

CRYPTON IS GREEN... AND GETTING GREENER.

(Continued from inside)

As an alternative to Greenguard certification, Crypton Green is certified SCS Indoor Advantage™ Gold, which in some cases is more stringent than Greenguard's Indoor Air Quality Standard (*also see Indoor Air Quality 101, pages 20-25, in the Crypton Super Fabrics Guide to Green*).

Q: Can Crypton Green contribute to LEED-CI points or the *Green Guide for Health Care*?

A: While the selection of Crypton Green alone will not garner points, here's how it may contribute to points in LEED-CI credits (Version 2.0) and corresponding credits in the *Green Guide for Health Care*.

01. **Credit MR 3.3, Resource Reuse – 30% Furniture and Furnishings (1 point):** Crypton's long lifecycle (durability, cleanability, and disinfectability) enables the reuse of upholstered furnishings.
02. **Credits MR 4.1 and 4.2, Recycled Content (1 or 2 points):** Many Crypton Fabrics include pre- or post-consumer recycled fibers.
03. **Credit MR 5.2, Regional Materials – 10% Extracted and Manufactured**

Regionally (1 point): Crypton contributes if both the project and manufacturing sites for the upholstered furnishing are within 500 miles of Crypton's facility in Kings Mountain, N.C.

04. **Credit MR 6, Rapidly Renewable Materials (1 point):** Some Crypton fabrics include wool, a rapidly renewable fiber.
05. **Credit EQ 4.5, Low-Emitting Materials, Systems Furniture, and Seating (1 point):** Crypton Green is certified by Scientific Certification Systems to meet Section 01350 emissions requirements, helping furniture manufacturers comply to LEED-CI specifications for systems furniture and seating.
06. **Credits ID 1.1 – 1.4, Innovation in Design (1 to 4 points):** Crypton Green may contribute because of its Cradle™ certification from MBDC and the purchase of renewable energy credits for its production.

Visit www.cryptonfabric.com to download our second edition *Guide to Green Live Clean™ (and Green)*.



Crypton designs and manufactures environmentally responsible performance fabrics and furnishings.

Crypton Green FAQs



Q: What do you have to do to make the claim “Crypton Green”?

- A: Crypton Green fabrics are constructed with **optimized fibers and chemistry**. There are four requirements for creating new collections:
01. Select fiber content that is either:
 - (a) 50-100% recycled
 - (b) 100% heavy-metal-free polyester
 - (c) 100% wool with heavy-metal-free dyes
 - (d) 100% polypropylene
 02. The end-product has to **meet Section 01350 emissions requirements**. **Crypton Green is SCS Indoor Advantage™ Gold-certified**.
 03. All chemical ingredients must be assessed down to 100 parts per million. A third party, such as MBDC, will assess the toxicity and safety of the raw materials. **Environmentally preferable ingredients are used**. Crypton Green is MBDC Cradle to Cradle™ – Silver-certified.
 04. Engineer the fabric to meet the Crypton brand promise – **excellent resistance to abrasion, odor, liquid, and stains** – so that the product is more sustainable. A longer life makes for a better lifecycle.

Q: What makes Crypton’s chemistry green?

- A: Our green formulation is now being applied to all Crypton Fabrics, not just Crypton Green. The new chemistry is green because we have **reduced or eliminated formaldehyde, PFOAs, and halogenated flame retardants, including PBDEs**. All Crypton Super Fabrics have ultra-low or

non-detectable emissions. Crypton resists bacteria, mildew, and odor to extend the life of the fabric without the use of conventional leaching anti-microbials. The Crypton formulation, inventoried down to 100 parts per million, has been assessed and is **Cradle to Cradle™ Silver-certified** by MBDC.

Q: Are all Crypton Fabrics green?

- A: **We are constantly trying to make all of our fabrics increasingly sustainable**. There is no black and white in green, and we recognize there is a Green Spectrum in which some products are more sustainable than others (eg: 100% vs. 50% recycled).

With our initiative to **use green chemistry on all Crypton Fabrics**, we are moving in the right direction. It is more costly to us, but it is the right thing to do.

Crypton Green is a bigger step along the spectrum, because it ensures more **sustainable fibers are used and that the most stringent emissions requirements are met**.

Greening our manufacturing facility is also an important factor in our products’ “greenness.”

Because many factors are involved, and because the variables should be measured to avoid greenwashing, we are actively participating in the development of the Standard for Sustainable Commercial Fabrics. This product standard includes metrics for fiber selection, water, energy, recycling, safety of materials, and social accountability. **In the near future, we will be able to quantify our sustainability.**

Q: What does it mean that Crypton’s manufacturing facility is green?

- A: **Greening a facility is a long-term endeavor**:
01. Some manufacturing practices, such as recycling tubes and fabric scraps, were implemented quickly. Crypton’s manufacturing scrap is recycled into shoddy, an underlayment for carpeting.
 02. Purchasing **renewable energy credits** is an important attribute of sustainability, and it is also relatively easy to do. Crypton will purchase such credits for each yard of Crypton Green produced.
 03. **Outdoor air quality and plant emissions** were addressed by the installation of an air scrubber when the plant was first made operational.
 04. The most meaningful changes have been capital-intensive and costly, but these investments have the **dual benefit of environmental responsibility and reducing manufacturing costs**.
 - » The purchase of our roll packaging machine has **reduced our plastic consumption**.
 - » Most significantly, we have purchased machinery that can apply our chemistry without the use of water. These machines incorporate leapfrog, not evolutionary, technologies. **Today, Crypton’s manufacturing facility uses 40% less water (gal. per lb. of fabric) than in 2003.**
 05. We continue to seek improvements and best practices. **We are committed to participating in the pilot assessment**

for The Standard for Sustainable Commercial Fabrics – which accounts for water and energy consumption.

Q: Can Crypton be recycled?

- A: **Yes**. A common outlet for recycled fabrics is shoddy – used in making carpet padding and rear parcel shelves in cars.

Q: What is MBDC?

- A: McDonough Braungart Design Chemistry – a partnership between William McDonough, an architect and Michael Braungart, a chemist (www.mbdc.com). MBDC’s Cradle to Cradle™ optimization involves the (re)design of products and the selection of materials for healthy, progressively cradle to cradle lifecycles.

Q: What is SCS?

- A: Scientific Certification Systems – (www.scs-certified.com). SCS is an independent, third-party auditor that specializes in **product certifications for environmental and sustainability claims**. The SCS Indoor Advantage™ Gold certification is for building materials, furniture systems, and seating that meet the indoor air emissions criteria of CHPS 01350, the California Indoor Air Quality Specification for Open Panel Office Furniture, and LEED EQ 4.1, 4.2, 4.4, and 4.5.

Q: Does Crypton Green meet Greenguard’s emissions requirements?

- A: **Yes**. Independent third-party emissions testing indicates Crypton Green meets Greenguard’s emissions requirements.

(Continued on back)

FOR FURTHER PRESS INFORMATION:

Call: 1.800.CRYPTON
or visit: www.cryptonfabric.com



Crypton Continues to be Environmentally Mindful

When Crypton says its philosophy is to help people “Live Clean,” it means it. An acknowledged industry leader in ecological mindfulness, Crypton continues to develop greener technologies, processes and products for high-performance textiles. As an innovative company that is celebrated for its better, cleaner, and safer fabric solutions, Crypton regularly charts new frontiers of environmental consciousness.

Crypton’s root system of green initiatives runs deep. Crypton Super Fabric is the only performance fabric with certifications from both Scientific Certification Systems and MBDC. Crypton Green, a combination of optimized chemistry and base cloth requirements, is the first high-performance fabric system to receive both MBDC Silver Cradle-to-Cradle™ and SCS Good Indoor Advantage™ certification. The product of rigorous scientific research and development, it features chemical and raw material improvements that have reduced and/or eliminated the presence of PFOAs and PBDEs. Crypton Green can contribute to points for Leadership in Energy and Environmental Design (LEED) and the Green Guide for Health Care. Areas of contribution to LEED-CI (Commercial Interiors) points include Resource Reuse, Recycled Content or Rapidly Renewable Materials, and Low-Emitting Materials. And since all Crypton Super Fabrics use Crypton Green’s new, optimized chemistry for stain, liquid, bacteria and odor resistance to provide superior durability, cleanability, odor resistance, and liquid permeability, they extend the useful life of furniture and contribute to the effective use of resources.

Crypton is a longtime practitioner of the three “R”s: recycle, reduce and reuse. With Sterling Planet, the sustainability pioneer and innovative supplier of renewable energy, energy efficiency and low-carbon solution, Crypton continues to significantly reduce its energy consumption and its carbon footprint. The effects are measurable and certified by Sterling Planet: carbon-neutral renewable energy sources, including solar power, in Crypton’s state-of-the-art North Carolina-based plant have trimmed its environmental footprint with CO₂ offsets of 148 metric tons. Think of it this way: that’s 32 passenger cars not driven for one year, or 123 acres of pine or fir forests storing carbon for one year, or 50 tons of waste recycled instead of buried in landfills, or 344 barrels of oil not combusted. Crypton’s savings in energy consumption are just as big: Sterling Planet certified a savings of 223,000 kilowatt-hours. That’s 303,949 pounds of CO₂ not off-gassed, or 30 passenger cars not driven for a year, or 18 households worth of electricity not used for a year, or 115 acres of pine or fir forests holding a year’s worth of CO₂, or 46 tons of waste recycled rather than dumped.

Crypton’s latest effort to up the ante on responsible corporate citizenship is InCase powered by Crypton, which features the company’s next-generation Evergreen Technology. This scientifically advanced production method reduces the level of fluorine in the formulas and requires less chemistry overall. Due to become industry standard by 2015, the chemistry used by InCase is the first with no detectable PFOA (Perfluorooctanic Acid). Certified both SCS Indoor Advantage and MBDC Cradle-to-Cradle, InCase is extremely wash-durable—and its greener processes help conserve natural resources via reduced water use. Crypton is investing a percentage of InCase sales to the installation of additional renewable energy and carbon offsetting projects.

Crypton Disinfectant and Deodorizer is a proprietary non-toxic cleaning formula with environmentally preferable chemistry. When used on Crypton fabrics, it creates the world's first and only disinfectable fabric system approved by the EPA. Crypton Disinfectant and Deodorizer prevents the growth of over 48 bacteria and viruses — including HIV, the Avian Flu virus, mold, and mildew. Crypton Care is the only dedicated line of upholstery cleaners on the market.

Dedication to research and development is an essential part of Crypton; so is using the most ecologically intelligent processes that current technology and chemistry allow.

Crypton Super Fabrics guarantee the greenest, cleanest approach to performance fabrics in the market today. Using its patented technology for 15 years in the world of contract, healthcare and hospitality upholstery design, the incredibly durable and cleanable Crypton permanently stands up to moisture, stains, odors and bacteria. Crypton's mess-free, stress-free fabric makes its way into the consumer market in 2008. With a growing collection of new and innovative products, Crypton Super Fabrics empower everyone with the freedom to Live Clean. For more information, visit www.cryptonfabric.com.

For more information regarding Crypton or any of its products, please call 1.800.CRYPTON.

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Crypton Introduces Revolutionary InCase Fabric Protection

West Bloomfield, MI – When it comes to protecting fabrics from the messy stuff of life, now there's InCase™ Fabric Protection powered by Crypton.® This certified-green treatment improves fabric performance by a quantum leap, thanks to a revolutionary new process and custom chemistry that's end-use specific for hospitality, healthcare, contract and residential interiors: think cubicle curtains, task seating, drapery, bed coverings, sheets, etc. Spill, stain, odor and microbe-resistant, InCase offers superior cleanability to fabrics made of wool, cotton, rayon, acrylic, polyester and more.

InCase is the go-to option when optimal fabric performance is a must but the full-scale Crypton barrier system isn't. Specifically formulated for each type of fabric and its end use, InCase enhances everything it touches, everywhere. It inhibits static buildup. It increases the wrinkle resistance of sheets. It meets flammability standards without halogenated flame-retardants. And with Crypton's exclusive new Evergreen Technology, InCase does all of this while maintaining the original hand of the fabric.

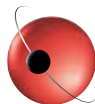
Crypton's scientifically advanced Evergreen Technology reduces the level of fluorine in the formulas and, because of its unique aligned polymer network, requires less chemistry overall. As a next-generation of green chemistry is due to become industry standard by 2015, InCase is the first fabric protection with no detectable PFOAs (Perfluorooctanic Acid), a common byproduct that can be found in some stain resistant products. Engineered to withstand the most rigorous environments, InCase is extremely wash-durable—and its all-new, greener processes help conserve natural resources via reduced water use.

InCase performs for the full life of the fabric without affecting its ultimate recyclability, thanks to that newly developed molecular bond strength. Given the specialized chemistry involved, InCase requires customized production techniques and formulations for each end-use application. Textiles intended for task seating, top of bed, sheeting, cubicle curtains and draperies are all handled and treated differently.

InCase Fabric Protection has received both SCS Indoor Advantage and MBDC Cradle-to-Cradle certifications. With aspirations to be ever greener, Crypton is now working with Sterling Planet, the sustainability pioneer and innovative supplier of renewable energy, energy efficiency and low-carbon solutions. The collaboration has helped Crypton reduce its environmental footprint significantly thanks to the implementation of carbon-neutral renewable energy sources, including solar power, in its state-of-the-art North Carolina-based plant, where the company applies InCase. Crypton is investing a percentage of InCase sales to the installation of additional renewable energy and carbon offsetting projects.

Crypton Super Fabrics guarantee the greenest, cleanest approach to performance fabrics in the market today. Using its patented technology for 15 years in the world of contract, healthcare and hospitality upholstery design, the incredibly durable and cleanable Crypton permanently stands up to moisture, stains, odors and bacteria. Crypton's mess-free, stress-free fabric makes its way into the consumer market in 2008. With a growing collection of new and innovative products, Crypton Super Fabrics empower everyone with the freedom to Live Clean™. For more information, visit www.cryptonfabric.com.

For more information regarding Crypton or any of its products, please call 1.800.CRYPTON.



**CRYPTON SUPER FABRICS
GUIDE TO GREEN.**

LIVE CLEAN™ (AND GREEN).

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Our Mission

At Crypton, we believe that our lives are interconnected with our community and environment, and that the world we live in is of our own making. Our green initiative is a journey, with the ongoing goal of making our environmental footprint smaller and smaller, and offering more and more responsible choices for the consumer.

01. We design and manufacture environmentally responsible, hard-working, and beautiful products that give our customers and end users an environmentally responsible choice.
02. We recognize that we're part of both a local and a global community.
03. We value our associates, our vendors, and our customers and are dedicated to the ongoing optimization of the sustainable attributes of our products and processes.
04. We believe in the transparency of information and are committed to sharing our test methodologies and data.
05. We believe in making informed choices that will improve our environmental footprint. We are dedicated to a program of constant improvement.
06. We seek a leadership role in the industries we serve.

The Green Spectrum

There is no black and white
in green...

In fact, when it comes to green products there are shades, or degrees, of green, which we refer to as the Green Spectrum. Using this Green Spectrum as our guide, we are committed to reaching the pinnacle of the continuum of sustainable fabrics.

When we published the first edition of our *Green Guide* in June 2006, there were no governing bodies to tell us what was green or not. As a result, we established our own systems and procedures that would move all of our products and practices forward along the Green Spectrum. These practices include third-party certifications, fiber content requirements, and raw material evaluations, all with the ongoing commitment to move towards more responsible practices and products.

For this second edition we are happy to report that there is now an effort within the textile industry to **establish voluntary universal environmental protocols**. We are working closely with the Association of Contract Textiles (ACT), Greenblue, and NSF, a standards writing organization, to develop a set of metrics that will establish a quantifiable value system for fabrics that is increasingly sustainable. The end result will be an American National Standards Institute (ANSI) standard.

We are happy to report that since Crypton Green's introduction in June 2006, there have been dozens of approved fabric constructions and hundreds of designs launched under our newly established moniker. **All Crypton Green Fabrics, no matter what the construction and/or pattern, are documented, audited, and third-party tested and certified.**



Advancing the Green Spectrum

GREENER FABRIC CHOICES USING A SYSTEM YOU CAN TRUST

Crypton Green collections are developed using a unique, highly demanding system of analysis, engineering, and testing. The key components of the system include:

- » **Fiber** – All fibers used must be selected from **environmentally preferable** choices.
- » All fabric ingredients – not just the fiber or backing – are analyzed for human and ecological safety. Third-party assessors, such as McDonough Braungart Design Chemistry (MBDC), assess and rate every chemical constituent for human and environmental health. Crypton Green is **MBDC Cradle to Cradle™ Certified – Silver**.
- » Every fabric construction and its precursors are tested by an independent lab for emissions and must meet the most stringent requirement in the U.S. The final fabric is certified by **Scientific Certification Systems (SCS) for Gold Indoor Advantage™**.

- » All new fabric submissions for the Crypton Green program must fulfill **Crypton's brand promise for durability and guaranteed resistance to moisture, stain, odor, bacteria, and fungus**. After all, having fabric that will stand up to the test of time is a critical element of sustainability.

Crypton Green's rigorous process clearly sets it apart from competitors. Other products may only certify a portion of the fabric's ingredients, like a finish or film, or claim that all fabrics are certified for emissions when only a few fabric constructions are actually tested. With each and every Crypton Green pattern, every fabric construction – including fiber type, yarn type, fabric-formation method, dyeing method, processing route, and dyestuff – is third-party assessed, tested, and certified.

NO OTHER
high performance fabric
lives up to Crypton Green's
environmental requirements.

Advancing All Crypton Along the Green Spectrum

Committed to moving Crypton forward along the Green Spectrum, we strive to create cleaner, greener products and practices.

For this reason, all Crypton products, not just Crypton Green, are environmentally preferable.

Product Attribute	Crypton Super Fabrics	
Superior formulations for stain, moisture, bacteria, and odor resistance – sustainable beauty	•	•
Green chemistry with ultra-low emissions	•	•
Elimination or reduction of halogenated FRs (including PBDEs), PFOAs, and formaldehyde	•	•
Contributes to LEED-CI points	possible	•
Environmentally preferable fiber choices	possible	•
MBDC Silver Cradle to Cradle™ certification		•
SCS Gold Indoor Advantage™ certification		•
Tested and certified to meet Section 01350 and BIFMA X7 emissions standards		•
Purchase of renewable energy certificates		•

Greener Fiber Choices

The initial Crypton Green collections included either: (a) 50-100% recycled fiber (including “wide-spec chip”); or (b) 100% heavy-metal-free polyester. It is a natural progression for the environmentally preferable fiber options to be expanded now to include; (c) 100% wool-dyed with heavy-metal-free dyes; and (d) 100% polypropylene.

Crypton Fiber Choices include:

- » **50-100% Recycled Fiber or “Wide-Spec Chip”**
“Wide-spec chip,” pre-consumer waste, and post-consumer waste have been widely accepted as progressively sustainable fiber choices.

The most widely used fiber has been “wide-spec chip.” This is a polyester chip that comes from molten polymer that is in the pipeline during the transition from producing polymers with different characteristics, mainly luster changes. When combined with tight manufacturing tolerances at dyeing, **this “transitional” chip allows the supply chain to maximize the value of waste.**

- » **100% Heavy-Metal-Free Polyester**
Antimony is a heavy-metal catalyst used in the polymerization process of polyester (PET). It is possible for a very small amount of antimony to be released from the fiber during dyeing. Dyed polyester made with conventional catalysts is widely regarded as a safe product with minimal environmental impact. Indeed, only **a very small portion of polyester is made without the use of antimony...** but we’d like to see this percentage grow.

Greener Chemistry

» **NEW: 100% Wool with Heavy-Metal-Free Dyes**
Even with all the incredible polymers developed in the 20th century, no fiber has matched wool's combination of resilience, moisture management, flame resistance, and odor-reduction properties. And, of course, since it's wool **it's rapidly renewable.**

» **NEW: 100% Polypropylene**
For certain end uses, particularly those with high UV exposure (outdoors), polypropylene is a terrific, green choice. Here's why:

- » It takes about **35% less fiber weight** to get the same amount of fabric coverage compared to polyester because of its lower specific gravity (mass divided by volume).
- » According to Plastics Europe, an association of plastics manufacturers, the fiber production of **polypropylene consumes 9% and 39% less energy** than the manufacture of polyester and nylon, respectively. And polypropylene's melting point requires the fabric to be thermally processed at lower temperatures, **reducing the consumption of natural gas.**

» Polypropylene is inherently hydrophobic (dislikes water-based liquids and stains) and lyophobic (attracted to oil-based liquids). But no worries... Crypton's **hydrophobic and lyophobic chemistry is resistant to both water and oil-based stains,** overcoming polypropylene's natural affinity to oils.

Elimination of Halogenated Flame Retardants

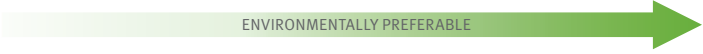
Crypton Green and conventional Crypton are made without the use of halogenated flame retardants (FRs). Halogenated FRs most commonly include brominated and chlorinated compounds, meaning bromine and chlorine atoms make up part of the molecular structure. Because of health concerns, certain forms of halogenated FRs have been banned in the U.S. and/or Europe. Some forms, including the deca- form of polybrominated diphenyl ethers (PBDEs) have not been banned, but remain a concern to some states and environmental groups. To ensure Crypton Green uses the safest, greenest chemistry possible, **Crypton Green and conventional Crypton do not contain any PBDEs or other forms of halogenated FRs.**

The Green Spectrum

**USING THE GREEN SPECTRUM AS OUR GUIDE,
CRYPTON CONTINUES TO MOVE FORWARD
TOWARD REACHING ITS GOAL OF TOTALLY
SUSTAINABLE FABRICS.**

- 2003** We installed systems for reducing our consumption of water, energy, and packaging materials.
- 2006** We virtually eliminated formaldehyde, PFOAs, and PBDEs in Crypton Green. Additionally, we installed a system that minimizes packaging materials.
- 2007** We transitioned virtually all Crypton Fabrics, not just Crypton Green, to our new low-emitting, optimized formulations, eliminating halogenated flame retardants in the process.
- 2008** We are expanding fiber choices for Crypton Green.

Deadly	Potentially Harmful	Neutral	
<p data-bbox="609 528 776 591">Toxic Air Pollutants Carcinogens</p>			



Getting Started	Significant Steps Forward	Green(er)	Nirvana
<p>Crypton 2003 – 2007</p> <ul style="list-style-type: none"> » No PVCs or CFCs » Manufacturing process and practice changes (emissions control, recycle waste) » Chemistry research In 2006, formulations were finalized and certifications were obtained » Passed quality systems audit » Cost neutral 	<p>Transitioning production to green chemistry</p> <ul style="list-style-type: none"> » Low emissions » Reduced or eliminated formaldehyde, PFOAs, and halogenated FRs, including PBDEs » No recycled content requirement, allowing more styling flexibility » No performance sacrifice » Cost neutral 	<p>Crypton Green introduced in 2006</p> <ul style="list-style-type: none"> » MBDC Silver-certified or alternative » SCS Gold certification » 50-100% recycled fiber » Heavy-metal-free polyester » 100% wool with heavy-metal-free dyes » 100% polypropylene » Contributes to LEED-CI points » Emissions meets section 01350 » No performance sacrifice <p style="text-align: center;"> 50% Post-industrial recycled fiber 100% Post-industrial recycled fiber Combination of post-industrial and post-consumer recycled fiber </p>	<p>Crypton Goals</p> <ul style="list-style-type: none"> » EPA Design for the Environment partnership » MBDC Platinum certification » SCS Gold certification » All materials derived from renewable energy sources, no heavy-metal catalysts » Solution dye with eco-friendly pigments » 100% post-consumer recycled content or bio-based » No organohalogens » No sacrifice in performance or aesthetics » End product is recovered and recycled » Cost neutral

10 Things You Should Know About Crypton Green

Crypton Green is a third-party-certified, high-performance upholstery fabric with a reduced environmental impact and all the performance characteristics of Crypton Super Fabrics.

01. **Gold Indoor Advantage™**-certified by Scientific Certification Systems
 - » Passes third-party emissions testing
 - » Documented and audited quality system
02. **Optimized raw materials** using third-party assessment: **Silver Cradle-to-Cradle™** certified by **MBDC**
 - » Materials assessed for human and environmental health
 - » Reformulated chemistry using environmentally preferable materials
 - » Adopted strategy for renewable energy credits and water stewardship
03. **Contributes to points for LEED-CI** and the Green Guide for Health Care. Opportunities include:**
 - » Credits MR 1.2 and 1.3, Building Reuse (1 or 2 points)
 - » Credits MR 4.1 and 4.2, Recycled Content (1 or 2 points)
 - » Credit EQ 4.5, Low-Emitting Materials, Systems Furniture, and Seating (1 point)
 - » Credits MR 5.1, Regional Materials (1 point)
 - » Credit ID 1.1, Innovation in Design (1 point)
04. **Maintains all of Crypton's performance features**, extending the useful life of furniture
05. **Reduced or eliminated** formaldehyde, PFOAs, halogenated FRs, including PBDEs
06. Complies to the **Collaborative for High-Performance Schools' Section 01350** – Special Environmental Requirements
07. **Complies to BIFMA X7** (Standard for Formaldehyde and TVOC Emissions of Low-Emitting Office Furniture Systems and Seating)
08. **Surpasses Greenguard's Indoor Air Quality requirements**
09. **Includes sustainable, recyclable fibers.** Options include:
 - » 50 -100% recycled fiber, including wide-spec chip
 - » Heavy-metal-free polyester
 - » Wool with heavy-metal-free dyes
 - » Polypropylene
10. **While Crypton Green is a significant advancement, our journey will never end. Crypton is committed to a leadership role in the use of green materials, processes, and practices.**

**MBDC is an approved assessor of Crypton Green chemistry. Other assessors and additional forms of raw material evaluations are under consideration.

**LEED-CI stands for Leadership in Energy and Environmental Design for Commercial Interiors.



Sustainability Metrics for Commercial Fabrics

As mentioned, Crypton is working with the Association of Contract Textiles (ACT) to develop a set of metrics that will establish a **quantifiable value system** for fabrics that are increasingly sustainable – this value system will be called the Sustainable Assessment Standard for Commercial Furnishings Fabrics.

The Standard is entirely voluntary. Because of cost reasons, not all fabrics that could obtain certification will be certified. The important thing is to become informed about ways of measuring sustainability, and ask questions according to your own value system.

The **Sustainable Assessment Standard for Commercial Furnishings Fabrics** are standards for the finished commercial furnishing fabric, not a certification for manufacturers. It awards points for the following sustainability parameters:

- » **Fiber Sourcing** rewards the selection of fibers that may provide additional environmental benefits such as: (a) reducing the use of long-cycle and non-renewable materials; and (b) reducing the impact of heavy metals.
- » **Safety of Materials** promotes the use of chemical formulations with low inherent hazard and awards points to fabrics that meet the Section 01350 emissions specification. By reducing the inherent hazards of chemical inputs, the manufacturers will proactively reduce the overall human and environmental health and safety risk

of their products. The intent is to cover all chemicals that may end up in or on the fabric and in manufacturing effluence.

- » **Water and Energy** sections promote conservation practices as well as address water quality. Points are awarded for documenting the current state, making improvements, and monitoring progress.
- » **Reduction, Reuse, and Recycling Practices in Manufacturing** encourages and rewards practices that reduce the environmental impact of production waste. Manufacturing processes for polymer chip, fiber, yarn, and fabric are included.
- » **Social Accountability** intends to protect the fundamental human rights of people engaged in the manufacture of textiles and to encourage improved working conditions. Metrics for this section are derived from commonly recognized international social certification programs and widely accepted International Labor Organization (ILO) conventions.
- » **Certification Levels**—The three levels of product certification are Silver, Gold, and Platinum, and two types of points – pre-requisite and optional – are awarded.

The number of points awarded and the use of certification levels is subject to change. Version 1.0 is likely to be finalized in 2008.

Our Results – The Product

How We Measure Up

Crypton is engaged in the Standards piloting program. Shown here are some of Crypton Green's measurable aspects of sustainability. Our results are evident in the product as well as the process.

Fiber Sourcing

Many or all of Crypton Green's fiber options will garner points within the upcoming Standard. Crypton Green's fiber options are as follows:

- » 50-100% pre-consumer recycled fiber
- » 50-100% post-consumer recycled fiber
- » 100% heavy-metal-free polyester
- New in 2008:**
- » 100% polypropylene
- New in 2008:**
- » 100% wool dyed with heavy-metal-free dyes
 - » Rapidly renewable content
 - » Organic
 - » Transitional / in-conversion organic
 - » Integrated pest management

Safety of Materials

The standard and MBDC's protocol are similar in that a manufacturer must: (a) account for all chemical constituents; and (b) identify those that are on certain organizations' lists of substances of concern. The Standard awards points for the accounting of ingredients down to 1,000 parts per million (ppm) and twice the number of points for inventorying at 100 ppm.

Following multiple formulation changes, *Crypton Green* achieved MBDC's Silver Cradle to Cradle™ certification. We are working toward a Gold level, continually researching alternatives to fluorine chemistry for oil resistance.

The human and environmental health aspects that are addressed by MBDC and the sustainability standard include the following criteria:

» Human Health

Carcinogenicity	Acute Toxicity
Endocrine Disruption	Chronic Toxicity
Mutagenicity	Irritation
Reproductive Toxicity/ Teratogenicity	Sensitization

» Environmental Health

Fish Toxicity	Bioaccumulation
Algae Toxicity	Content of Organohalogens
Daphnia Toxicity	Content of Heavy Metals
Persistence	Ozone Depletion

Emissions


One aspect that sets Crypton Green apart is that each and every fabric construction (combination of fiber, yarn, fabric type, dyeing, and processing route) is tested.

Our Results – The Product (continued)

Crypton Green's emissions surpass or comply with all third party specifications, of which [Section 01350](#), a requirement of the Collaborative for High-Performance Schools (CHPS) is amongst the **most stringent**. Crypton Green Fabrics are tested by an independent lab according to Section 01350, and the results are reviewed by [Scientific Certification Systems](#). **Crypton Green is Gold certified**. Section 01350 is also the basis for the Standard's emission specification and is very similar to Greenguard's Children and Schools program.

THIS TABLE COMPARES CRYPTON GREEN'S EMISSIONS TO THIRD PARTY SPECIFICATIONS. KEY RESULTS INCLUDE:

- » Crypton Green was tested using the two most common protocols.
- » Crypton Green's Total VOCs (volatile organic compounds) was 41 micrograms per cubic meter or less, compared to LEED's and BIFMA's maximum specification of 250 units.
- » Emissions of formaldehyde ranged from non-detectable to 9.1 micrograms per cubic meter, compared to the most stringent requirement of 16.5 units maximum.
- » For all other VOCs, Crypton Green did not exceed any Chronic Reference Exposure Levels (CRELs) – considered safe by the California EPA. "Indoor Air Quality 101" provides a detailed overview of product emissions, including causes, regulations, and levels that are deemed safe, and references for further investigation.

Actual Results		
Parameters		
Product category and level of certification	Upholstery	
Quality system audit by third party	SCS, completed on-site audit, 6/2/2006	
Retesting	1x / year	
Test protocols	CA/DHS/ EHLB/R 174 for small chamber; ASTM D5116 (14-day test)	BIFMA M7.1-2005 (7-day test)
Total VOCs	≤ 33 µg/m³	≤ 41 µg/m³
Formaldehyde	≤ 7.7 µg/m³ (7 ppb)	≤ 9.1 µg/m³ (8 ppb)
Other individual toxic air contaminants/VOCs	No others with chronic RELs	

*For chart resources, please see page 40.

Crypton Green Emissions Performance

Third-Party Specifications

	BIFMA X7. 1-2005	Greenguard Indoor Air Quality Certified	LEED-CI Version 2.0, Update June 2005	MBDC Cradle-to-Cradle™ Certification	Scientific Certification Systems (SCS) Indoor Advantage™
	Low-emitting Seating	Textiles	Low-emitting materials, seating	Interior Products – Gold or Platinum certification	Furniture and seating Gold certification
	Not required	On-site manufacturing review by approved indoor air quality lab	Not required	Not required	On-site audit
	≤ 3 years	4 x / year	≤ 2 years	change in formula or supplier	1 x / year
	BIFMA M7.1-2005 testing VOC emissions from office seating (7-day test)	ASTM standards D-5116-97 for small chamber and D-6670-01 for large chamber (4-day test)	U.S. EPA ETV large chamber test for emissions of VOCs and aldehydes	ASTM D-5116 for small chamber; ASTM D6670 for large chamber	ASTM D-5116 for small chamber; ASTM D6670 for large chamber; CA/DHS/EHLB/R-174 BIFMA M7.1
	≤ 250 µg/m ³	≤ 500 µg/m ³	≤ 250 µg/m ³	≤ 500 µg/m ³	Max 250 – 500 µg/m ³
	≤ 25 ppb	≤ 50 ppb	≤ 25 ppb	**	≤ 16.5 µg/m ³ (13 ppb)
	—	≤ 0.1 TLV*	—	≤ 0.1 TLV or MAK values (whichever is lower)**	≤ 1/2 chronic REL***

Our Results – The Process

Water

We have adopted The Hanover Principles: Design for Sustainability – Water, which guides our facility’s efforts to **protect and preserve the quality and supply of water resources.**

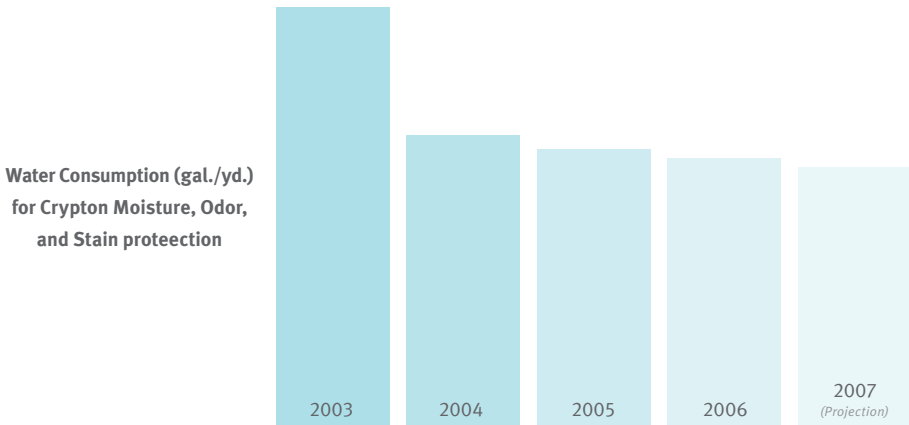
WATER CONSUMPTION

By making capital improvements in 2003 at our manufacturing facility in Kings Mountain, NC, Crypton has been able to **reduce water consumption (gal./yd.) by 40%.** The full impact of changes was recognized in 2004, and since then Crypton has maintained its progress. A capital project was completed in Fall 2007 that will result in further reductions.

The sustainable fabrics standard awards points for water conservation in a variety of ways. For example, points are awarded when a manufacturer demonstrates a 10% reduction in four of the past five years. Although the consumption of water for package dyeing yarns or piece dyeing fabrics will vary from style to style, **Crypton’s reductions will increase a fabric’s likelihood of certification.**

WATER QUALITY

There are prerequisite and optional points awarded for monitoring effluence, including the presence of heavy metals, temperature, pH, and biological oxygen demand. Crypton does not discharge effluence to open waters and complies with all federal and state regulations. At a minimum, Crypton will fulfill the final Standard’s requirements.





Our Results – The Process (continued)

Energy

In 2004, the U.S. and global energy consumptions were 100 and 447 quadrillion BTU, respectively. The Energy Information Administration projects global demand to increase to over 700 quadrillion by 2030, a 57% increase in less than 30 years. Just as U.S. consumption increased as it industrialized in the 20th century, the world's demand for energy is climbing rapidly, with no end in sight. With this knowledge in hand, the question is not "how do we stifle the growth of developing countries"; rather, the question is "how do we fulfill needs without depleting our planet of its resources?"

One answer is renewable energy.

ENERGY CONSUMPTION

We characterized our energy use and sources for products manufactured. For the portion of energy consumed to produce Crypton Green, we will purchase Green e-certified renewable energy certificates.

Our Green e-certified purchases will help fund the expansion of renewable energy sources.

In addition to obtaining points for reporting energy consumption, Crypton Green will receive points for the purchase of renewable energy. In 2007 we will complete a capital project that will result in reductions of our energy and water usages, highlighting our ongoing commitment to a reduced environmental footprint.

Reduction, Reuse, and Recycling Practices

Crypton is making positive contributions by conserving process and product inputs. All tubes are reused and scrap fabric is sold to recyclers. At the time of printing, the sustainable fabrics standard recognizes several practices that will apply to some or all Crypton Fabrics, including the following:

- » **Documenting manufacturing waste**
- » **Selling waste to a recycler**
- » **Recycling process materials such as tubes, pallets, and containers**
- » **Depending on the fiber content and source:**
 - » Using transitional ("wide-spec") chip
 - » Recycling pre-consumer fiber and yarn waste into new fiber
 - » Recycling textile waste into new fiber
- » **Depending on the backing being specified as "polyester"**
 - » Use of "polyester" backing with polyester fibers
- » **Depending on the distribution channel:**
 - » Providing Manufacturing for Disassembly guidelines
 - » Recycling fabric as part of a buy-back or take-back program

The Truth About 100% “Polyester” Barrier Fabrics

Are Crypton Super Fabrics and Crypton Green recyclable?

Yes. Practically any fabric can be “downcycled” by garneting/shredding the material and including the scraps in shoddy, a product used for carpet underlayment and sound absorption. With this form of recycling, the material takes on an increasingly less valuable form.

Some fabric finishers are overstating the recyclability of their fabrics that have “polyester” backings. They claim or imply that by applying a “polyester” back coating or by adhering a co-polyester film to polyester fabrics, the end-product is more recyclable than Crypton. The shortcoming of these 100% “polyester” products is that no company has demonstrated the compatibility between the different types of polyester fibers and backings at the extrusion process.

- » In the case of polyester films, co-polyesters with lower melting temperatures and different melt-flow properties are typically used. This polymeric difference between film and fiber may prohibit first quality fiber extrusion. The adhesive may be an altogether different polymer.
- » In the case of “polyester” back coating, this term has been used loosely by finishers to describe polyester-based polyurethane coatings. Such coatings are only partially polyester, and are thermoset, not thermoplastic, meaning they cannot be re-melted. If it cannot be re-melted it certainly cannot be re-extruded.

RECYCLING FABRICS INTO PRODUCTS OF EQUIVALENT VALUE IS A VALID GOAL. THAT’S WHY WE ARE WORKING WITH THE WORLD’S BEST TEXTILE UNIVERSITIES TO DEVELOP AND DEMONSTRATE SUCH A PRODUCT, A PRODUCT THAT SATISFIES THE SPIRIT OF OUR INITIATIVE AND NOT ONE THAT JUST WINS POINTS.

Social Responsibility

Crypton, Inc. has established publicly available corporate ethics and fair labor statement(s):

- » We are dedicated to the health, well-being, and professional development of our associates.
- » We believe that an open dialogue with associates is critical.
- » We believe in sharing our success with our associates.
- » We are dedicated to being good neighbors.
- » We are proud to be a U.S.-based textile supplier.
- » We treat our customers as partners and our competitors as worthy opponents.
- » We believe in the transparency of information.
- » We are proud to be part of the global design community.
- » Crypton Fabrics will achieve all prerequisite and many of the optional points in the Social Accountability portion of Sustainability Assessment Standard.

Indoor Air Quality 101

Why Is Indoor Air Quality So Important?

It's as important as the air you breathe, what your children breathe, and what your customers breathe.

Some World Health Organization experts estimate up to 30 percent of new or remodeled commercial buildings may have poor indoor air quality, causing unusually high rates of health and comfort complaints by occupants. [The U.S. EPA ranks indoor air pollution among the top five environmental risks to human health.](#)

The effects of exposure to indoor air pollutants can be debilitating or temporary, such as sneezing, irritation of the eyes, nose, and throat, headaches, shortness of breath, dizziness, fatigue, and digestive problems. Exposure to some toxic substances can cause cancer, birth defects, neurological damage, immunity system damage, and fatality.

Children, the elderly, and those with breathing problems, allergies, and lung diseases are particularly susceptible to indoor air pollutants. The degree to which a toxic air pollutant affects a person's health depends on many factors, including his health and susceptibility, the quantity of pollutant, the duration and frequency of exposures, and chemical toxicity.

Three Conditions That Cause Indoor Air Problems

Poor indoor air is caused by the presence of **pollutant sources** (biological contaminants or VOCs), inadequate **ventilation** for a given area, and levels of **temperature and humidity** that can increase concentrations of some pollutants.

Pollutant Sources

Indoor pollutants include tobacco smoke, biological contaminants, and volatile organic compounds (VOCs), including formaldehyde. Other sources are building materials ranging from wet carpet to pressed wood products, asbestos from insulation and fire-retardant building supplies, contaminated central heating and cooling systems, and outdoor air pollution.

Biological Contaminants

Biological contaminants include bacteria, molds, mildew, viruses, animal dander, dust mites, cockroaches, and pollen. Contaminated central air handling systems can become breeding grounds for mold, mildew, and other sources of biological contaminants and can then distribute contaminants. Excessive relative humidity in carpet and fabrics can lead to dust mite infestation and mildew (mildew is mold that grows on fabrics).

Volatile Organic Compounds

Molecular compounds that contain carbon and vaporize at room temperature are known as volatile organic compounds (VOCs). VOCs can be emitted from solid or liquid sources. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors.

How Does This Relate to Commercial Fabrics?

The use of coatings and resins in some fabrics results in formaldehyde being one of the most likely pollutants in fabrics.

What Is Formaldehyde and What Are Its Sources?

Formaldehyde is a colorless, flammable gas with a pungent, irritating odor. It is used widely by manufacturers of building materials and numerous household products. Formaldehyde is also a by-product of combustion and certain other natural processes, and is present both indoors and outdoors. The U.S. government lists formaldehyde as a hazardous air pollutant and a probable human carcinogen. The Air Resources Board of California classifies formaldehyde as a toxic air contaminant.

Formaldehyde can undergo a variety of chemical reactions in commercial processes. Indoor sources include building materials, clothing, furniture, draperies, paper products, fingernail hardeners, and burning cigarettes. It is used to add permanent-press qualities to clothing and draperies, as a component of glues and adhesives, and as a preservative in some paints and coating products.

If Products Are Emitting Air Contaminants, What Levels Are Considered Safe?

“The Inside Story: A Guide to Indoor Air Quality,” from the U.S. EPA and Consumer Product Safety Commission, reports that “While pollutants commonly found in indoor air are responsible for many harmful effects, there is considerable uncertainty about what concentrations or periods of exposure are necessary to produce specific health problems. People also react very differently to exposure to indoor air pollutants. Further research is needed to better understand which health effects occur after exposure to the average pollutant concentrations found in homes and which occur from the higher concentrations that occur for short periods of time.”

However, the California EPA has vigorously exercised its prerogative, as allowed by the Federal Clean Air Act, section 116, to adopt additional or more stringent air quality standards than the federal EPA. In an effort to quantify safe levels of exposure, the California EPA, Office of Environmental Health Hazard Assessment (OEHHA) has published **Chronic Reference Exposure Levels (CRELs)** for select air pollutants. According to the OEHHA, a CREL is an airborne concentration level that would pose no significant health risk to individuals indefinitely exposed to that level. They are based solely on health considerations and are developed from data in the scientific literature. The OEHHA reports all toxic air contaminants and their corresponding CRELs at www.oehha.ca.gov/air/chronic_rels/AllChrels.html.

Indoor Air Quality 101 (continued)

NOTE: CRELs are considered safe levels of exposure, not regulations for the emissions from building materials.

Are There Specifications for Indoor Emissions of Buildings, Furnishings, and Materials?

While there are ambient (outdoor) air quality standards for pollutants (e.g. ozone, carbon monoxide, etc.), there are no federal regulations for VOCs in non-industrial settings. The California Air Resources Board's (CARB's) report on indoor air pollution notes that there is no comprehensive program to protect air quality within commercial, public, and residential buildings.

Examples of these organizations include, but are not limited to:

- » U.S. Green Building Council – Leadership in Energy and Environmental Design (LEED)
- » BIFMA – X7.1-2005
- » Collaborative for High-Performance Schools (CHPS)
- » MBDC Cradle-to-Cradle™ Certification
- » Scientific Certification Systems Indoor Advantage™
- » Greenguard® Indoor Air Quality Certified
- » U.S. EPA's Design for the Environment Partnership Program

THE REGULATION OF INDOOR EMISSIONS IS, IN EFFECT, A MARKET-BASED SYSTEM. IT IS DEPENDENT UPON KNOWLEDGEABLE BUYERS REWARDING PROACTIVE MANUFACTURERS BY PURCHASING LOW-EMISSION PRODUCTS.

As a means of encouraging and acknowledging architects, builders, and material manufacturers that seek or produce environmentally preferable solutions, a number of third-party certifiers have established voluntary certification standards. Some certifiers are not-for-profit organizations and some are for-profit.

SECTION 01350 AND THE COLLABORATIVE FOR HIGH-PERFORMANCE SCHOOLS (CHPS)

According to the California Department of Health Services, *Special Environmental Requirements, Specification Section 01350* is the only health-based building material specification. While it is not a federal regulation, it is California's benchmark environmental specification for procuring open office furniture systems. It was first issued in December 2000, and includes emissions test procedures, maximum specifications for select VOCs, and recycled content requirements. Section 01350 is incorporated in California's Department of General Services' Standard Agreement for all professional architectural and engineering services and was adopted by the Collaborative for High-Performance Schools (CHPS).

The goal of the Collaborative for High-Performance Schools (CHPS, pronounced “chips”) is to facilitate the design of high-performance schools, environments that are not only energy efficient, but also healthy, comfortable, well-lit, and contain the amenities needed for a quality education. CHPS consists of members from a broad range of government, private industry, and non-profit organizations.

CHPS uses a points system, similar to but not interchangeable with LEED. The more points a building earns, the better it is, but a minimum score of 28 points is required. Design teams must document compliance and submit a report to CHPS. **Up to 4 points are awarded for specifying materials that comply to Section 01350 – Special Environmental Requirements.**

Section 01350 requires the identification of chemicals of concern, including those with Chronic Reference Exposure Levels (CRELs) and chemicals listed as: a) probable or known carcinogens; or b) reproductive toxicants. Section 01350 stipulates that no material's emissions may exceed half of the CREL established for each pollutant, with the exception of formaldehyde. **A CREL is a level of exposure that is likely to not cause any health problems.** For formaldehyde, no single product can emit more than 16.5 µg/m³.

10 Ways to Reduce Indoor Air Emissions

01. Select products that are water-based or have low amounts of volatile organic compounds (VOCs). **According to CARB's July 2005 report on indoor air pollution, “The most effective approach is to remove or reduce indoor emissions by using building materials, consumer products, and appliances that emit little or no air pollution.”**
02. Turn off the lights when you leave a room.
03. Replace energy-hungry incandescent lights with fluorescent lighting.
04. Use a programmable thermostat that automatically turns off the air conditioner or heater when you don't need them.
05. **Choose recycled products.**
06. Choose products with recyclable packaging.
07. Don't smoke. If someone must smoke, smoke outdoors.
08. Some products such as cleaning solvents, paints, and glues contain dangerous chemicals. Use them outdoors or with plenty of ventilation indoors.
09. Clean frequently to remove dust and molds.
10. Let your elected representatives know you support action for cleaner air.

Indoor Air Quality 101 Sources

“The Inside Story: A Guide to Indoor Air Quality,” U.S.

Environmental Protection Agency and the United States Consumer Product Safety Commission, Office of Radiation and Indoor Air (6604) EPA Document # 402-K-93-007, April 1995

EPA Taking Toxics Out of the Air, “Part 1 – Main Body of Brochure”;

www.epa.gov/oar/oaqps/takingtoxics/p1.html#2

EPA Toxic Air Pollutants, “About Air Toxics, Health and Ecological Effects”; www.epa.gov/air/toxicair/newtoxics.html

“Compendium of Methods for the Determination of Air Pollutants in Indoor Air,” Engineering-Science, Cary, NC, April 1990

EPA Indoor Air Quality, Sources of Indoor Air Pollution – Organic Gases (Volatile Organic Compounds – VOCs); www.epa.gov/iaq/voc.html

The Collaborative for High-Performance Schools (CHPS) Overview; www.chps.net/overview/index.htm

The Collaborative for High-Performance Schools, “Volume III – Criteria, High-performance Schools Best Practices Manual,” version 1.0, November 2001; www.chps.net/manual/documents/BPM_2006_Edition/CHPS_III_2002.pdf

State of California EPA Air Resources Board and Office of Environmental Health Hazard Assessment Staff Report,

“Adequacy of California Ambient Air Quality Standards: Children’s Environmental Health Protection Act,” November 2, 2000; www.oehha.org/air/pdf/sb25.pdf

California Air Resources Board, Ambient Air Quality Standards, May 17, 2006; www.arb.ca.gov/research/aaqs.aaqs2.pdf **California Air Resources Board,** “Fifty Things You Can Do”, May 2, 2003; www.arb.ca.gov/html/brochure/50things.htm

EPA Technology Transfer Network, Air Toxics Website, “Formaldehyde,” July 10, 2006; www.epa.gov/cgi-bin/epaprint-only.cgi

California EPA, Office of Environmental Health Hazard Assessment (OEHHA), “Air Toxics Hot Spots Program, Risk Assessment Guidelines: Part III – Technical Support Document for the Determination of Noncancer Chronic Reference Exposure Levels,” February 2000; www.oehha.ca.gov/air/chronic_rels/pdf/relsP32k.pdf

California Health and Human Services Agency, Department of Health Services, Division of Environmental and Occupational Disease Control, Environmental Health Laboratory Branch, Indoor Air Quality Section, “Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers,” July 15, 2004



About Crypton

5 Things You Should Know About Crypton Super Fabrics

01. Crypton is **moisture, stain, odor, and bacteria resistant**.
02. Each fiber of a **Crypton Fabric is encapsulated to resist stains, fungus, bacteria, and mildew**, and Crypton's moisture barrier is integrated into the fabric, ensuring permanent protection.
03. Crypton is engineered to be extremely **easy to clean**, allowing spots and spills to be easily removed.
04. **EPA APPROVED.** Crypton is the first and only fabric approved by the EPA proven to be disinfectable. When Crypton's Disinfectant & Deodorizer is used on Crypton Super Fabric, you have a disinfected fabric system.
05. **ALL CRYPTON PRODUCTS ARE ENVIRONMENTALLY PREFERABLE.** Crypton is produced in a world-class manufacturing operation. Crypton is committed to green and has incorporated its optimized green formulation in all Crypton upholstery, meaning a greener Crypton, regardless of the basecloth.

Company History

Innovation and industry leadership are part of Crypton's DNA. It all began in 1993 when founders Craig and Randy Rubin, together in the basement of their Michigan home, set out to create a fabric that was moisture resistant and easy to clean, while still being soft, comfortable, and livable. What started as a solution soon became a fabric revolution. From the first collection, it was clear that Crypton would change the marketplace. A fabric, not a vinyl or plastic, that resisted stains, moisture, odor, and bacteria, Crypton proved to be the perfect solution for the health care industry and soon expanded its reach into the contract, hospitality, and residential markets. Today, over 60 million yards of Crypton Fabric are installed in some of the finest restaurants, hotels, and cruise ships, as well as government installations, schools, health care facilities, and homes around the world.

Recent Developments

Dedicated to R&D and marketing of the product, Crypton continues to push itself and the industry. From better chemistry to better, softer fabrics, to new performance innovations, Crypton strives to create the best and safest performance fabrics available. Crypton has become the first fabric to be sanctioned by the EPA to be disinfectable (in conjunction with Crypton's Disinfectant and Deodorizer). It is also the first and only performance fabric to go green and receive third-party certification from both MBDC (McDonough Braungart Design Chemistry) and SCS (Scientific Certification Systems).



Performance Tests

Rest assured that with Crypton, you have the only fabric that meets or exceeds all of the following tests:

STAIN RESISTANCE

Crypton consistently scores as either a class 4 or 5 (5 is the highest).

WATER RESISTANCE

Crypton has extreme water resistance. The test used to determine this is called the Suter Test. Crypton meets or exceeds Suter Test AATCC127, 100 cm average.

ABRASION

This test is called Wyzenbeek. This test determines the ability of a fabric to withstand surface wearing from rubbing. Crypton meets or exceeds 50,000 double rubs. Abrasion Resistance ASTM D 4157, heavy-duty contract.

TEARING STRENGTH

This test method is used to determine the tearing strength required to continue a tear from a cut woven fabric by a constant rate of extension (CRE) tensile testing machine. Crypton meets or exceeds Tear ASTM D 2261, Min. 6.0 Warp, Min. 6.0 Fill.

BREAKING STRENGTH

This test is called the Tensile test. It measures a fabric's ability to resist tearing or breaking when subjected to tension. This test is performed in both the warp and filling directions. Crypton is extremely strong and tests Tensile ASTM D 5034, Min. 50 lbs. Warp, Min. 50 lbs. Fill.

SEAM SLIPPAGE

This refers to the condition in which the fabrics pull apart at a sewn seam. Slippage ASTM D 4034, Min. 25 lbs. Warp, Min. 25 lbs. Fill.

RESISTS FUNGAL GROWTH

Crypton resists fungal growth, test AATCC 30-1998, AATCC 6275.

RESISTS BACTERIAL GROWTH

Crypton resists bacterial growth, quantifiable test methods.

FLAMMABILITY

Crypton passes NFPA 260, UFAC Class 1; passes California 191-53 Technical Bulletin 117 Section E.

Green Glossary

A

Abrasion

The surface wear of a fabric caused by rubbing and contact with another fabric. *Source:* ACT

Acidification (acid rain)

The release of materials which have been transformed by chemical processes in the atmosphere and are then deposited on earth through rain, sleet, or fog. These materials can cause damage to buildings and harm terrestrial, animal, plant, and human health. *Source:* ACT

Action Level

A term used to identify the level of indoor radon at which remedial action is recommended. (EPA's current action level is 4 pCi/L.) *Source:* IAQ-EPA Glossary of Terms

Air Exchange Rate

The rate at which outside air replaces indoor air in a space. Expressed in one of two ways: the number of changes of outside air per unit of time – air changes per hour (ACH); or the rate at which a volume of outside air enters per unit of time – cubic feet per minute (cfm). *Source:* IAQ-EPA Glossary of Terms

Algae Toxicity

Several genera and species of green algae found in lakes, ponds, and streams that are responsible for aquatic oxygen balance and food sources for fish are tested for their reaction to chemical exposure. Chemicals that kill algae are considered dangerous. *Source:* MBDC – Certification Glossary

Allergen

A substance capable of causing

an allergic reaction because of an individual's sensitivity to that substance. *Source:* IAQ-EPA Glossary of Terms

Allergic Rhinitis

Inflammation of the mucous membranes in the nose that is caused by an allergic reaction. *Source:* IAQ-EPA Glossary of Terms

American Society for Testing and Materials (ASTM)

A non-profit organization that provides a voluntary consensus system for developing standards, through committees composed of producers, engineers, academics, regulatory bodies, and other stakeholders. www.astm.org *Source:* ACT

American Textile Manufacturers Institute (ATMI)

The U.S. textile industry's trade association for the domestic textile industry; activities encompass government relations, international trade, product and administrative services, communications and economic information. www.atmi.org. *Source:* ACT

Antimicrobial

Agent that kills microbial growth. See "Disinfectant," "Sanitizer," and "Sterilizer." *Source:* IAQ-EPA Glossary of Terms

Antimony

A silvery-white metal found in the earth's crust; frequently alloyed with lead to increase its hardness and strength. When combined with oxygen, it produces antimony trioxide. *Source:* ACT

Antimony Trioxide

A compound used as a fire

retardant and as a catalyst to manufacture PET (polyethylene terephthalate). It is a suspected human carcinogen. *Source:* ACT

Aquatic Toxicity

The use or release of substances that have a toxic impact on aquatic species. *Source:* ACT

B

Bioaccumulation

The process by which substances are stored and accumulated in the tissue or organs of humans or animals. *Source:* MBDC – Certification Glossary

Biobased Product

A commercial or industrial product (other than food or feed) that utilizes biological products or renewable domestic agricultural (plant, animal, and marine) or forestry materials. www.ofee.gov/eo/greening.pdf. *Source:* ACT

Biochemical Oxygen Demand (BOD)

When a body of wastewater contains too much biological material, the bacteria and other microorganisms in it cannot successfully decompose all the organic matter for food, growth, and energy. This breaking down of the biological material requires oxygen; therefore, by measuring the amount of oxygen that is depleted from the sample as a result of such bacterial action, the balance within the aquatic environment can be measured. The BOD is a standard test, which takes five days to run, and is performed by introducing a population of bacteria and microorganisms

to attempt to duplicate what would happen in a natural stream. It is the most commonly used method to estimate the total quantity of biodegradable organic material in wastewater. Compare to Chemical Oxygen Demand (COD). Definition *Source:* "Industrial Waste Treatment Handbook," Frank Woodard, Ed. Butterworth Heinemann, p. 179-181.

Source: ACT

Bioconcentration Factor (BCF)

A measure of the tendency for a chemical to accumulate. The ratio of the concentration of a substance in a living organism (mg/kg) to the concentration of that substance in the surrounding environment (mg/l for aquatic systems). *Source:* MBDC – Certification Glossary

Biodegradable

Exhibiting the capability of being broken down (or decomposed or metabolized) by microorganisms and reduced to organic or inorganic molecules that can be further utilized by living systems. *Source:* ACT

Biodegradation

The process by which a substance or material is broken down (or decomposed) by microorganisms and reduced to organic or inorganic molecules that can be further utilized by living systems. Biodegradation can be aerobic, if oxygen is present, or anaerobic, if no oxygen is present. *Source:* MBDC – Certification Glossary

Biological Contaminants

Agents derived from, or that are, living organisms (e.g.,

viruses, bacteria, fungi, and mammal and bird antigens) that can be inhaled and can cause many types of adverse health effects, including allergic reactions, respiratory disorders, hypersensitivity diseases, and infectious diseases. Also referred to as “microbiologicals” or “microbials.” *Source:* IAQ-EPA Glossary of Terms

Biological Metabolism

The natural processes of ecosystems are a biological metabolism, making safe and healthy use of materials in cycles of abundance.

Source: MBDC – General

Biological Nutrient

A biodegradable material posing no immediate or eventual hazard to living systems that can be used for human purposes and can safely return to the environment to feed environmental processes.

Source: MBDC – General

Breaking Strength

The measurement of stress exerted to pull a fabric apart under tension. *Source:* ACT

Building-Related Illness (BRI)

Diagnosable illness whose symptoms can be identified and whose cause can be directly attributed to airborne building pollutants (e.g., Legionnaire’s disease, hypersensitivity pneumonitis). Also: A discrete, identifiable disease or illness that can be traced to a specific pollutant or source within a building. (Contrast with “Sick Building Syndrome”). *Source:* IAQ-EPA Glossary of Terms

By-Product

Anything produced in an industrial or biological process in addition to the principal product; a secondary and sometimes unexpected or unintended result. *Source:* ACT

C

California Environmental Resources Evaluation System (CERES)

An information system developed by the California Resources Agency to facilitate access to a variety of electronic data describing California’s diverse environments.

www.cere.ca.gov. *Source:* ACT

Carcinogen – Known

A causal relationship has been established between exposure to the agent and human cancer (MAK 1 or TLV A1 or IARC Group 1). *Source:* MBDC – Certification Glossary

Carcinogen – Possible, or Suspected

A known animal carcinogen, but evidence of carcinogenicity in humans is non-existent, or there is limited evidence of carcinogenicity in animals (MAK 3 or TLV A3 or IARC Group 2B). *Source:* MBDC – Certification Glossary

Carcinogen – Probable

A known animal carcinogen, but carcinogenicity in humans has not been definitely proven (MAK 2 or TLV A2 or IARC Group 2A). *Source:* MBDC – Certification Glossary

CAS Number

Chemical Abstract Service number. This number uniquely

identifies each pure chemical compound. *Source:* MBDC – Certification Glossary

Chemical Oxygen Demand (COD)

When a body of wastewater contains too much biological material, the bacteria and other micro-organisms in it cannot successfully decompose all the organic matter for food, growth, and energy. This breaking down of the biological material requires oxygen; therefore, by measuring the amount of oxygen that is depleted from the sample as a result of such bacterial action, the balance within the aquatic environment can be measured. Chemical Oxygen Demand (COD) is a test that adds a strong chemical oxidizing agent to the wastewater sample in order to estimate the result of bacterial action.

Although it is completely artificial, it is considered to yield a result that may be used as the basis on which to calculate a reasonably accurate and reproducible estimate of the oxygen-demanding properties of a wastewater. The COD’s advantages (compared to the BOD test) are that it takes under three hours for completion and is not subject to the interference from toxic materials that can affect the results of the BOD. Both of these are standard tests for estimating the health of an aquatic environment. Definition *Source:* “Industrial Waste Treatment Handbook”; Frank Woodard; Ed. Butterworth Heinemann, p. 179-181. *Source:* ACT

Chemical Sensitization

Evidence suggests that some people may develop health

problems characterized by effects such as dizziness, eye and throat irritation, chest tightness, and nasal congestion that appear whenever they are exposed to certain chemicals. People may react to even trace amounts of chemicals to which they have become “sensitized.” *Source:* IAQ-EPA Glossary of Terms

Chlorofluorocarbon (CFC)

A compound consisting of chlorine, fluorine, and carbon. CFCs are very stable in the troposphere. CFCs are commonly used as refrigerants, solvents, and foam-blowing agents. Uses of CFCs in aerosols are prohibited because they deplete stratospheric ozone. www.epa.gov. *Source:* ACT

Chronic RELs

Chronic reference exposure levels are concentrations or doses at or below which adverse health effects are not likely to occur. RELs are based on the most sensitive relevant adverse health effect reported in the medical and toxicological literature. RELs S are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety. *Source:* OEHHA p. 9 of “Air Toxics Hot Spots Program, Risk Assessment Guidelines, Part III Technical Support Document for the Determination of Noncancer Chronic Reference Exposure Levels.”

Clean Air Act

The federal statute that regulates air emissions from area, stationary and mobile sources. This law authorizes the U.S. Environmental Protection

Agency to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. www.epa.gov. *Source:* ACT

Clean Water Act

The Federal Water Pollution Control Act Amendments of 1972, as amended in 1977, became commonly known as the Clean Water Act. The Act established the basic structure for regulating discharges of pollutants into the waters of the United States. www.epa.gov. *Source:* ACT

Clearance Time (CT)

The CT indicates the time needed to eliminate or biodegrade a substance to a certain percentage in an organism. For example, the CT50 indicates the time needed to eliminate 50% of a certain substance, analogous to the half-life time measure $t_{1/2}$. *Source:* MBDC – Certification Glossary

Climatic Relevance

This is a measure of the climate-influencing characteristics of the substance. All compounds that contribute to global warming are listed here. Examples include carbon dioxide, methane, CFCs, and sulfur hexafluoride. *Source:* MBDC – Certification Glossary

Closed-loop

A type of manufacturing process that utilizes a cyclical material flow in order to minimize waste. *Source:* ACT

Colorfastness to Light

A material's degree of resistance to the fading effect of light. *Source:* ACT

Compostable

possessing the ability to

break down into, or otherwise become part of, usable compost (e.g., soil-conditioning material, mulch) in a safe and timely manner. www.ftc.gov/os/1998/9804/63fr24240.pdf

Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

The federal statute (of 1980) that created the Superfund program and established a trust fund for the cleanup of abandoned and uncontrolled hazardous waste sites. www.epa.gov. *Source:* ACT

Conditioned Air

Air that has been heated, cooled, humidified, or dehumidified to maintain an interior space within the “comfort zone.” (Sometimes referred to as “tempered” air.) *Source:* IAQ-EPA Glossary of Terms

Content of Halogenated Organic Compounds

The column in the periodic chart of the elements that begins with Fluorine contains the halogens. These elements, when combined with organic compounds, form halogenated organic compounds. Most of these compounds are toxic, carcinogenic, persistent, ozone. *Source:* MBDC – Certification Glossary

Cradle-to-Cradle Design

Cradle-to-Cradle Design is MBDC's design paradigm, based on principles and an understanding of the pursuit of value, as well as MBDC's processes for product and material research and development, and for educating and training. At a fundamental level, the new paradigm proposes that human design

can learn from nature to be effective, safe, enriching, and delightful. Cradle-to-Cradle Design models human industry on nature's processes, in which materials are viewed as nutrients circulating in healthy, safe metabolisms. Industry must protect and enrich ecosystems—nature's biological metabolism—while also maintaining safe, productive technical metabolism for the high-quality use and circulation of mineral, synthetic, and other materials. *Source:* MBDC - General

Cradle-to-Cradle Design Protocol

A scientifically based, peer-reviewed process used to assess and optimize materials used in products and production processes in order to maximize health, safety, effectiveness, and high quality reutilization over many product life-cycles. *Source:* MBDC – General

Criteria Air Pollutants

Six substances (ozone, lead, particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide) used as indicators of air quality; the EPA has established a maximum concentration for each above which human health may be adversely affected. *Source:* ACT

D

Dampers

Controls that vary airflow through an air outlet, inlet, or duct. A damper position may be immovable, manually adjustable or part of an automated control system.

Source: IAQ-EPA Glossary of Terms

Daphnia Toxicity

Water fleas of the genus *Daphnia* can be found in most ponds and streams. They feed upon microscopic particles of organic matter and are in turn food for fish and other aquatic organisms. *Daphnia Toxicity* is a measure of a substance's toxicity when consumed by these water fleas. A common measuring tool for *Daphnia Toxicity* is EC50 (“effective concentration”), which is the concentration of a substance in the water required to immobilize 50 percent of the test animals. If EC50<10 mg/liter, the substance is named *Daphnia Toxic*. *Source:* MBDC – Certification Glossary

Design for Disassembly

Designing a product to be dismantled for easier maintenance, repair, recovery, and reuse of components and materials. *Source:* MBDC – General

Disinfectants

One of three groups of antimicrobials registered by EPA for public health uses. EPA considers an antimicrobial to be a disinfectant when it destroys or irreversibly inactivates infectious or other undesirable organisms, but not necessarily their spores. EPA registers three types of disinfectant products based upon submitted efficacy data: limited, general or broad spectrum, and hospital disinfectant. *Source:* IAQ-EPA Glossary of Terms

DOT (Dept of Transportation) Hazardous Materials

Materials that have been

designated by the DOT to pose an unreasonable risk to human health, safety, and/or property when transported.

www.dot.gov. *Source:* ACT

Downcycling The practice of recycling a material in such a way that much of its inherent value is lost (for example, recycling plastic into park benches). *Source:* MBDC – General

E

Eco-Effectiveness

MBDC's strategy for designing human industry that is safe, profitable, and regenerative, producing economic, ecological, and social value. *Source:* MBDC – General

Eco-Efficiency

(Coined in 1992 by the World Business Council for Sustainable Development [WBCSD]) The ability to produce and deliver desirable, competitively priced goods and services while progressively reducing the ecological impacts of these actions. www.wbcsd.ch. *Source:* ACT

Ecological Intelligence

A product or process designed to embody the intelligence of natural systems (such as nutrient cycling, interdependence, abundance, diversity, solar power, regeneration). *Source:* MBDC – General

Effect Concentration 50 (EC₅₀)

The median exposure concentration (EC₅₀) is the median concentration of a substance that causes some effect in 50 percent of the test animals. *Source:* MBDC – Certification Glossary

Embodied Energy

The total energy from all sources necessary to make a specific product, including the calorific value of the product itself. *Source:* ACT

Embodied Mass

The total quantity of mass of materials required to produce, recycle, or dispose of raw materials and products. *Source:* ACT

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

The federal statute (of 1986) that is the third part of the Superfund Amendments and Reauthorization Act of 1986, also known as SARA Title III. This law requires facilities to report the chemicals that they store, established the State Emergency Response Commission (SERC) and the Local Emergency Planning Committees (LEPC) and led to the adoption of the OSHA HAZWOPER standard. www.epa.gov. *Source:* ACT

Encouraging Environmental Excellence (E3)

A voluntary rating system for textile factories developed by The American Textile Manufacturers Institute. www.atmi.org. *Source:* ACT

Endocrine Disruptor

A substance that mimics, blocks, or interferes with hormones and their production, metabolism, and excretion causing malfunction of the endocrine system, which can lead to malfunction of the reproductive, nervous, and immune systems. *Source:* MBDC – Certification Glossary

Environment

The complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival. *Source:* ACT

Environmental Agents

Conditions other than indoor air contaminants that cause stress, comfort, and/or health problems (e.g., humidity extremes, drafts, lack of air circulation, noise, and overcrowding). *Source:* IAQ-EPA Glossary of Terms

Environmental Impact Statement (EIS)

Federal laws and regulations (including NEPA, the National Environmental Policy Act of 1969) require the federal government to evaluate effects of its actions on the environment and to consider alternative courses of action. An EIS is the required document that describes the positive and negative impacts on the environment as a result of a proposed action, impacts of alternatives, and ways to mitigate the impacts. The Council for Environmental Quality (CEQ) regulations stipulate the recommended format and content of Environmental Impact Statements. *Source:* ACT

Environmental Management System (EMS)

An industry-developed and driven management structure that prioritizes compliance with environmental policy objectives and targets effective implementation of environmentally focused procedures.

A key feature of an EMS is the preparation of documented systems, procedures, and instructions to ensure effective communication and continuity of such implementation. ISO 14001 specifies the actual requirements for an EMS standard and is the most widely recognized system of this type. *Source:* ACT

Environmental Protection Agency (EPA)

The U.S. federal agency established in July of 1970 “to protect human health and to safeguard the natural environment – air, water, and land – upon which life depends”; works closely with other federal agencies, state and local governments and Indian tribes to develop and enforce regulations under existing environmental laws; provides leadership in the nation's environmental science, research, education and assessment efforts; and is responsible for researching and setting national standards for a variety of environmental programs and delegates to states and tribes; responsible for issuing permits, and monitoring and enforcing compliance. www.epa.gov. *Source:* ACT

Environmental Protection Encouragement Agency (EPEA)

An independent environmental research institute based in Hamburg, Germany. www.epea.com. *Source:* ACT

Environmental Tobacco Smoke (ETS)

Mixture of smoke from the burning end of a cigarette, pipe, or cigar and smoke exhaled by the smoker (also second-hand smoke (SHS) or

passive smoking). *Source:* IAQ-EPA Glossary of Terms

Environmentally Preferable products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal of the product or service. www.ofee.gov/eo/greening.pdf (pages 14-15) *Source:* ACT

Ergonomics

Applied science that investigates the impact of people's physical environment on their health and comfort (e.g., determining the proper chair height for computer operators). *Source:* IAQ-EPA Glossary of Terms

Eutrophication

Excessive growth of algal blooms in streams, lakes and other waterways due to the addition of excessive amounts of plant nutrients (primarily phosphorus, nitrogen and carbon), which often results from fertilizer runoff and the addition of untreated sewage to waterways; causes the depletion of oxygen from the water and, in turn, kills the fish and other oxygen-dependent organisms that live in the water. *Source:* ACT

Extremely Hazardous Substance (EHS) Any one of over 366 hazardous chemicals on a list compiled by the EPA to provide a focus for state and local emergency planning. www.epa.gov *Source:* ACT

Federal Trade Commission (FTC) The U.S. federal agency with regulatory and enforcement authority directed towards stopping actions that threaten consumers' opportunities to exercise informed choices. www.ftc.gov *Source:* ACT

F

Fish Toxicity

Several Genera and Species of fish found in lakes, ponds, and streams that are part of the food chain are tested for their reaction to chemical exposure. Chemicals that kill fish are considered dangerous to aquatic eco-systems due to the possible food chain effects and food source depletion. Fish Toxicity is a measure of a substance's toxicity when consumed by these various types of fish. A common measuring tool is LC50 ("lethal concentration"), which is the concentration of a substance in the water required to kill fifty (50) percent of the fish test population. If $LC50 < 10$ mg/L, the substance is considered fish toxic. *Source:* MBDC - Certification Glossary

Flammability

The measurement of a fabric's performance when it is exposed to specific sources of ignition. *Source:* ACT

Fungi

Any of a group of parasitic lower plants that lack chlorophyll, including molds and mildews. *Source:* IAQ-EPA Glossary of Terms

G

Global Reporting Initiative (GRI) The Global Reporting Initiative is a multi-stakehold-

er process and independent institution whose mission is to develop and disseminate globally applicable Sustainability Reporting Guidelines. www.globalreporting.org. *Source:* ACT

Global Warming Potential

A scale used to relate a compound to the CO₂ equivalents to measure the potential heating effects on the atmosphere. *Source:* MBDC – Certification Glossary

Green

An adjective used to describe something that is perceived to be beneficial to the environment. *Source:* ACT

Green Buildings

The building industry is increasingly focused on making its buildings greener, which includes using healthier, less polluting, and more resource-efficient practices. Indoor environmental quality (IEQ) refers to the quality of the air and environment inside buildings, based on pollutant concentrations and conditions that can affect the health, comfort and performance of occupants – including temperature, relative humidity, light, sound, and other factors. Good IEQ is an essential component of any building, especially a green building. *Source:* IAQ-EPA Glossary of Terms

Greenguard

A certification and labeling program for interior products and building materials in reference to indoor air quality. www.greenguard.org. *Source:* ACT

Greenhouse Gas

Certain gases (including water

vapor, carbon dioxide, methane, nitrous oxide, and ozone and several classes of halogenated carbons that contain fluorine, chlorine and bromine) that allow solar radiation to reach Earth's surface and become absorbed, yet trap thermal radiation leaving the Earth's surface. Outgoing thermal radiation absorbed by these gases heats the atmosphere. The atmosphere then emits thermal radiation both outward into space and downward to Earth, further warming the surface. *Source:* ACT

H

Half-Life (T1/2)

The amount of time it takes half of an initial concentration of substance to degrade in the environment. *Source:* MBDC – Certification Glossary

Hazardous Air Pollutant (HAP)

Those pollutants that cause or may cause cancer, other serious health effects (such as reproductive effects or birth defects), or adverse environmental and ecological effects. The EPA is required to control 188 HAPs including: dioxin; asbestos; toluene; metals such as cadmium, mercury, chromium, and lead; benzene, which is found in gasoline; perchlorethylene, which is emitted from some dry cleaning facilities; and methylene chloride, which is used as a solvent and paint stripper by a number of industries. Also known as toxic air pollutants. www.epa.gov. *Source:* ACT

Hazardous Material

Any material or substance, which, if improperly handled or disposed of, can cause harm

to the health and well-being of humans or the environment. *Source:* ACT

Hazardous Substance

Defined by the National Occupational Health and Safety Commission (NOHSC) as “a substance that has the potential, through being used at work, to harm the health or safety of persons in the workplace.” (A hazardous substance is, essentially, a hazardous material, but NOHSC uses the term “substance.”) *Source:* ACT

Hazardous Waste

Defined by RCRA as any waste that exhibits specific hazardous characteristics such as ignitability, corrosivity, reactivity, or toxicity. *Source:* ACT

Heavy Metal

The term “heavy metals” is generally interpreted to include those metals from periodic table groups IIA through VIA. The semi-metallic elements: boron, arsenic, selenium, and tellurium are often included in this classification. *Source:* MBDC – Certification Glossary

HEPA

High-efficiency particulate arrestance (filters). *Source:* IAQ-EPA Glossary of Terms

HVAC

Heating, ventilation, and air-conditioning system. *Source:* IAQ-EPA Glossary of Terms

Hydrochlorofluorocarbon (HCFC)

A compound that consists of hydrogen, chlorine, fluorine, and carbon. The HCFCs are a class of replacements for CFCs. They contain chlorine and thus deplete

stratospheric ozone, but to a much lesser extent than CFCs. HCFCs are currently being phased out of production. www.epa.gov. *Source:* ACT

Hydrofluorocarbon (HFC)

A compound that consist of hydrogen, fluorine, and carbon. The HFCs are a class of replacements for CFCs. Because they do not contain chlorine or bromine, they do not deplete the ozone layer. www.epa.gov. *Source:* ACT

Hypersensitivity Diseases

Diseases characterized by allergic responses to pollutants. The hypersensitivity diseases most clearly associated with indoor air quality are asthma, rhinitis, and hypersensitivity pneumonitis. Hypersensitivity pneumonitis is a rare but serious disease that involves progressive lung damage as long as there is exposure to the causative agent. *Source:* IAQ-EPA Glossary of Terms

I

IAQ

Indoor air quality. *Source:* IAQ-EPA Glossary of Terms

Indoor Air Pollutant

Particles and dust, fibers, mists, bioaerosols, and gases or vapors. *Source:* IAQ-EPA Glossary of Terms

Indoor Air Pollution

Chemical, physical, or biological contaminants in indoor air. *Source:* ACT

Interdisciplinary Ecology

An interdisciplinary framework for designing and operating industrial systems as living systems interdependent with

natural systems.

Source: ACT

International Standards Organization (ISO)

A non-governmental organization located in Geneva, Switzerland, chartered to develop voluntary technical standards that aim to make the development, manufacture, and supply of goods and services safer, cleaner and more efficient. www.iso.ch *Source:* ACT

Irritation of Skin/Mucous Membranes

For the testing of skin irritation with the standard Draize test, rabbits are used. The chemical applied to the rabbit skin and usually kept in contact for 4 hours. The degree of skin irritation is scored for erythema, eschar, and edema formation and corrosive action. These dermal irritation observations are repeated at various intervals after the chemical has been removed. Mucous membrane irritation is measured in a similar manner. Site-specific mechanical responses within the respiratory tract and eyes are measured, and a chemical is classified as an irritant based on the conclusions of these tests. *Source:* MBDC – Certification Glossary

ISO 14000

A group of ISO standards and guidelines that address environmental issues. Includes standards for Environmental Management Systems (EMS) (ISO 14001), environmental and EMS auditing, environmental labeling, performance evaluation, and life-cycle assessment. Compliance results in “ISO 14000 Certification.” www.iso.ch. *Source:* ACT

ISO 9000

A group of ISO standards and guidelines that relate to quality management systems. Currently includes three quality standards: ISO 9001: 2000 establishes requirements, ISO 9000: 2000, and ISO 9004: 2000 establish guidelines. All of these are process standards, not product standards. Compliance results in “ISO 9000 Certification.” www.iso.ch. *Source:* ACT

L

LC50

An LC50 value is the concentration of a specific material in the air that will kill 50% of the test subjects (animals, usually) when administered as a single exposure (typically 1 or 4 hours) under specified laboratory conditions. This value allows comparison of the relative toxicity of different materials. *Source:* ACT

Leadership in Energy and Environmental Design (LEED)

A point-based rating system developed by the U.S. Green Building Council Rating System for Sustainable Development (USGBC) to assess new and existing commercial buildings for a variety of earth-friendly features. www.usgbc.org *Source:* ACT

Lethal Concentration 50 (LC50)

The inhalative median lethal concentration (LC50) is the median concentration of a substance that causes death in 50 percent of the test animals. *Source:* MBDC - Certification Glossary

Lethal Dose 50 (LD50)

The median lethal dose (LD50)

is the statistically derived median dose of a substance that can be expected to cause death in 50 percent of the test animals. *Source:* MBDC – Certification Glossary

Life Cycle Assessment

A technique for assessing the potential environmental impacts of a product by examining all the material and energy inputs and outputs at each life cycle stage.

Source: MBDC – General

Life Cycle Cost

The amortized annual cost of a product, including capital costs, installation costs, operating costs, maintenance costs, and disposal costs discounted over the lifetime of the product. www.ofee.gov/eo/greening.pdf. *Source:* ACT

Life Cycle Inventory (LCI)

The part of the LCA process that quantifies the energy, input of raw material, and releases of material into the environment that are associated with each stage of production. *Source:* ACT

M

Material

A group of one or more chemicals that together comprise a component or input to a finished product. *Source:* MBDC – Certification Glossary

Material Safety Data Sheet (MSDS)

A document required by OSHA that contains information about hazardous chemicals in the workplace in order to ensure the safety and health of the user at all stages of a material's manufacture, storage, use, and disposal.

www.osha.gov. *Source:* ACT

Multiple Chemical Sensitivity (MCS)

A condition in which a person reports sensitivity or intolerance (as distinct from "allergic") to a number of chemicals and other irritants at very low concentrations. There are different views among medical professionals about the existence, causes, diagnosis, and treatments of this condition. *Source:* IAQ-EPA Glossary of Terms

Mutagen

This is a substance that may cause hereditary disorders in the offspring due to mutations in the chromosomes of the male or female reproductive cells. These mutations can be alterations in the structure or number of chromosomes, or nucleotide substitutions known as point mutations. *Source:* MBDC – Certification Glossary

N

National Ambient Air Quality Standards (NAAQS)

Air quality standards required by the Clean Air Act that monitor six pollutants, known as "criteria" pollutants, considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards: primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly; and secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and build-

ings. The EPA sets and monitors the levels for these standards. www.epa.gov *Source:* ACT

Nonpoint Source Pollution (NPS)

Pollution caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and underground sources of drinking water. *Source:* ACT

Nonrenewable Energy

An energy source, such as oil or natural gas, or a natural resource, such as a metallic ore, that cannot be replenished or replaced after it has been used. *Source:* ACT

O

Occupational Safety and Health Administration (OSHA)

The federal agency established in 1971, to ensure safe and healthful workplaces in the U.S. through leadership, enforcement, outreach, education, and compliance assistance. www.osha.gov. *Source:* ACT

Octanol-Water Partitioning Coefficient (Pow)

A measure of the tendency of a chemical to partition between an aliphatic hydrocarbon system and an aqueous system. Often used as a predictor for bioaccumulation potential. *Source:* MBDC – Certification Glossary

Oeko-Tex

A European standard for the impact of textiles on human

ecology and the environment. www.oekotex.com. *Source:* ACT

Optimization

An act, process, or methodology of making something (as a design, system, or decision) as fully perfect, functional, or effective as possible. *Source:* ACT

Organic Compounds

Chemicals that contain carbon. Volatile organic compounds vaporize at room temperature and pressure. They are found in many indoor sources, including many common household products and building materials. *Source:* IAQ-EPA Glossary of Terms

Ozone

A bluish gas that is harmful to breathe. Nearly 90% of the Earth's ozone is in the stratosphere and is referred to as the "ozone layer." Ozone absorbs a band of ultraviolet radiation called UVB that is particularly harmful to living organisms. The ozone layer prevents most UVB from reaching the ground. *Source:* ACT

Ozone-Depleting Substances (ODS)

Substances that release chlorine or bromine atoms when they break down which then deplete ozone. CFCs, HCFCs, halons, methyl bromide, carbon tetrachloride and methyl chloroform are ODSs, which are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. *Source:* ACT

Ozone-Depletion Potential

This is the measure of the ozone-depleting characteristics of the substance. Ozone

depletion in the upper atmosphere leads to an increase of UV-radiation on the Earth and, as a result, an increase in skin cancer. CFCs are included here. *Source:* MBDC – Certification Glossary

P

Persistence

This is a measure of a substance's ability to remain as a discrete chemical entity in the environment for a prolonged period of time. A common measuring tool for persistence is "half-life" ($t_{1/2}$), which is the amount of time required for half of the substance to break down. If half-life is greater than 30 days in the air, or if half-life is greater than 50 days in soil, water, or any other media, the substance is considered to be persistent. *Source:* MBDC – Certification Glossary

Persistent Bioaccumulative Toxin (PBT)

Chemicals that are toxic, persist in the environment, and bioaccumulate in food chains and therefore pose risks to human health and ecosystems. *Source:* ACT

Photochemical Oxidant

Potential The release of harmful substances that react to form ground-level ozone, resulting in vegetation damage and human health problems. *Source:* ACT

Pilling

The formation of fuzzy balls of fiber on the surface of a fabric that remain attached to the fabric. *Source:* ACT

Plastic

Any of various organic compounds produced by polymer-

ization, capable of being molded, extruded, cast into various shapes and films, or drawn into filaments used as textile fibers. *Source:* ACT

Point Source Pollution

Pollution that originates from specific, known sources such as municipal and industrial facilities, bypasses and overflows from municipal sewage systems, non-permitted and illegal dischargers, and water that is generated through oil and gas operations. *Source:* ACT

Pollution Prevention

"Source reduction" as defined in the Pollution Prevention Act of 1990 (42 U.S.C. 13102), and other practices that reduce or eliminate the creation of pollutants through: a) increased efficiency in the use of raw materials, energy, water, or other resources; or b) protection of natural resources by conservation. www.ofee.gov/ea/greening.pdf. *Source:* ACT

Polyethylene Terephthalate (PET)

A thermoplastic material that is clear, tough, and has good gas and moisture barrier properties. Used in soft drink bottles and other blow-molded containers, although sheet applications are increasing. Cleaned, recycled PET flakes and pellets are used in some spinning fiber for carpet yarns, fiberfill, and geo-textiles. Other applications include strapping, molding compounds, and both food and non-food containers. *Source:* ACT

Polylactic Acid (PLA)

A biodegradable thermoplastic derived from the lactic acid in corn; resembles clear polystyrene. PLA can be used in a

number of industrial products, including textiles. *Source:* ACT

Polyvinyl Chloride (PVC)

Synthetic thermoplastic polymer made from vinyl chloride. In addition to its stable physical properties, PVC has excellent transparency, chemical resistance, long-term stability, good weatherability, flow characteristics, and stable electrical properties. However, its stability makes it nearly environmentally indestructible. PVC also releases hydrochloric acid and other toxic compounds when produced, used, or burned. *Source:* ACT

Post-Consumer

An adjective used to describe all or part of a consumer product that has reached the end of its useful life in that form. *Source:* ACT

Post-Consumer Material

A material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. www.ofee.gov/ea/greening.pdf. *Source:* ACT

Post-Consumer Recycling

The recycling of materials generated from residential and consumer waste for use in new or similar purposes, such as converting wastepaper from offices into corrugated boxes or soda bottles into polyester fiber. *Source:* ACT

Post-Industrial Material

Recovered industrial and manufacturing materials that are diverted from municipal solid waste for the purpose of collection, recycling, and disposition. Post-industrial

materials are part of the broader category of "recovered materials" and include print overruns, over issue publications, and obsolete inventories. *Source:* ACT

Pressed Wood Products

A group of materials used in building and furniture construction that are made from wood veneers, particles, or fibers bonded together with an adhesive under heat and pressure. *Source:* IAQ-EPA Glossary of Terms

Product of Consumption

A product designed for safe and complete return to the environment, which becomes nutrients for living systems. The product of consumption design strategy allows products to offer effectiveness without the liability of materials that must be recycled or "managed" after use. *Source:* MBDC – General

Product of Service

A product that is used by the customer, formally or in effect, but owned by the manufacturer. The manufacturer maintains ownership of valuable material assets for continual reuse while the customer receives the service of the product without assuming its material liability. Products that can utilize valuable but potentially hazardous materials can be optimized as Products of Service. *Source:* MBDC – General

Product Stewardship

The responsible and ethical management of the health, safety, and environmental aspects of a product throughout its lifecycle. *Source:* ACT

R

Reclaimed Polymer

Synthetic waste from any source such as carpet, fabric, yarn, or soda bottles that is melted down and re-extruded. *Source: ACT*

Reclamation

The act of retrieving any material from a waste stream in order to save it from loss and restore to usefulness. *Source: ACT*

Recovered Materials

Waste materials and by-products that have been recovered or diverted from solid waste. But the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process (42 U.S.C. 6903 {19}). www.ofee.gov/eo/greening.pdf. *Source: ACT*

Recyclability

The ability of a product or material to be recovered from, or otherwise diverted from, the solid waste stream for the purpose of recycling (FTC definition). www.ftc.gov. *Source: ACT*

Recycled Product

A product made in whole or part from material recovered from the waste stream. www.ofee.gov/eo/greening.pdf. *Source: ACT*

Recycling

The series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream. The products are then used in the form of raw materials in the manufacture of new

products, other than fuel for producing heat or power by combustion. www.ofee.gov/eo/greening.pdf. *Source: ACT*

RELS

The concentration level at or below which no adverse health effects are anticipated. RELs are based on the most sensitive adverse health effect reported in the medical and toxicological literature. As with acute toxicity exposure levels in general, RELs are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety. *Source: (OEHHA, 1995, page 6). OEHHA 1995* www.oehha.ca.gov/air/acute_rels/response4_6.html

Renewable

Capable of being replaced by natural ecological cycles or sound management practices. *Source: ACT*

Renewable Energy

Energy derived from sources that do not become depleted such as the sun, wind, oceans, rivers, eligible biomass, and heat from the earth's interior. *Source: ACT*

Reprocessed Fiber

Fiber made from fabric that was never put into use. *Source: ACT*

Resource Conservation and Recovery Act (RCRA)

The federal statute that is an amendment to the Solid Waste Disposal Act (of 1965). The four primary goals of RCRA are as follows: protection of human health and the environment from potential hazards associated with hazardous waste disposal; conservation

of energy and natural resources; reduction of the amount of hazardous waste generated; and enforcement of environmentally sound waste management practices. Adopted by Congress in 1976. *Source: ACT*

Reusable

Capable of being used again after salvaging or special treatment or processing. *Source: ACT*

S

Sanitizer

One of three groups of antimicrobials registered by EPA for public health uses. EPA considers an antimicrobial to be a sanitizer when it reduces but does not necessarily eliminate all the microorganisms on a treated surface. To be a registered sanitizer, the test results for a product must show a reduction of at least 99.9% in the number of each test microorganism over the parallel control. *Source: IAQ-EPA Glossary of Terms*

Seam Slippage

The movement of yarns in a fabric that occurs when it is pulled apart at a seam. *Source: ACT*

Sensitization

The ability of a substance to induce an immunologically mediated (allergic) response. *Source: MBDC – Certification Glossary*

Sick Building Syndrome (SBS)

Instances in which building occupants experience acute health and discomfort effects that appear to be linked to time spent in a building, but no specific illness or cause can be identified. The complaints

may be localized in a particular room or zone, or may be widespread throughout the building. In contrast, the term "Building Related Illness" (BRI) is used when symptoms of diagnosable illness are identified and can be attributed directly to airborne building contaminants. www.epa.gov/iaq/pubs/sbs. *Source: ACT*

Skin Penetration Potential

A measure of the ability of a compound to assist in the absorption of chemicals into the skin. *Source: MBDC – Certification Glossary*

Solid Waste

Non-liquid, non-soluble materials from sources ranging from municipal garbage to industrial wastes that may contain complex and hazardous substances. Solid wastes also include sewage sludge, agricultural refuse, demolition wastes, and mining residues. Technically, solid waste also refers to liquids and gases in containers. *Source: ACT*

Source Reduction

Any practice: a) reducing the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and b) reducing the hazards to the public health and the environment associated with the release of such substances, pollutants or contaminants. www.ofee.gov/eo/greening.pdf. *Source: ACT*

Sterilizer

One of three groups of antimicrobials registered by EPA

for public health uses. EPA considers an antimicrobial to be a sterilizer when it destroys or eliminates all forms of bacteria, fungi, viruses, and their spores. Because spores are considered the most difficult form of a microorganism to destroy, EPA considers the term sporicide to be synonymous with "sterilizer." *Source:* IAQ-EPA Glossary of Terms

Superfund

The U.S. government's federal program to clean up the nation's uncontrolled hazardous waste sites. The EPA administers the Superfund program in cooperation with individual states and tribal governments. The federal office that oversees management of the program is the EPA Office of Emergency and Remedial Response (OERR). *Source:* ACT

Superfund Amendments and Reauthorization Act (SARA)

Federal statute (of 1986) that increased the size of the Superfund trust fund for cleanup activities and increased the authority of the EPA in enforcement and cleanup activities. Title III of SARA is known as the Emergency Planning and Community Right-to-Know Act (see EPCRA). *Source:* ACT

Sustainability

The characteristic of a product, material or process to be sustainable. *Source:* ACT

Sustainable

Of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged. *Source:* ACT

Sustainable Development

That which meets the needs of the present generation without compromising the ability of future generations to meet their own needs (The United Nations Brundtland Commission, 1987). *Source:* ACT

Sustainable Manufacturing

Manufacturing processes that have no negative impact on natural ecosystems or resources. *Source:* ACT

Sustainable Practice

A practice (such as manufacturing) that maintains a given condition without destroying or depleting natural resources. *Source:* ACT

Sustainable Product

A product that has no negative impact on natural ecosystems or resources. *Source:* ACT

T

Technical Metabolism

Modeled on natural systems, the technical metabolism is MBDC's term for the processes of human industry that maintain and perpetually reuse valuable synthetic and mineral materials in closed loops. *Source:* MBDC - General

Technical Nutrient

A material that remains in a closed-loop system of manufacture, reuse, and recovery (the technical metabolism), maintaining its value through many product life cycles. *Source:* MBDC - General

Teratogen

A substance shown to cause damage to the embryo or fetus through exposure by the mother (MAK-list: Pregnancy risk group, category A). *Source:*

MBDC - Certification Glossary

Teratogen - Suspected

Currently available information indicates that a risk of damage to the embryo or fetus can be considered probable when the mother is exposed to this substance (MAK-list: Pregnancy risk group, category B). *Source:* MBDC - Certification Glossary

Terephthalic Acid

Paraphthalic acid [C₆H₄(COOH)₂]. A white crystalline water-insoluble carboxylic acid used in making polyester resins, fibers, and films by combination with glycols. *Source:* ACT

Terrestrial Toxicity

The use or release of substances that have toxic impact on land species. *Source:* ACT

The Natural Step (TNS)

An international organization founded in Sweden in 1989 that uses a science-based, systems framework to help organizations, individuals, and communities take steps towards sustainability. www.naturalstep.org. *Source:* ACT

The Next Industrial Revolution

This emerging movement of production and commerce eliminates the concept of waste, uses energy from renewable sources, and celebrates cultural and biological diversity. The promise of the Next Industrial Revolution is a system of production that fulfills desires for economic and ecological abundance and social equity in both the short and long terms becoming sustaining (not just sustainable) for all generations. *Source:* MBDC - General

Threshold Planning Quantity (TPQ)

The amount of an extremely hazardous substance present at a facility above which the facility's owner/operator must give emergency planning notification to local, state, and federal emergency planning commissions. *Source:* ACT

Total Suspended Solids (TSS)

TSS represents the total amount of solid matter in a representative water sample that is retained on a membrane filter. It includes all sediment and other constituents that are fluid suspended. A commonly used method for measuring water pollution. *Source:* ACT

Toxic Air Pollutant

Poisonous substances in the air that come from natural sources (for example, radon gas from the ground) or from manmade sources (for example, chemical compounds given off by factory smokestacks) and can harm the environment or human health. *Source:* ACT

Toxic Release Inventory (TRI)

An EPA database (available to the public) that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups and by federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990. *Source:* ACT

Toxic Substances Control Act (TSCA)

The federal statute (of 1976) that authorized the EPA to track the 75,000 indus-

trial chemicals currently produced or imported into the United States. EPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. EPA can ban the manufacture and import of chemicals that pose an unreasonable risk. *Source:* ACT

Toxic Waste

If a threshold concentration of one of substances listed by RCRA is present in an extract of a waste stream, the entire waste stream is classified as toxic waste and is subject to regulation as a hazardous waste (under the RCRA definition, 40 CFR Part 261.24). The list contains several synthetic organic chemicals and toxic metals such as lead, chromium, and mercury. *Source:* ACT

Toxicity – Acute

A measure of how poisonous or “deadly” a substance is during initial exposure. A common measuring tool for acute toxicity is LD50 (“lethal dose”), which is the dose required to kill 50 percent of the test animals. If LD50 < 200 mg/kg, the substance is named “acutely toxic.” *Source:* MBDC – Certification Glossary

Toxicity – Chronic

This is a measure of how poisonous a substance can become over time with repeated exposure. A substance may have low acute toxicity (i.e., little harmful effects from the initial exposure) but may become poisonous over time with repeated exposure. This may be due to accumulation of the substance or due to

repeated minor damaging of target organs. *Source:* MBDC – Certification Glossary

Toxicity Characteristic Leaching Procedure (TCLP)

A commonly used test for determining the potential of certain metals and chemicals for their potential to leach out of an unlined disposal site into groundwater at toxic levels; identified in RCRA, 40 CFR Part 261. *Source:* ACT

TVOCS

Total volatile organic compounds. See “Volatile Organic Compounds (VOCs).” *Source:* IAQ-EPA Glossary of Terms

U

Universal Hazardous Waste (UHW)

Certain hazardous, widely generated materials such as batteries, pesticides, and thermostats. The EPA adopted the Universal Waste Rule (1993), which amended the Resource Conservation and Recovery Act (RCRA) regulations in order to allow for streamlined management of this category of hazardous wastes (58 FR 9346). *Source:* ACT

Unmarketables

Materials to be eliminated from human use because they cannot be maintained safely in either biological or technical metabolisms. *Source:* MBDC – General

U.S. Green Building Council

A coalition of representatives from the building industry that promotes buildings that are environmentally responsible, profitable and are healthful places to live and work. www.usgbc.org. *Source:* ACT

V

Volatile Organic Compound (VOC)

Any compound that contains carbon and becomes a gas at room temperature. VOC emissions are regulated because they contribute to smog formation. The most common sources of VOC emissions are from storage and use of liquid and gaseous fuels, the storage and use of solvents and the combustion of fuels and can include house-keeping and maintenance products and building and furnishing materials. In sufficient quantities VOC emissions can cause eye, nose, and throat irritations, headaches, dizziness, visual disorders, memory impairment; some are known animal carcinogens; some are suspected or known human carcinogens. *Source:* ECT

Volatile Organic Compounds (VOCs)

Compounds that vaporize (become a gas) at room temperature. Common sources that may emit VOCs into indoor air include housekeeping and maintenance products, and building and furnishing materials. In sufficient quantities, VOCs can cause eye, nose, and throat irritations, headaches, dizziness, visual disorders, memory impairment; some are known to cause cancer in animals; some are suspected of causing, or are known to cause, cancer in humans. At present, not much is known about what health effects occur at the levels of VOCs typically found in public and commercial buildings. *Source:* IAQ-EPA Glossary of Terms

W

Waste Equals Food

A principle of natural systems and MBDC that eliminates the concept of waste. In this design strategy, all materials are viewed as continuously valuable, circulating in closed loops of production, use, and recycling. *Source:* MBDC – General

Waste Prevention

Any change in the design, manufacturing, purchase or use of materials or products (including packaging) to reduce their amount or toxicity before they are discarded. Waste prevention also refers to the reuse of products or materials. www.ofee.gov/eo/greening.pdf. *Source:* ACT

Waste Reduction

Preventing or decreasing the amount of waste being generated through waste prevention, recycling, or purchasing recycled and environmentally preferable products. www.ofee.gov/eo/greening.pdf. *Source:* ACT

Wastewater

Water carrying dissolved or suspended solids from homes, farms, businesses, and industries. *Source:* ACT

Wet & Dry Crocking

Transfer of dye from the surface of a dyed or printed fabric onto another surface by rubbing. *Source:* ACT

World Business Council for Sustainable Development (WBCSD)

A coalition of 160 international companies chartered to promote sustainable development through economic growth, ecological balance, and social progress. www.wbcsd.ch. *Source:* ACT

Acknowledgments

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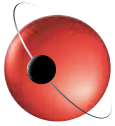
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* Any pollutant not listed must produce an air concentration level no greater than 1/10 the Threshold Limit Value (TLV) industrial workplace standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, Cincinnati, Ohio 45211-4438). Listing measured carcinogens and reproductive toxins as identified by California Proposition 65, the U.S. National Toxicology Program (NTP), and the International Agency on Research on Cancer (IARC) must be provided. Any pollutant regulated as a primary or secondary outdoor air pollutant must meet a concentration that will not generate an air concentration greater than that promulgated by the National Ambient Air Quality Standard (U.S. EPA, code or Federal Regulations, Title 40, Part 50).

** No detectable VOCs that are considered known or suspected carcinogens, endocrine disruptors, mutagens, reproductive toxins, or teratogens.

*** All other organic chemicals with established chronic reference exposure levels as listed in the latest edition of CA/EPA OEHHA list (www.oehha.ca.gov/air/chronic_rels/AllChrels.html).





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Crypton, Inc. 6745 Daly Road, West Bloomfield, MI 48322