

## What is toxic?

Toxic refers to a poisonous or deadly effect on a body caused by inhalation, ingestion, or absorption of, or direct contact with, a chemical.<sup>2</sup>

## What is a toxin/toxicant?

A toxin/toxicant is any **chemical** that can injure or kill humans, animals or plants; a poison. **Toxin** is usually used when referring to a toxic substance produced naturally. **Toxicant** is usually used when referring to a toxic substance that is produced by, or a by-product of, man-made activities.<sup>2</sup> The word toxin is used informally to describe both groups.<sup>3</sup>

## What is a persistent bio-accumulative toxin (PBT)?

PBTs are toxic chemicals that persist in the environment and accumulate within food chains. They transfer easily among air, water, and land, and span boundaries of programs, geography, and generations.<sup>1</sup>

What are some common toxins associated with building products? <sup>3,6</sup>	Associated with? Purpose? <sup>4,6</sup>	What's the big deal? <sup>3,4</sup>
Phthalates	Plasticizers – softener additives used in plastics like PVC	VOC and endocrine disruptor
Heavy metals like mercury, lead, antimony, arsenic and cadmium	Wire insulation, solder, dyes and pigments	Toxins released into environment; bio-accumulative; broad range of negative health impacts including carcinogenicity
Volatile Organic Compounds (VOCs) like formaldehyde, benzene, acetaldehyde	Paints, coatings, adhesives, carpets, insulation, etc.	Chemicals that vaporize at room temperature and then are inhaled; many are carcinogens.
Organo-halogenated flame retardants like polybrominated diphenyls (PBDs)	Used to slow spread of flames in many materials (chlorinated and brominated flame retardants)	PBT; reproductive toxin; endocrine disruptor; neurotoxin
Bisphenol A	Used in production of polycarbonate plastics and epoxies	Endocrine disruptor
Antimicrobials and biocides	Used in plastics and textiles to kill microorganisms	Aquatic toxin; some cause bacteria and fungi to mutate; utilization of these compounds can expedite the evolutionary process leading to superbugs; long-term effects unknown
Dioxin	Manufacturing bi-product of chlorinated plastics (i.e. PVC)	Some of the most potent carcinogens known to mankind, extremely toxic

## What human health problems can result from exposure to toxins/toxicants?

Small amounts of chemical exposure (especially at vulnerable developmental stages) can have long term health impacts. Chemicals, such as those above, have been linked to cancer, developmental disabilities, Alzheimer's disease and more.<sup>7</sup> Ninety-nine percent of pregnant American women carry multiple man-made chemicals in their bodies, sharing them through the umbilical cord.<sup>5</sup>

## What can I do?

- Choose products that have undergone a multi-attribute, third-party certification, such as the Cradle to Cradle Certified<sup>™</sup> program, that addresses material chemistry for human health.
- Select suppliers that disclose product ingredients and associated human or environmental health impacts.
- Connect with organizations like Safer Chemicals Healthy Families, Healthy Building Network, Practice Greenhealth and others that advocate materials optimized for human health and the environment.
- Encourage your local lawmakers to vote in favor of the Safe Chemicals Act.

<sup>1</sup> "About PBTs | Persistent Bioaccumulative and Toxic (PBT) Chemical Program | US EPA." US Environmental Protection Agency. N.p., n.d. Web. 1 Oct. 2012. <<http://www.epa.gov/pbt/pubs/aboutpbt.htm>>.

<sup>2</sup> "ATSDR - Toxicology Curriculum - Module One - Lecture Notes." Agency for Toxic Substances & Disease Registry Home. N.p., n.d. Web. 1 Oct. 2012. <<http://www.atsdr.cdc.gov/training/toxmanual/modules/1/lecturenotes.html>>.

<sup>3</sup> BuildingGreen Staff. Avoiding Toxic Chemicals in Commercial Building Projects: A Handbook of Common Hazards and How to Keep Them Out. Brattleboro VT: BuildingGreen, Inc., 2012. Print.

<sup>4</sup> Burgdorf, Taylor. Email interview. 12 Oct. 2012. McDonough Braungart Design Chemistry, LLC.

<sup>5</sup> Peoples, Lynn. "Safe Chemicals Act Could Reverse Burden Of Proof For Toxic Chemicals, Protect Children." The Huffington Post Green. N.p., n.d. Web. 1 Oct. 2012.

<[http://www.huffingtonpost.com/2012/07/24/safe-chemicals-act-flame-retardants\\_n\\_1699384.html](http://www.huffingtonpost.com/2012/07/24/safe-chemicals-act-flame-retardants_n_1699384.html)>.

<sup>6</sup> "Toxic Chemicals in Building Materials: An Overview of Healthcare Organizations." Healthy Building Network. Healthy Building Network in conjunction with Kaiser Permanente, n.d. Web. 01 Oct. 2012. <[www.healthybuilding.net/healthcare/Toxic%20Chemicals%20in%20Building%20Materials.pdf](http://www.healthybuilding.net/healthcare/Toxic%20Chemicals%20in%20Building%20Materials.pdf)>.

<sup>7</sup> "Toxic Chemicals: The Cost to Our Health." Safer Chemicals Healthy Families. N.p., n.d. Web. 1 Oct. 2012. <[www.saferchemicals.org/resources/health.html](http://www.saferchemicals.org/resources/health.html)>.