And

- Fabrication (e.g. welding, casting, forming, molding, associated cleaning/degreasing) of small components that combined comprise up to a total of 5% of the product by weight

may be excluded. Processes such as the extraction and initial processing (including rolling, smelting...) of raw materials is excluded from the scope of this credit.

Finishing and fabrication operations for small components (e.g. fasteners, screws, washers, glides, labels), that combined comprise up to a total of 5% of the product by weight may be excluded. Processes such as the extraction and initial processing (including rolling, smelting) of raw materials is excluded from the scope of this credit. The applicant must include finishing and fabricating wherever it occurs. The applicant must state whether the assessment is being completed for the applicants own facilities and/or for facilities operated by a supplier (doing finishing or fabrication operations for the product to be assessed).

7.5.4.1 Hazardous Waste

The applicant shall receive one point for finishing and assembly if it:

- reduces the amount of hazardous waste generated by at least 10% on an absolute basis over the baseline period.

OR

- reduces the amount of hazardous waste generated by at least 20% on a normalized basis over the baseline period.

OR

- meets the criteria of a conditionally exempt small quantity generator.

The applicant shall receive one additional point for fabrication if it:

- reduces the amount of hazardous waste generated by at least 10% on an absolute basis over the baseline period.

OR

- reduces the amount of hazardous waste generated by at least 20% on a normalized basis over the baseline period.

OR

- meets the criteria of a conditionally exempt small quantity generator.

7.5.4.2 Air Emissions

The applicant shall receive one point for finishing and assembly if it:

- reduces the amount of air emissions generated by at least 10% on an absolute basis over the baseline period.

OR

- reduces the amount of air emissions generated by at least 20% on a normalized basis over the baseline period.

OR

- emits less than 1000 pounds of total HAPS.

The applicant shall receive one additional point for fabrication if it:

- reduces the amount of air emissions generated by at least 10% on an absolute basis over the baseline period.

OR

- reduces the amount of air emissions generated by at least 20% on a normalized basis over the baseline period.

OR

- emits less than one ton of HAPS.

7.6 Low Emitting Furniture

The organization shall ensure good indoor air quality by reducing irritating, odorous, and/or harmful indoor air contaminants in finished products. By fulfilling one or both of the criteria in 7.6.1 and 7.6.2, an applicant may earn either one or two points, as detailed below.

Individual furniture components of workstations (e.g. file cabinets, desks, drawer pedestals, work surfaces, tables, vertical panels, privacy screens, etc.) may obtain either or both points of this credit by meeting the maximum allowed emission factors for either an open plan workstation or a private office, using configurations as defined in ANSI/BIFMA M7.1-2007. This criterion also applies to items not necessarily intended to be in workstations like easels, conference tables, etc.

All surfaces are allowed a maximum emission factor depending upon the intended use environment. The maximum emission factor is calculated based on the guideline concentration for a chemical substance as defined in 7.6.1 or 7.6.2, the total surface area for the open plan workstation or private office, and the airflow rates for the open plan workstation or private office.

The standard test method to be used to demonstrate compliance is the ANSI/BIFMA M7.1-2007 Standard Test Method for Determining VOC emissions from Office Furniture Systems, Components, and Seating.

7.6.1 The applicant shall receive one point if furniture emissions concentrations or factors meet the following criteria as defined in ANSI/BIFMA X7.1-2007 at 168 hours:

Workstation systems (open plan or private) office emissions concentration limits

TVOCToluene	$\leq 0.5 \text{ mg/m}^3$
Formaldehyde	$\leq 50 \text{ ppb}$
Total Aldehydes	$\leq 100 \text{ ppb}$
4-Phenylcyclohexene	$\leq 0.0065 \text{ mg/m}^3$

Seating office emissions concentration limits

TVOCToluene	$\leq 0.25 \text{ mg/m}^3$
Formaldehyde	$\leq 25 \text{ ppb}$
Total Aldehydes	$\leq 50 \text{ ppb}$
4-Phenylcyclohexene	$\leq 0.00325 \text{ mg/m}^3$

Individual furniture components maximum emission factors

	ANSI/BIFMA M7.1-2007 Open Plan Workstation	ANSI/BIFMA M7.1-2007 Private Office Workstation
Formaldehyde, (ug/m ² hr)	42.3	85.1
TVOC, (ug/m ² hr)	345	694
Total Aldehyde, (umol/m ² hr)	2.8	5.7
4-Phenylcyclohexene, (ug/m ² hr)	4.5	9.0

7.6.2 The applicant shall receive one point if furniture emissions do not exceed the individual Volatile Organic Chemical (VOC) concentration limits listed in Annex C at 336 hours (14 days) or sooner when determined in accordance with the ANSI/BIFMA M7.1-2007 standard test method. These criteria are based on California EPA's OEHHA's reference exposure VOC limits in the CA Section 01350 specification, California Department of Public Health, *Standard Practice for the Testing of Volatile Organic Emissions from Various Sources using Small-Scale Environmental Chambers*, and on the 2006 California office furniture bid specification.

Note – When the emission factor at 336 hours is determined using the power-law defined in ANSI/BIFMA M7.1-2007 Section 10.4 and 10.5, the emission factors shall be reported as constant if the coefficient b is between -0.20 and 0.20.

Seating may obtain this credit by meeting ½ the maximum acceptable limits for a workstation as defined in 7.6.2.

Small chamber testing of component pieces of workstations per the ANSI/BIFMA M7.1-2007 standard is acceptable for this point, if there is third-party oversight in selecting representative components and in applying the calculations in ANSI/BIFMA M7.1-2007 Section 10.6.1 and 10.6.2 to estimate the emission factor of a product.

8 Social Responsibility

8.1 Prerequisites

8.1.1 Employee Health and Safety Management

The organization shall ensure employee health and safety by establishing management processes that will detect, avoid, or respond to actual and potential threats to the health and safety of personnel.

The processes shall include the following components:

- Identification of the local and national health and safety laws applicable to the facility
- Appointment of a management representative with defined responsibilities
- An employee health and safety policy
- Documented procedures for the management of the system including a corrective action process that addresses regulatory compliance and actual and potential threats to employee health and safety
- Establishment and maintenance of employee health and safety metrics
- Health and safety training available for employees
- Regular evaluation of compliance to applicable health and safety laws, as well as internal procedures and requirements

8.1.2 Labor and Human Rights

The organization shall protect and respect the rights of human resources at the local, national, and global levels by ensuring that forced or involuntary labor is not used or supported in any form, that employment is voluntary, and that child labor is not used or supported in any form.

8.2 Policy on Social Responsibility

One point is available if the organization adopts a publicly available documented policy (or policies) on social responsibility that, at minimum, addresses:

- Fair hiring practices
- Education for applicable employees in this subject area
- Corporate ethics
- Receipt of gifts
- Insider trading

8.3 External Health and Safety Management Standard

One point is available if the organization enhances productivity and employee welfare by implementing policies and procedures that go beyond the requirements of 8.1.1 by conforming to the requirements of a publicly available external health and safety management system standard.

8.4 Inclusiveness

One point is available if the organization promotes inclusiveness in the workforce, in management, and corporate governance bodies while recognizing the unique local norms that exist in different countries around the world. The organization shall develop and implement an inclusiveness policy that includes the following components:

- Identification of and compliance to the local and national inclusiveness rules and regulations applicable to the facility
- Documented procedures for the management of the system
- Establishment of appropriate feedback mechanisms
- A corrective action process
- Establishment and maintenance of employee inclusiveness metrics and internal performance tracking and reporting
- Inclusiveness education available for employees
- Regular evaluation of compliance to applicable inclusiveness rules and regulations, as well as internal procedures and requirements.

8.5 Engage in Community Outreach and Involvement

One point is available if the organization demonstrates good corporate citizenship to benefit the communities in which it operates. It shall demonstrate at least two volunteer efforts and/or financial contributions supporting community projects within each 12-month period.

8.6 Social Responsibility Reporting

The organization shall promote transparency through public reporting of social responsibility activities and results. Wherever possible, it shall use widely accepted metrics to evaluate the effects of these policies and activities on the company's stakeholders. By fulfilling one or both of the following requirements, the applicant can earn up to three points, as detailed below.

8.6.1 Basic Level

The applicant may earn one point if it publishes a public social responsibility report that, at minimum, addresses:

- Employee Health and Safety Management
- Labor and Human Rights Management
- Inclusiveness
- Community Outreach and Involvement

8.6.2 Advanced Level

The applicant may earn an additional two points if it publishes a comprehensive, public social responsibility report that follows reporting practices in the Global Reporting Initiative G3 Social Responsibility section, the SA8000 Social Accountability standard or other internationally recognized guidelines.

Either of these requirements is met if the social responsibility report is a part of a more comprehensive report that includes environmental or economic elements.

8.7 Supply chain

Using internationally recognized social responsibility criteria, the organization shall encourage continuous improvement in the supply chain relative to sustainable business criteria, and particularly to social responsibility. By fulfilling the following criteria, the applicant may earn up to three points, as detailed below.

8.7.1 Basic Level

The applicant may earn one point if it establishes a documented supplier assessment tool (which may be a self-assessment tool) containing social responsibility criteria for its suppliers. At a minimum, the assessment tool shall contain criteria in the following categories:

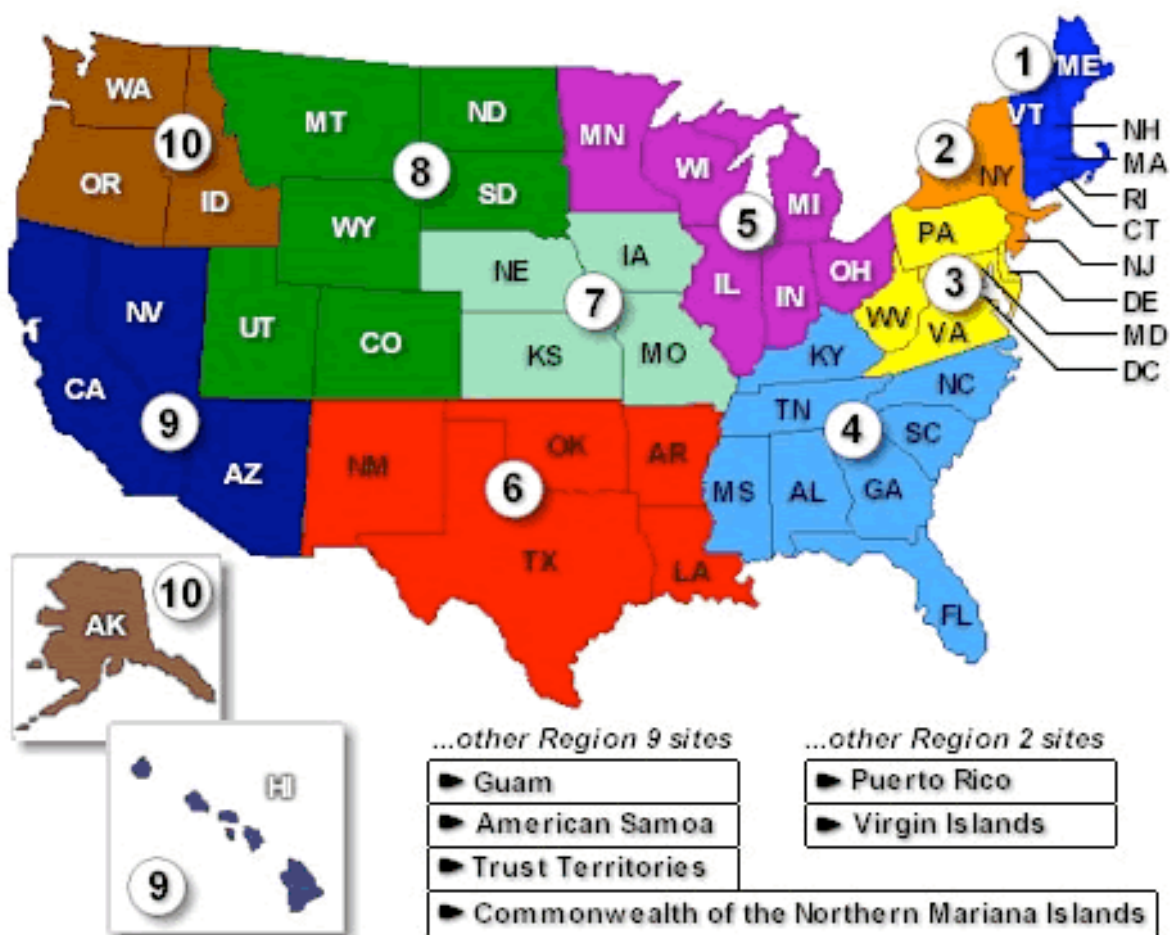
- Child labor
- Forced labor
- Health and safety
- Discrimination
- Discipline/harassment
- Working hours
- Compensation

8.7.2 Advanced Level

The applicant shall receive two additional points if it conforms to 8.7.1 and provides completed responses to the assessment tool from suppliers comprising at least 75% of its total direct material spend for all products, measured using actual annual spend data for a consecutive 12-month time period within the previous 2 years.

For suppliers that are part of the “75% of total direct material spend” that act as brokers, distributors, inventory management providers, etc. and do *not* manufacture and/or assemble the components/products purchased by the organization, the assessment tool responses must be obtained from their suppliers who do manufacture and/or assemble the components/products, again at the 75% of direct material spend level.

Annex A - Map of EPA Regions
(Informative)



Annex B - Chemicals of Concern List
(Normative)

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
	5-Chloro-o-toluidine and its strong acid salts	NO	NO	YES	NO
	A mixture of: 4-[[bis-(4-fluorophenyl)-methylsilyl]methyl]-4H-1,2,4-triazole; 1-[[bis-(4-fluorophenyl)methyl-silyl]-methyl]-1H-1,2,4-triazole	NO	NO	NO	YES
	Arsenic (inorganic oxides)	NO	NO	NO	YES
	Benzidine-based dyes	NO	NO	YES	NO
	Ceramic fibers (airborne particles of respirable size)	NO	NO	YES	NO
	Chlorophenoxy herbicides	NO	NO	YES	NO
	Chromium (hexavalent compounds)	NO	NO	YES	NO
	Diaminotoluene (mixed)	NO	NO	YES	NO
	Glasswool fibers (airborne particles of respirable size)	NO	NO	YES	NO
	Hexachlorocyclohexane Isomers	NO	NO	YES	NO
	Lead compounds	NO	YES	YES	YES
	Mercury compounds	NO	YES	NO	YES
	Methoxyethylacrylate tinbutyltin, copolymer	YES	NO	NO	NO
	Methylmercury compounds	NO	NO	YES	NO
	Nickel compounds	NO	NO	YES	NO
	Polychlorinated dibenzofurans	NO	YES	YES	NO
	Polychlorinated dibenzo-p-dioxins	NO	YES	YES	NO
	Polychlorophenols and their sodium salts (mixed exposures)	NO	NO	YES	NO
	Polycyclic Aromatic Hydrocarbons (PAHs)	NO	YES	YES	NO
	Soots	NO	NO	YES	NO
	Soots, tars, and mineral oils (untreated and mildly treated oils and used engine oils)	NO	NO	YES	NO
	Tributyltin carboxylate	YES	NO	NO	NO
	Tributyltin compounds	YES	NO	NO	NO
	Tributyltin polyethoxylate	YES	NO	NO	NO
	Welding fumes	NO	NO	YES	NO
	Wood Dust	NO	No	Yes	NO
100-00-5	1-Chloro-4-nitrobenzene	NO	NO	YES	NO
100-25-4	p-Dinitrobenzene	NO	NO	NO	YES
10026-24-1	Cobalt sulfate heptahydrate	NO	NO	YES	NO
10034-93-2	Hydrazine sulfate	NO	NO	YES	NO
100-40-3	4-Vinylcyclohexene	NO	NO	YES	NO
100-41-4	Ethylbenzene	NO	NO	YES	NO
100-42-5	Styrene	YES	NO	YES	NO
100-44-7	Benzyl chloride	NO	NO	YES	NO
10108-64-2	Cadmium chloride	NO	NO	NO	YES
101-14-4	4,4'-Methylene bis(2-chloroaniline)	NO	NO	YES	NO
10124-43-3	Cobalt sulfate	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
101-61-1	4,4'-Methylene bis(N,N-dimethyl)benzenamine	NO	NO	YES	NO
101-77-9	4,4'-Methylenedianiline	NO	NO	YES	NO
101-80-4	4,4'-Diaminodiphenyl ether (4,4'-Oxydianiline)	NO	NO	YES	NO
101-90-6	Diglycidyl resorcinol ether (DGRE)	NO	NO	YES	NO
1024-57-3	Heptachlor epoxide	NO	NO	YES	NO
103-33-3	Azobenzene	NO	NO	YES	NO
105735-71-5	3,7-Dinitrofluoranthene	NO	NO	YES	NO
10595-95-6	N-Nitrosomethylethylamine	NO	NO	YES	NO
106325-08-0	(2RS,3RS)-3-(2-Chlorophenyl)-2-(4-fluorophenyl)-[(1H-1,2,4-triazol-1-yl)-methyl]oxirane	NO	NO	NO	YES
106340-44-7	Tetrabromodibenzofuran (TeBDF)	YES	NO	NO	NO
106-46-7	p-Dichlorobenzene	NO	NO	YES	NO
106-47-8	p-Chloroaniline	NO	NO	YES	NO
106-87-6	4-Vinyl-1-cyclohexene diepoxide (Vinyl cyclohexenedioxide)	NO	NO	YES	NO
106-88-7	1,2-Epoxybutane	NO	NO	YES	NO
106-89-8	Epichlorohydrin	NO	NO	YES	YES
106-93-4	Ethylene dibromide	NO	NO	YES	YES
106-94-5	1-Bromopropane	NO	NO	NO	YES
106-99-0	1,3-Butadiene	NO	NO	YES	YES
107-06-2	Ethylene dichloride (1,2-Dichloroethane)	NO	NO	YES	NO
107-13-1	Acrylonitrile	NO	NO	YES	NO
107-30-2	Chloromethyl methyl ether (technical grade)	NO	NO	YES	NO
108-05-4	Vinyl acetate	NO	NO	YES	NO
108171-26-2	Chlorinated paraffins (Average chain length, C12;approximately 60 percent chlorine by weight)	NO	NO	YES	NO
108-46-3	Resorcinol	YES	NO	NO	NO
108-60-1	Bis(2-chloro-1-methylethyl)ether, technical grade	NO	NO	YES	NO
108-88-3	Toluene	NO	NO	NO	YES
109-86-4	2-methoxyethanol	NO	NO	NO	YES
110-00-9	Furan	NO	NO	YES	NO
110-49-6	2-methoxyethylacetate acetate	NO	NO	NO	YES
110-80-5	2-ethoxyethanol	NO	NO	NO	YES
110-86-1	Pyridine	NO	NO	YES	NO
11096-82-5	PCB (Aroclor) 1260	YES	NO	NO	NO
11097-69-1	PCB (Aroclor) 1254	YES	NO	NO	NO
111-15-9	2-ethoxyethylacetate acetate	NO	NO	NO	YES
111-44-4	Bis(2-chloroethyl)ether	NO	NO	YES	NO
1116-54-7	N-Nitrosodiethanolamine	NO	NO	YES	NO
111-96-6	Bis(2-methoxyethyl)ether	NO	NO	NO	YES
1120-71-4	1,3-Propane sultone	NO	NO	YES	NO
1134-23-2	Cycloate	NO	NO	NO	YES
114-26-1	Propoxur	NO	NO	YES	NO
115-28-6	Chlorendic acid	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
115-29-7	Endosulfan (Benzoepin)	YES	NO	NO	NO
115-32-2	Dicofol (Kelthane)	YES	NO	NO	NO
115-96-8	Tris(2-chloroethyl) phosphate	NO	NO	YES	NO
116-14-3	Tetrafluoroethylene	NO	NO	YES	NO
117-79-3	2-Aminoanthraquinone	NO	NO	YES	NO
117-81-7	Bis(2-ethylhexyl)phthalate	YES	NO	YES	YES
117-82-8	bis(2-Methoxyethyl)phthalate	NO	NO	NO	YES
118-74-1	Hexachlorobenzene	YES	YES	YES	YES
119-34-6	4-Amino-2-nitrophenol	NO	NO	YES	NO
119738-06-6	(+/-) tetrahydrofurfuryl (R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy]-propionate	NO	NO	NO	YES
119-90-4	3,3'-Dimethoxybenzidine (o-Dianisidine)	NO	NO	YES	NO
119-93-7	3,3'-Dimethylbenzidine (ortho-Tolidine)	NO	NO	YES	NO
12035-72-2	Nickel subsulfide	NO	NO	YES	NO
12054-48-7	Nickel hydroxide	NO	NO	YES	NO
120-71-8	p-Cresidine	NO	NO	YES	NO
120-80-9	Catechol	NO	NO	YES	NO
120-83-2	2,4 Dichlorophenol	YES	NO	NO	NO
121-14-2	2,4-Dinitrotoluene	NO	NO	YES	YES
12122-67-7	Zineb	YES	NO	NO	NO
12125-56-3	Nickel hydroxide	NO	NO	YES	NO
12174-11-7	Palygorskite fibers (> 5mm in length)	NO	NO	YES	NO
121-75-5	Malathion	YES	NO	NO	NO
122-34-9	Simazine	YES	NO	NO	NO
122-60-1	Phenyl glycidyl ether	NO	NO	YES	NO
122-66-7	Hydrazobenzene (1,2-Diphenylhydrazine)	NO	NO	YES	NO
123-39-7	N-methylformamide	NO	NO	NO	YES
123-91-1	1,4-Dioxane	NO	NO	YES	NO
12427-38-2	Maneb	YES	NO	YES	NO
12510-42-8	Erionite	NO	NO	YES	NO
12656-85-8	C.I. Pigment Red 104	NO	NO	NO	YES
12672-29-6	PCB (Aroclor) 1248	YES	NO	NO	NO
126-72-7	Tris(2,3-dibromopropyl)phosphate	NO	NO	YES	NO
126-99-8	Chloroprene	NO	NO	YES	NO
1271-28-9	Nickelocene	NO	NO	YES	NO
127-18-4	Perchloroethylene	YES	NO	YES	NO
127-19-5	N,N-Dimethylacetamide	NO	NO	NO	YES
12789-03-6	Chlordane	YES	NO	NO	NO
128-03-0	Potassium dimethyldithiocarbamate	NO	NO	NO	YES
128-04-1	Sodium dimethyldithiocarbamate	NO	NO	NO	YES
129-15-7	2-Methyl-1-nitroanthraquinone (of uncertain purity)	NO	NO	YES	NO
129-43-1	1-Hydroxyanthraquinone	NO	NO	YES	NO
1303-00-0	Gallium arsenide	NO	NO	YES	NO
1304-56-9	Beryllium oxide	NO	NO	YES	NO
1307-96-6	Cobalt [II] oxide	NO	NO	YES	NO
1309-64-4	Antimony oxide (Antimony trioxide)	NO	NO	YES	NO
1313-99-1	Nickel oxide	NO	NO	YES	NO
1314-20-1	Thorium dioxide	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
1314-62-1	Vanadium pentoxide (orthorhombic crystalline form)	NO	NO	YES	NO
13194-48-4	Ethoprop	NO	NO	YES	NO
132-27-4	o-Phenylphenate, sodium	NO	NO	YES	NO
133-06-2	Captan	NO	NO	YES	NO
133-07-3	Folpet	NO	NO	YES	NO
1332-21-4	Asbestos	NO	NO	YES	NO
1333-86-4	Carbon black (airborne, unbound particles of respirable size)	NO	NO	YES	NO
1335-32-6	lead acetate	NO	NO	YES	YES
1336-36-3	Polychlorinated biphenyl (PCB)	YES	YES	YES	YES
13424-46-9	lead azide	NO	NO	NO	YES
134-29-2	o-Anisidine hydrochloride	NO	NO	YES	NO
134-32-7	1-Naphthylamine	NO	NO	YES	NO
1344-37-2	C.I.Pigment Yellow 34	NO	NO	NO	YES
13463-39-3	Nickel carbonyl	NO	NO	YES	YES
13463-67-7	Titanium dioxide	NO	NO	YES	NO
13510-49-1	Beryllium sulfate	NO	NO	YES	NO
135-20-6	Cupferron	NO	NO	YES	NO
13552-44-8	4,4'-Methylenedianiline dihydrochloride	NO	NO	YES	NO
136-35-6	Diazoaminobenzene	NO	NO	YES	NO
136-45-8	Di-n-propyl isocinchomeronate (MGK Repellent 326)	NO	NO	YES	NO
13654-09-6	Decabrominated diphenyl ether (decaBDE)	YES	NO	NO	NO
137-17-7	2,4,5-Trimethylaniline (and its strong acid salts)	NO	NO	YES	NO
137-26-8	Thiram	YES	NO	NO	NO
137-30-4	Ziram	YES	NO	NO	NO
137-42-8	Metam Natrium	YES	NO	YES	YES
138-93-2	Disodium cyanodithioimidocarbonate	NO	NO	NO	YES
139-13-9	Nitrilotriacetic acid	NO	NO	YES	NO
139-65-1	4,4'-Thiodianiline	NO	NO	YES	NO
140-57-8	Aramite	NO	NO	YES	NO
140-66-9	4-Tert-Octylphenol	YES	NO	NO	NO
140-88-5	Ethyl acrylate	NO	NO	YES	NO
140923-17-7	Iprovalicarb	NO	NO	YES	NO
140923-25-7	Iprovalicarb	NO	NO	YES	NO
1420-07-1	Dinoterb (plus salts and esters)	NO	NO	NO	YES
142-04-1	Aniline hydrochloride	NO	NO	YES	NO
142-59-6	Nabam	NO	NO	NO	YES
142-83-6	2,4-Hexadienal (89% trans, trans isomer; 11% cis, trans isomer)	NO	NO	YES	NO
143-50-0	Chlordecone (Kepone)	YES	NO	YES	YES
1461-25-2	Tetrabutyltin (TTBT)	YES	NO	NO	NO
1464-53-5	Diepoxybutane	NO	NO	YES	NO
14808-60-7	Silica, crystalline (respirable size)	NO	NO	YES	NO
151-56-4	Ethyleneimine	NO	NO	YES	NO
15245-44-0	lead 2,4,6-trinitroresorcin oxide, styphnate LEAD	NO	NO	NO	YES

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
153-78-6	2-Aminofluorene	NO	NO	YES	NO
15541-45-4	Bromate	NO	NO	YES	NO
156-10-5	p-Nitrosodiphenylamine	NO	NO	YES	NO
1570-64-5	4-chloro-2-methylphenol	YES	NO	NO	NO
1582-09-8	Trifluralin	NO	YES	NO	NO
1589-47-5	2-Methoxypropanol	NO	NO	NO	YES
1596-84-5	Daminozide	NO	NO	YES	NO
15972-60-8	Alachlor	YES	NO	YES	NO
16071-86-6	Direct Brown 95 (technical grade)	NO	NO	YES	NO
1615-80-1	1,2-Diethylhydrazine	NO	NO	YES	NO
16543-55-8	N-Nitrosornicotine	NO	NO	YES	NO
1675-54-3	2,2'-bis(4-(2,3-epoxypropoxy)phenyl)propane	YES	NO	NO	NO
1689-84-5	Bromoxynil	NO	NO	NO	YES
1689-99-2	Bromoxynil octanoate	NO	NO	NO	YES
1694-09-3	Benzyl violet 4B	NO	NO	YES	NO
1746-01-6	2,3,7,8 Tetrachlorodibenzo-p-dioxin	YES	YES	YES	YES
17570-76-2	lead (II) methanesulphonate	NO	NO	NO	YES
17804-35-2	Benomyl	NO	NO	NO	YES
1836-75-5	Nitrofen	YES	NO	YES	YES
18662-53-8	Nitrilotriacetic acid, trisodium salt monohydrate	NO	NO	YES	NO
189-55-9	Benzo(r,s,t)pentaphene	NO	YES	YES	NO
189-64-0	Dibenzo[a,h]pyrene	NO	NO	YES	NO
189-64-4	Dibenzo(a,h)pyrene	NO	YES	NO	NO
1897-45-6	Chlorothalonil	NO	NO	YES	NO
1912-24-9	Atrazine	YES	NO	NO	NO
191-24-2	Benzo(g,h,i)perylene	NO	YES	NO	NO
191-30-0	Dibenzo(a,l)pyrene	NO	YES	YES	NO
1918-16-7	Propachlor	NO	NO	YES	NO
192-65-4	Dibenzo(a,e)pyrene	NO	YES	YES	NO
1929-82-4	Nitrapyrin	NO	NO	YES	YES
193-39-5	Indeno [1,2,3-cd]pyrene	NO	YES	YES	NO
1937-37-7	Direct Black 38 (technical grade)	NO	NO	YES	NO
19408-74-3	1,2,3,7,8,9 Hexachlorodibenzop-dioxin	NO	YES	NO	NO
194-59-2	7H-Dibenzo(c,g)carazole	NO	YES	YES	NO
195-19-7	Benzo[c]phenanthrene	NO	NO	YES	NO
19666-30-9	Oxadiazon	NO	NO	YES	YES
1983-10-4	Stannane, tributylfluoro- Me [Tributyltin fluoride]	YES	NO	NO	NO
202-33-5	Benz[j]aceanthrylene	NO	NO	YES	NO
20265-96-7	p-Chloroaniline hydrochloride	NO	NO	YES	NO
20325-40-0	3,3'-Dimethoxybenzidine dihydrochloride	NO	NO	YES	NO
20354-26-1	Methazole	NO	NO	NO	YES
205-82-3	Benzo(j)fluoranthene	NO	YES	YES	NO
205-99-2	Benzo(b)fluoranthene	NO	YES	YES	NO
206-44-0	Benzo(j,k)fluorene; Fluoranthene	NO	YES	NO	NO
207-08-9	Benzo(k)fluoranthene	NO	YES	YES	NO
2092-56-0	D&C Red No. 8	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
2155-70-6	Tributyl[(2-methyl-1-oxo-2-propenyl)oxy]stannane; tributyltin methacrylate	YES	NO	NO	YES
21725-46-2	Cyanazine	NO	NO	NO	YES
218-01-9	Benzo(a)phenanthrene (Chrysene)	NO	YES	YES	NO
22398-80-7	Indium phosphide	NO	NO	YES	NO
224-42-0	Dibenz[a,j]acridine	NO	YES	YES	NO
22506-53-2	3,9-Dinitrofluoranthene	NO	NO	YES	NO
226-36-8	Dibenz[a,h]acridine	NO	YES	YES	NO
2279-76-7	Tri-n-propyltin (TPrT)	YES	NO	NO	NO
22967-92-6	Methylmercury	NO	NO	NO	YES
2312-35-8	Propargite	NO	NO	YES	YES
23564-05-8	Thiophanate methyl	NO	NO	NO	YES
2385-85-5	Mirex	YES	NO	YES	NO
23950-58-5	Pronamide	NO	NO	YES	NO
24124-25-2	Stannane, tributyl[(1-oxo-9,12-octadecad	YES	NO	NO	NO
2425-06-1	Captafol	NO	NO	YES	NO
2429-74-5	C.I. Direct Blue 15	NO	NO	YES	NO
2437-79-8	PCB 47 (2,2',4,4'-Tetrachlorobiphenyl)	YES	NO	NO	NO
2439-01-2	Oxythioquinox (Chinomethionat)	NO	NO	YES	YES
24602-86-6	Tridemorph (ISO);2,6-dimethyl-4-tridecylmorpholine	NO	NO	NO	YES
2475-45-8	Disperse Blue 1	NO	NO	YES	NO
25013-16-5	Butylated hydroxyanisole	NO	NO	YES	NO
25154-52-3	Phenol, nonyl-(2,6-dimethyl-4-heptylphenol, o and p)	YES	NO	NO	NO
25321-14-6	Dinitrotoluene (technical grade)	NO	NO	YES	YES
25808-74-6	lead hexafluorosilicate	NO	NO	NO	YES
2593-15-9	Terrazole	NO	NO	YES	NO
25962-77-0	trans-2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)-vinyl]-1,3,4-oxadiazole	NO	NO	YES	NO
2602-46-2	Direct Blue 6 (technical grade)	NO	NO	YES	NO
26148-68-5	A-alpha-C (2-Amino-9H-pyrido[2,3-b]indole)	NO	NO	YES	NO
26239-64-5	Stannane, tributyl[[[1,2,3,4,4a,4b,5,6,1	YES	NO	NO	NO
26354-18-7	2-propenoic acid, 2-methyl-, methyl ester = Stannane, tributylmeacrylate	YES	NO	NO	NO
2646-17-5	Oil Orange SS	NO	NO	YES	NO
26471-62-5	Toluene diisocyanate	NO	NO	YES	NO
26636-32-8	Tributyltinphthalate	YES	NO	NO	NO
26644-46-2	Triforine	NO	NO	NO	YES
26761-40-0	Diisodecyl phthalate	YES	NO	NO	YES
271-89-6	Benzofuran	NO	NO	YES	NO
27208-37-3	Cyclopenta[cd]pyrene	NO	NO	YES	NO
27304-13-8	Oxychlorane	YES	NO	NO	NO
2784-94-3	HC Blue 1	NO	NO	YES	NO
28407-37-6	C.I. Direct Blue 218	NO	NO	YES	NO
28434-86-8	3,3'-Dichloro-4,4'-diamino-diphenyl ether	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
28553-12-0	diisononyl phthalate = 1,2-Benzenedicarboxylic acid, diisononyl ester (DINP)	YES	NO	NO	NO
29082-74-4	Octachlorostyrene	NO	YES	NO	NO
2973-10-6	Diisopropyl sulfate	NO	NO	YES	NO
298-00-0	Methylparathion	YES	NO	NO	NO
301-04-2	Lead acetate	NO	NO	YES	YES
301-12-2	Oxydemeton methyl	NO	NO	NO	YES
302-01-2	Hydrazine	NO	NO	YES	NO
3068-88-0	beta-Butyrolactone	NO	NO	YES	NO
309-00-2	Aldrin	YES	YES	YES	NO
3090-35-5	Stannane, tributyl[(1-oxo-9-octadecenyl)	YES	NO	NO	NO
31508-00-6	2,3',4,4',5 Pentachlorobiphenyl	NO	YES	NO	NO
3165-93-3	p-Chloro-o-toluidine, hydrochloride	NO	NO	YES	NO
32534-81-9	Pentabrominated diphenyl ether (pentaBDE)	YES	NO	NO	NO
32536-52-0	Octabrominated diphenyl ether (octaBDE)	YES	NO	NO	NO
32598-12-2	PCB 75 (2,4,4',6-Tetrachlorobiphenyl)	YES	NO	NO	NO
32598-13-3	3,4,3',4'-Tetrachlorobiphenyl	YES	YES	NO	NO
32598-14-4	2,3,3',4,4' Pentachlorobiphenyl	NO	YES	NO	NO
3268-87-9	1,2,3,4,6,7,8,9 Octachlorodibenzo-p-dioxin	NO	YES	NO	NO
32774-16-6	3,3',4,4',5,5' Hexachlorobiphenyl	YES	YES	NO	NO
32809-16-8	Procymidone	NO	NO	YES	NO
3296-90-0	2,2-Bis(bromomethyl)-1,3-propanediol	NO	NO	YES	NO
330-54-1	Diuron	YES	NO	YES	NO
330-55-2	Linuron	YES	NO	NO	YES
33089-61-1	Amitraz	NO	NO	NO	YES
33213-65-9	Endosulfan (beta)	YES	NO	NO	NO
33284-53-6	PCB 61 (2,3,4,5-Tetrachlorobiphenyl)	YES	NO	NO	NO
3333-67-3	Nickel carbonate	NO	NO	YES	NO
333-41-5	Diazinon	YES	NO	NO	NO
34256-82-1	Acetochlor	YES	NO	YES	NO
34465-46-8	Hexachlorodibenzodioxin	NO	NO	YES	NO
3468-63-1	D&C Orange No. 17	NO	NO	YES	NO
35065-27-1	PCB 153 (2,2',4,4',5,5'-Hexachlorobiphenyl)	YES	NO	NO	NO
3563-45-9	Tetrachloro DDT [1,1,1,2-Tetrachloro-2,2-bis(4-chlorophenyl)ethane]	YES	NO	NO	NO
3564-09-8	Ponceau 3R	NO	NO	YES	NO
3570-75-0	2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole	NO	NO	YES	NO
35822-46-9	1,2,3,4,6,7,8 Heptachlorodibenzo-p-dioxin	NO	YES	NO	NO
36631-23-9	Stannane, tributyl = Tributyltin naphtalate	YES	NO	NO	NO
36734-19-7	Iprodione	YES	NO	YES	NO
3688-53-7	AF-2;[2-(2-furyl)-3-(5-nitro-2-furyl)]acrylamide	NO	NO	YES	NO
3697-24-3	5-Methylchrysene	NO	YES	YES	NO
373-02-4	Nickel acetate	NO	NO	YES	NO
3761-53-3	Ponceau MX	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
37894-46-5	6-(2-chloroethyl)-6(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecane	NO	NO	NO	YES
38380-08-4	2,3,3',4,4',5 Hexachlorobiphenyl	YES	YES	NO	NO
38411-22-2	PCB 136 (2,2',3,3',6,6'-Hexachlorobiphenyl)	YES	NO	NO	NO
39001-02-0	1,2,3,4,6,7,8,9 Octachlorodibenzofuran	NO	YES	NO	NO
39156-41-7	2,4-Diaminoanisole sulfate	NO	NO	YES	NO
39227-28-6	1,2,3,4,7,8 Hexachlorodibenzop-dioxin	NO	YES	NO	NO
39300-45-3	Dinocap	NO	NO	NO	YES
39635-31-9	2,3,3',4,4',5,5' Heptachlorobiphenyl	NO	YES	NO	NO
39801-14-4	Photomirex	YES	NO	NO	NO
40088-47-9	2,2',4,4'-Tetrabrominated diphenyl ether (2,2',4,4'-tetraBDE)	YES	NO	NO	NO
40321-76-4	1,2,3,7,8 Pentachlorodibenzodioxin	YES	YES	NO	NO
40487-42-1	Pendimethalin	NO	YES	NO	NO
42397-64-8	1,6-Dinitropyrene	NO	NO	YES	NO
42397-65-9	1,8-Dinitropyrene	NO	NO	YES	NO
4342-30-7	Phenol, 2-[[[(tributylstannyl)oxy]carbony	YES	NO	NO	NO
4342-36-3	Stannane, (benzoyloxy)tributyl-[tributyltin benzoate]	YES	NO	NO	NO
465-73-6	Isodrin	NO	YES	NO	NO
4782-29-0	Stannane, [1,2-phenylenebis(carbonyloxy)	YES	NO	NO	NO
485-31-4	binapacryl (ISO)	NO	NO	NO	YES
50-00-0	Formaldehyde	NO	NO	YES	NO
50-29-3	DDT (Dichlorodiphenyl-trichloroethane)	YES	NO	YES	YES
50-32-8	Benzo(a)pyrene	NO	YES	YES	YES
509-14-8	Tetranitromethane	NO	NO	YES	NO
510-15-6	Ethyl-4,4'-dichlorobenzilate	NO	NO	YES	NO
51207-31-9	2,3,7,8 Tetrachlorodibenzofuran	YES	YES	NO	NO
512-56-1	Trimethyl phosphate	NO	NO	YES	NO
513-37-1	Dimethylvinylchloride	NO	NO	YES	NO
51338-27-3	Diclofop methyl	NO	NO	NO	YES
5160-02-1	D&C Red No. 9	NO	NO	YES	NO
51-79-6	Urethane (Ethyl carbamate)	NO	NO	YES	YES
5216-25-1	p-a,a,a-Tetrachlorotoluene	NO	NO	YES	NO
52663-72-6	2,3',4,4',5,5' Hexachlorobiphenyl	NO	YES	NO	NO
528-29-0	o-Dinitrobenzene	NO	NO	NO	YES
53404-19-6	Bromacil lithium salt	NO	NO	NO	YES
53469-21-9	PCB (Aroclor) 1242	YES	NO	NO	NO
53-70-3	Dibenz[a,h]anthracene	NO	YES	YES	NO
5385-75-1	Dibenzo(a,e)fluoranthene	NO	YES	NO	NO
53-96-3	2-Acetylaminofluorene	NO	NO	YES	NO
540-73-8	1,2-Dimethylhydrazine	NO	NO	YES	NO
542-56-3	Isobutyl nitrite	NO	NO	YES	NO
542-75-6	1,3-Dichloropropene	NO	NO	YES	NO
542-88-1	Bis(chloromethyl)ether	NO	NO	YES	NO
546-88-3	Acetohydroxamic acid	NO	NO	NO	YES
55-18-5	N-Nitrosodiethylamine	NO	NO	YES	NO
5522-43-0	1-Nitropyrene	NO	YES	YES	NO
556-52-5	2,3-Epoxypropan-1-ol; glycidol	NO	NO	YES	YES

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
55673-89-7	1,2,3,4,7,8,9 Heptachlorodibenzofuran	NO	YES	NO	NO
55738-54-0	trans-2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)vinyl]-1,3,4-oxadiazole	NO	NO	YES	NO
56-23-5	Carbon tetrachloride	NO	NO	YES	NO
563-47-3	3-Chloro-2-methylpropene	NO	NO	YES	NO
56-35-9	Tributyltin oxide = bis(tributyltin) oxide	YES	NO	NO	NO
56-38-2	Parathion [Parathion(-ethyl)]	YES	NO	NO	NO
56-49-5	3-Methyl chlolanthrene	NO	YES	YES	NO
56-55-3	Benz(a)anthracene	NO	YES	YES	NO
569-57-3	Chlorotrianisene	NO	NO	YES	NO
569-61-9	C.I. Basic Red 9 monohydrochloride	NO	NO	YES	NO
57018-52-7	Propylene glycol mono-t-butyl ether	NO	NO	YES	NO
57044-25-4	R-2,3-epoxy-1-propanol	NO	NO	NO	YES
57117-31-4	2,3,4,7,8 Pentachlorodibenzofuran	YES	YES	NO	NO
57117-41-6	1,2,3,7,8 Pentachlorodibenzofuran	YES	YES	NO	NO
57117-44-9	1,2,3,6,7,8 Hexachlorodibenzofuran	NO	YES	NO	NO
57-14-7	1,1-Dimethylhydrazine (UDMH)	NO	NO	YES	NO
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	NO	YES	NO	NO
57-57-8	beta-Propiolactone	NO	NO	YES	NO
57653-85-7	1,2,3,6,7,8 Hexachlorodibenzop-dioxin	NO	YES	NO	NO
57-74-9	Chlordane	YES	YES	YES	NO
57835-92-4	4-Nitropyrene	NO	NO	YES	NO
57852-57-0	Idarubicin hydrochloride	NO	NO	NO	YES
57-97-6	7,12-Dimethylbenz(a)anthracene	NO	YES	YES	NO
58802-20-3	1,2,7,8-Tetrachlorodibenzofuran	YES	NO	NO	NO
58-89-9	Gamma-HCH (Lindane)	YES	NO	YES	NO
5902-51-2	Terbacil	NO	NO	NO	YES
590-96-5	Methylazoxymethanol	NO	NO	YES	NO
592-62-1	Methylazoxymethanol acetate	NO	NO	YES	YES
593-60-2	Vinyl bromide	NO	NO	YES	NO
59-50-7	4-chloro-3-methylphenol	YES	NO	NO	NO
59536-65-1	Polybrominated Biphenyls (PBB) [209 Congeners]	YES	NO	YES	YES
59669-26-0	Thiodicarb	NO	NO	YES	NO
598-55-0	Methyl carbamate	NO	NO	YES	NO
59-89-2	N-Nitrosomorpholine	NO	NO	YES	NO
60-09-3	p-Aminoazobenzene	NO	NO	YES	NO
60-11-7	4-Dimethylaminoazobenzene	NO	NO	YES	NO
602-87-9	5-Nitroacenaphthene	NO	NO	YES	NO
60-35-5	Acetamide	NO	NO	YES	NO
60-57-1	Dieldrin	YES	NO	YES	NO
606-20-2	2,6-Dinitrotoluene	NO	NO	YES	YES
607-57-8	2-Nitrofluorene	NO	NO	YES	NO
60851-34-5	2,3,4,7,8,9 Hexachlorodibenzofuran	NO	YES	NO	NO
608-73-1	Hexachlorocyclohexane (technical grade)	NO	NO	YES	NO
608-93-5	Pentachlorobenzene	NO	YES	NO	NO
6109-97-3	3-Amino-9-ethylcarbazole hydrochloride	NO	NO	YES	NO
612-82-8	3,3'-Dimethylbenzidine dihydrochloride	NO	NO	YES	NO
612-83-9	3,3'-Dichlorobenzidine dihydrochloride	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
613-35-4	N,N'-Diacetylbenzidine	NO	NO	YES	NO
615-05-4	2,4-Diaminoanisole	NO	NO	YES	NO
615-28-1	o-Phenylenediamine dihydrochloride	NO	NO	YES	NO
615-53-2	N-Nitroso-N-methylurethane	NO	NO	YES	NO
621-64-7	N-Nitrosodi-n-propylamine	NO	NO	YES	NO
62476-59-9	Acifluorfen sodium	NO	NO	YES	NO
62-50-0	Ethyl methanesulfonate	NO	NO	YES	NO
62-53-3	Aniline	NO	NO	YES	NO
625-45-6	Methoxyacetic acid	NO	NO	NO	YES
62-55-5	Thioacetamide	NO	NO	YES	NO
62-56-6	Thiourea	NO	NO	YES	NO
62-73-7	DDVP (Dichlorvos)	NO	NO	YES	NO
62-74-8	Sodium fluoroacetate	NO	NO	NO	YES
62-75-9	N-Nitrosodimethylamine	NO	NO	YES	NO
630-08-0	carbon monoxide	NO	NO	NO	YES
6358-53-8	Citrus Red No. 2	NO	NO	YES	NO
636-21-5	o-Toluidine hydrochloride	NO	NO	YES	NO
64091-91-4	4-(N-Nitrosomethylamino)-1-(3-pyridyl)-1-butanone	NO	NO	YES	NO
6459-94-5	C.I. Acid Red 114	NO	NO	YES	NO
64-67-5	Diethyl sulfate	NO	NO	YES	NO
64902-72-3	Chlorsulfuron	NO	NO	NO	YES
65510-44-3	2',3,4,4',5-pentachlorobiphenyl	NO	YES	NO	NO
66-27-3	Methyl methanesulfonate	NO	NO	YES	NO
66441-23-4	Fenoxaprop ethyl	NO	NO	NO	YES
66733-21-9	Erionite	NO	NO	YES	NO
668-34-8	Triphenyltin	YES	NO	NO	NO
67562-39-4	1,2,3,4,6,7,8 Heptachlorodibenzofuran	NO	YES	NO	NO
67-66-3	Chloroform	NO	NO	YES	NO
67-72-1	Hexachloroethane	NO	NO	YES	NO
67730-10-3	Glu-P-2 (2-Aminodipyrido[1,2-a:3',2'-d]imidazole)	NO	NO	YES	NO
67730-11-4	Glu-P-1 (2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole)	NO	NO	YES	NO
67733-57-7	2,3,7,8-Tetrabromodibenzofuran	YES	NO	NO	NO
67747-09-5	Prochloraz	YES	NO	NO	NO
68006-83-7	Me-A-alpha-C (2-Amino-3-methyl-9H-pyrido[2,3-b]indole)	NO	NO	YES	NO
68-12-2	N,N-dimethylformamide	NO	NO	NO	YES
68515-49-1	Di-isodecyl phthalate (DIDP)	NO	NO	NO	YES
688-73-3	Tributyltin	YES	NO	NO	NO
69409-94-5	Fluvalinate	NO	NO	NO	YES
69782-90-7	2,3,3',4,4',5' Hexachlorobiphenyl	NO	YES	NO	NO
69806-50-4	Fluazifop butyl	NO	NO	NO	YES
70-25-7	N-Methyl-N'-nitro-N-nitrosoguanidine	NO	NO	YES	NO
70362-47-9	PCB 48 (2,2',4,5-Tetrachlorobiphenyl)	YES	NO	NO	NO
70648-26-9	1,2,3,4,7,8 Hexachlorodibenzofuran	NO	YES	NO	NO
70657-70-4	2-Methoxypropylacetate	NO	NO	NO	YES
709-98-8	Propanil	YES	NO	NO	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
712-68-5	2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole	NO	NO	YES	NO
71-43-2	Benzene	NO	NO	YES	YES
71998-72-6	1,3,6,8-Tetrachlorodibenzofuran	YES	NO	NO	NO
72-20-8	Endrin	YES	NO	NO	YES
72-43-5	Methoxychlor	NO	YES	NO	NO
72490-01-8	Fenoxycarb	NO	NO	YES	NO
72-54-8	DDD (Dichlorodiphenyl-dichloroethane)	NO	NO	YES	NO
72-55-9	DDE (Dichlorodiphenyl-dichloroethylene)	NO	NO	YES	NO
72-57-1	Trypan blue (commercial grade)	NO	NO	YES	NO
72918-21-9	1,2,3,7,8,9 Hexachlorodibenzofuran	NO	YES	NO	NO
7439-92-1	Lead	NO	YES	YES	NO
7439-97-6	Mercury	NO	YES	NO	YES
7440-02-0	Nickel (Metallic)	NO	NO	YES	NO
7440-38-2	Arsenic and arsenic compounds	NO	NO	YES	NO
7440-41-7	Beryllium and beryllium compounds	NO	NO	YES	NO
7440-43-9	Cadmium and cadmium compounds	NO	NO	YES	YES
7440-48-4	Cobalt metal powder	NO	NO	YES	NO
7446-27-7	Lead phosphate	NO	NO	YES	YES
7446-34-6	Selenium sulfide	NO	NO	YES	NO
74472-37-0	2,3,4,4',5 Pentachlorobiphenyl	NO	YES	NO	NO
74-83-9	Methyl bromide, as a structural fumigant	YES	NO	NO	YES
74-87-3	Methyl chloride	NO	NO	NO	YES
74-88-4	Methyl iodide	NO	NO	YES	NO
7496-02-8	6-Nitrochrysene	NO	NO	YES	NO
74-96-4	Bromoethane	NO	NO	YES	NO
75-00-3	Chloroethane (Ethyl chloride)	NO	NO	YES	NO
75-01-4	Vinyl chloride	NO	NO	YES	NO
75-02-5	Vinyl fluoride	NO	NO	YES	NO
75-07-0	Acetaldehyde	NO	NO	YES	NO
75-09-2	Dichloromethane (Methylene chloride)	NO	NO	YES	NO
75-12-7	Formamide	NO	NO	NO	YES
75-15-0	Carbon disulfide	YES	NO	NO	YES
75-21-8	Ethylene oxide	NO	NO	YES	YES
75-25-2	Bromoform	NO	NO	YES	NO
75-26-3	2-bromopropane	NO	NO	NO	YES
75-27-4	Bromodichloromethane	NO	NO	YES	NO
75-34-3	1,1-Dichloroethane	NO	NO	YES	NO
75-52-5	Nitromethane	NO	NO	YES	NO
75-55-8	2-Methylaziridine (Propyleneimine)	NO	NO	YES	NO
75-56-9	Propylene oxide	NO	NO	YES	NO
75-60-5	Cacodylic acid	NO	NO	YES	NO
759-94-4	Ethyl dipropylthiocarbamate	NO	NO	NO	YES
76180-96-6	IQ (2-Amino-3-methylimidazo[4,5-f]quinoline)	NO	NO	YES	NO
764-41-0	1,4-Dichloro-2-butene	NO	NO	YES	NO
76-44-8	Heptachlor	YES	YES	YES	YES
765-34-4	Glycidaldehyde	NO	NO	YES	NO
76578-14-8	Quizalofop-ethyl	NO	NO	NO	YES
76-87-9	Triphenyltin hydroxide	NO	NO	YES	YES

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
77094-11-2	MeIQ (2-Amino-3,4-dimethylimidazo[4,5-f]quinoline)	NO	NO	YES	NO
77-09-8	Phenolphthalein	NO	NO	YES	NO
77439-76-0	MX (3-chloro-4-dichloromethyl-5-hydroxy-2(5H)-furanone)	NO	NO	YES	NO
77501-63-4	Lactofen	NO	NO	YES	NO
7758-01-2	Potassium bromate	NO	NO	YES	NO
7758-97-6	lead chromate	NO	NO	NO	YES
77-78-1	Dimethyl sulfate	NO	NO	YES	NO
7784-40-9	lead hydrogen arsenate	NO	NO	NO	YES
7790-79-6	Cadmium fluoride	NO	NO	NO	YES
78-79-5	Isoprene	NO	NO	YES	NO
78-87-5	1,2-Dichloropropane	NO	NO	YES	NO
789-02-6	o,p'-DDT	NO	NO	NO	YES
79-00-5	Vinyl trichloride (1,1,2-Trichloroethane)	NO	NO	YES	NO
79-01-6	Trichloroethylene	NO	NO	YES	NO
79-06-1	Acrylamide	NO	NO	YES	NO
79-16-3	N-methylacetamide	NO	NO	NO	YES
79-34-5	1,1,2,2-Tetrachloroethane	NO	NO	YES	NO
79-43-6	Dichloroacetic acid	NO	NO	YES	NO
79-44-7	Dimethylcarbamoyl chloride	NO	NO	YES	NO
79-46-9	2-Nitropropane	NO	NO	YES	NO
79-94-7	Tetrabromobisphenol A	NO	YES	NO	NO
8001-35-2	Toxaphen (Camphechlor)	YES	YES	YES	NO
8001-58-9	Creosotes	NO	NO	YES	NO
80-05-7	2,2-Bis(4-hydroxyphenyl)propan [4,4'-isopropylidenediphenol] [Bisphenol A]	YES	NO	NO	NO
8018-01-7	Mancozeb	NO	NO	YES	NO
80387-97-9	2-ethylhexyl 3,5-bis(1,1-dimethylethyl)-4-hydroxyphenylmethylthioacetate	NO	NO	NO	YES
81-49-2	1-Amino-2,4-dibromoanthraquinone	NO	NO	YES	NO
81-88-9	D&C Red No. 19	NO	NO	YES	NO
82-28-0	1-Amino-2-methylantraquinone	NO	NO	YES	NO
83704-53-4	1,2,3,7,9-Pentachlorodibenzofuran	YES	NO	NO	NO
838-88-0	4,4'-Methylene bis(2-methylaniline)	NO	NO	YES	NO
842-07-9	C.I. Solvent Yellow 14	NO	NO	YES	NO
84-65-1	Anthraquinone	NO	NO	YES	NO
84-74-2	Dibutylphthalate (DBP)	YES	NO	NO	YES
84-75-3	Di-n-hexyl phthalate (DnHP)	NO	NO	NO	YES
85409-17-2	Stannane, tributyl-, Mono (naphthenoyloxy)	YES	NO	NO	NO
85509-19-9	Flusilazole (ISO)	NO	NO	NO	YES
85-68-7	Butyl benzyl phthalate (BBP)	YES	NO	NO	YES
86-30-6	N-Nitrosodiphenylamine	NO	NO	YES	NO
86-74-8	Carbazole	NO	NO	YES	NO
872-50-4	N-Methylpyrrolidone	NO	NO	NO	YES
87-29-6	Cinnamyl anthranilate	NO	NO	YES	NO
87-62-7	2,6-Xylidine (2,6-Dimethylaniline)	NO	NO	YES	NO
87-86-5	Pentachlorophenol	NO	NO	YES	NO
88-06-2	2,4,6-Trichlorophenol	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
88671-89-0	Myclobutanil	NO	NO	NO	YES
88-72-2	o-Nitrotoluene	NO	NO	YES	NO
88-85-7	Dinoseb (plus salts and esters)	NO	NO	NO	YES
90-04-0	o-Anisidine	NO	NO	YES	NO
9006-42-2	Metiram	NO	NO	YES	YES
900-95-8	Fentin acetate [STANNANE, ACETOXYTRIPHENYL]	YES	NO	NO	NO
90-43-7	o-phenylphenol	YES	NO	YES	NO
90-94-8	Michler's ketone	NO	NO	YES	NO
91-20-3	Naphthalene	NO	NO	YES	NO
91-22-5	Quinoline and its strong acid salts	NO	NO	YES	NO
91-23-6	o-Nitroanisole	NO	NO	YES	NO
91-59-8	2-Naphthylamine	NO	NO	YES	NO
91-94-1	3,3'-Dichlorobenzidine	NO	NO	YES	NO
924-16-3	N-Nitrosodi-n-butylamine	NO	NO	YES	NO
924-42-5	N-Methylolacrylamide	NO	NO	YES	NO
92-67-1	4-Aminobiphenyl (4-amino-diphenyl)	NO	NO	YES	NO
92-87-5	Benzidine [and its salts]	NO	NO	YES	NO
92-93-3	4-Nitrobiphenyl	NO	NO	YES	NO
930-55-2	N-Nitrosopyrrolidine	NO	NO	YES	NO
94-58-6	Dihydrosafrole	NO	NO	YES	NO
94-59-7	Safrole	NO	NO	YES	NO
94-75-7	2,4-Dichlorophenoxy acetic acid (2,4-D)	YES	NO	NO	NO
94-82-6	2,4-D butyric acid	NO	NO	NO	YES
95-06-7	Sulfallate	NO	NO	YES	NO
95-53-4	o-Toluidine	NO	NO	YES	NO
95-54-5	o-Phenylenediamine	NO	NO	YES	NO
95-54-5	o-Phenylenediamine and its salts	NO	NO	YES	NO
95-69-2	p-Chloro-o-toluidine	NO	NO	YES	NO
95-76-1	3,4-Dichloroaniline (1-amino-3,4-dichlorobenzene)	YES	NO	NO	NO
95-79-4	5-Chloro-o-toluidine (and its strong acid salts)	NO	NO	YES	NO
95-80-7	2,4-Diaminotoluene	NO	NO	YES	NO
95-83-0	4-Chloro-o-phenylenediamine	NO	NO	YES	NO
959-98-8	Endosulfan (alpha)	YES	NO	NO	NO
96-09-3	Styrene oxide	NO	NO	YES	NO
96-12-8	1,2-Dibromo-3-chloropropane	NO	NO	YES	YES
96-13-9	2,3-Dibromo-1-propanol	NO	NO	YES	NO
96-18-4	1,2,3-Trichloropropane	NO	NO	YES	NO
97-23-4	Dichlorophene	NO	NO	NO	YES
97-56-3	o-Aminoazotoluene	NO	NO	YES	NO
98-07-7	Benzotrichloride	NO	NO	YES	NO
98-54-4	4-tert-Butylphenol (1-hydroxy-4-tert-butylbenzene)	YES	NO	NO	NO
98-87-3	α-Chlorinated toluenes	NO	NO	YES	NO
98-88-4	α-Chlorinated toluenes (benzal chloride, benzo-trichloride, benzyl chloride) and benzoyl chloride (combined exposures)	NO	NO	YES	NO
98-95-3	Nitrobenzene	NO	NO	YES	NO

CASRN	Chemical Name	Endocrine Disruptor	PBT	Carcin	Reproductive Tox
99-65-0	m-Dinitrobenzene	NO	NO	NO	YES
99-99-0	4-Nitrotoluene (1-methyl-4-nitrobenzene)	YES	NO	NO	NO

B.1 Selection Criteria for Chemicals of Concern List (Informative)²

Sustainable Research Group (SRG) was requested by the Human and Ecosystem Health Work Group to construct a master list of “chemicals of concern” for the BIFMA Sustainable Standard. Upon approval, this reference list constitutes Annex B for the fulfillment of credits available under sections 7.4 and 7.5 of the standard. An explanation of the protocol for developing the master list is provided below.

B.1.1 Selection Criteria (Informative)²

Annex B Chemicals of Concern list was constructed by applying the following criteria, as agreed upon by the Human and Ecosystem Health Work Group:

- I. Limited to “chemicals of concerns” identified as being:
 - A. *Persistent, Bioaccumulative and Toxic chemicals (PBTs)*
 - B. *Carcinogens*
 - C. *Reproductive toxicants*
 - D. *Endocrine disruptors*
- II. Compiled by merging selected chemicals from the following existing, authoritative lists:
 - A. *PBT*:
 1. EPCRA Section 313 Final Rule of PBTs – See Table 1 and Table 3
 - <http://www.epa.gov/fedrgstr/EPA-WASTE/1999/October/Day-29/f28169.htm>
 - All chemicals selected
 - B. *Carcinogens*:
 1. International Agency for Research on Cancer (IARC)
 - <http://monographs.iarc.fr/ENG/Classification/ListagentsCASnos.pdf>
 - As of most current version: Volumes 1-99; updated March 28, 2008
 - Only chemicals identified as Type 1, 2A or 2B carcinogens
 - Does not include chemicals classified as Type 3 or 4
 2. California Proposition 65
 - http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html
 - As of most current version: March 21, 2008
 - All chemicals currently listed and identified by the descriptor “cancer”
 - No delisted chemicals
 3. National Toxicology Program – Report on Carcinogens (ROC) Part A and Part B
 - Part A: <http://ntp.niehs.nih.gov/ntp/roc/eleventh/known.pdf>
 - Part B: <http://ntp.niehs.nih.gov/ntp/roc/eleventh/reason.pdf>
 - As of most current version: 11th Edition
 - All chemicals classified as “Known to be a Human Carcinogen” [Part A] or “Reasonably Anticipated to be a Human Carcinogen” [Part B]
 - C. *Reproductive Toxicants*
 1. California Proposition 65
 - http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html

² The information contained in Annex B.1 through B.1.2 is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI’s requirements for an ANS. Therefore, these sections may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

- As of most current version: March 21, 2008
 - All chemicals currently listed and identified by the descriptor “developmental”
 - No delisted chemicals
2. EU Consolidated List of Carcinogenic, Mutagenic and Reproductive Toxicant Substances [EC Directive 76/769/EEC]
- http://ec.europa.eu/enterprise/chemicals/legislation/markrestr/1976l0769_en_03_10_2007.pdf
 - All chemicals identified as being “toxic to reproduction” and classified as category 1 or category 2

D. Endocrine Disruptors

1. EUROPEAN COMMISSION DG ENV: Towards the establishment of a priority list of substances for further evaluation of their role in endocrine disruption [Final Report 2000]
- http://ec.europa.eu/environment/docum/pdf/bkh_annex_13.pdf
 - All chemicals having a “combined” classification of 1 or 2
 - “Combined” refers to the potential of a chemical to cause endocrine disruption in humans and wildlife: 1 = evidence for endocrine disruption; 2 = evidence for potential endocrine disruption

B.1.2 Cleanup Criteria

(Informative)²

In an effort to streamline the merged lists, the following rules were applied:

- For chemicals identified by a unique Chemical Abstracts Service Registry Number (CASRN): replicate entries (records) were deleted so that each unique CASRN is represented by a single record (row) in the list. [However, multiple endpoint information per chemical was retained – see below]
- For chemicals without an unique CASRN and only identified by chemical name or a text description: replicate entries were only deleted if the text per entry was identical; if multiple entries had similar, but not identical descriptors, it was not assumed by SRG that the same “chemical” was inferred by disparate lists, even if it could be assumed to be “obvious”.
- Endpoint information is organized in separate columns with the following headings: “PBT”, “Carcinogen”, “Reproductive Toxicant” and “Endocrine Disruptor”. A single chemical record may have one or more endpoints.
- The final criteria used to formulate this list was to remove items using the following filters:
 1. Occupations
 2. Industry sectors
 3. Medicines, medicinal/medical/cosmetic uses
 4. Non-chemical (physical) agents
 5. Viruses, infectious biological agents, other biological toxins
 6. Personal use products
 7. Herbal extracts
 8. Food additives
 9. Fuel and fuel processing
- The original intent of the authoritative lists from which Annex B was generated is best served by maintaining generic classes as distinct entries, even in the absence of CASRN.
- TRI reportable chemicals that are not present on Annex B are likely absent as they do not fall into the following categories: PBT, carcinogen, endocrine disruptor, or reproductive toxicant. The missing TRI chemicals will be captured in informative references that address other life cycle impact categories such as acidification, aquatic toxicity, eutrophication, global warming, photochemical smog formation, stratospheric ozone depletion, or terrestrial toxicity.

Annex C - Individual Volatile Organic Chemical (VOC) Concentration Limits

(Updated 4/11/07)

(Normative)

Compound Name	CASRN	MW	CREL	Workstation	Seating	Individual Components	
				Maximum Allowable Conc. ($\mu\text{g}/\text{m}^3$)	Maximum Allowable Conc. ($\mu\text{g}/\text{m}^3$)	Open Plan Maximum Allowable Emission Factor ($\mu\text{g}/\text{m}^2\text{h}$)	Private Office Maximum Allowable Emission Factor ($\mu\text{g}/\text{m}^2\text{h}$)
Ethylbenzene	100-41-4	106.2	Y	1000	500	689	1392
Styrene	100-42-5	104.2	Y	450	225	310	627
p-Xylene	106-42-3	106.2	Y	350	175	241	487
1,4-Dichlorobenzene	106-46-7	147	Y	400	200	276	557
Epichlorohydrin	106-89-8	92.52	Y	1.5	0.75	1.0	2.1
Ethylene Glycol	107-21-1	62.1	Y	200	100	138	278
1-Methoxy-2-propanol (Propylene glycol monomethyl ether)	107-98-2	90.12	Y	3500	1750	2413	4874
Vinyl Acetate	108-05-4	86.1	Y	100	50	68.9	139
m-Xylene	108-38-3	106.2	Y	350	175	241	487
Toluene	108-88-3	92.1	Y	150	75	103	209
Chlorobenzene	108-90-7	112.56	Y	500	250	345	696
Phenol	108-95-2	94.1	Y	100	50	68.9	139
2-Methoxyethanol	109-86-4	76.1	Y	30	15	21	42
Ethylene glycol monomethyl ether acetate	110-49-6	118.13	Y	45	22.5	31	63
n-Hexane	110-54-3	86.2	Y	3500	1750	2413	4874
2-Ethoxyethanol	110-80-5	90.1	Y	35	17.5	24	49
2-Ethoxyethyl acetate	111-15-9	132.2	Y	150	75	103	209
1,4-Dioxane	123-91-1	88.1	Y	1500	750	1034	2089
Tetrachloroethylene	127-18-4	165.8	Y	17.5	8.75	12.1	24.4
Formaldehyde	50-00-0	30.1	Y	16.5	8.25	11	23
Isopropanol	67-63-0	60.1	Y	3500	1750	2413	4874
Chloroform	67-66-3	119.4	Y	150	75	103	209
N,N-Dimethyl Formamide	68-12-2	73.09	Y	40	20	28	56
Benzene	71-43-2	78.1	Y	30	15	21	42
1,1,1-Trichloroethane	71-55-6	133.4	Y	500	250	345	696
Acetaldehyde	75-07-0	44.1	Y	9	4.5	6	13
Methylene Chloride	75-09-2	84.9	Y	200	100	138	278
Carbon Disulfide	75-15-0	76.14	Y	400	200	276	557
Trichloroethylene	79-01-6	131.4	Y	300	150	207	418
1-Methyl-2-Pyrrolidinone	872-50-4	99.13	N	160	80	110	223
Naphthalene	91-20-3	128.2	Y	4.5	2.25	3	6
o-Xylene	95-47-6	106.2	Y	350	175	241	487

Reference: State of CA Department of General Services IFB 55756 – Open Office Panel Systems