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How to Avoid Toxic Chemicals on Textiles

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Finishes on fabric make home fashions and clothes easy-wear and easy-care, but they use chemicals that can be dangerous to human health. From formaldehyde to ammonia, the ingredients in these finishes have been linked to numerous human health concerns including leukemia and lung cancer, allergies, skin irritation, and eyes and nose irritation.

We as consumers can absorb chemicals as we wear toxic fashion, but fashion workers face the highest risk to long-term exposure to chemicals because they use them in their most active states. US, Japan, and the European Union have fixed limits on the amount of chemicals that may be used for producing clothing, but the countries where most fast fashion is produced (China, Taiwan, and Thailand) suffer from these chemicals being flushed untreated into the rivers, lakes, and oceans because of limited legal protections.^[i] ^[ii]



As consumers, we can change this system to protect ourselves and those creating our fashion. Our guide to avoiding the most toxic textile finishes will put you on the right path to healthier fashion for you, for fashion creators, and for the planet.

Quick Guide: Toxic Chemical Textile Finishes

- **80,000 textile chemicals mostly untested:** There are approximately 80,000 chemicals used by the industry, most of which have not been tested for human and environmental safety.^[iii]
- **Dangers of ubiquitous formaldehyde:** It's used for stain resistance, wrinkle resistance, waterproofing, and anti-cling features, as well as for perspiration-proof, moth-proof, mildew resistance, and to preshrink wool. It has been linked to leukemia and lung cancer and to contribute to allergies, skin irritation, insomnia, skin rashes, headaches, nausea, and eye and nose irritation.^[iv]
- **Fixatives used for colorfastness:** Found on garments, curtains, rugs, and bed linens, chemicals used for colorfastness include ammonia, soda, sodium hydrate, and formaldehyde.^[v] These chemicals disrupt the ecosystem, causing damage to plants, animals, and fish.^[vi]
- **Toxic flame resistance PBDEs:** Deca-BDE, a type of Polybrominated Diphenyl Ether (PBDE), is used for flame-resistance. It's been linked to liver and thyroid cancer, impairs brain development, and alternations in the thyroid function in pregnant women and children, resulting in low birth weights and impaired neurological development.^[vii] ^[viii]
- **Optical brighteners (OBAs):** Fabrics may contain up to 0.5% optical brightening agents, which absorb ultraviolet light and emit it back as visible light for a short time. Before "burning out," they can be hazardous, causing allergic reactions, eye irritation, and toxicity to fish and other animal and plant life. OBAs are not biodegradable, remaining in wastewater for long periods.^[ix]
- **Phthalates, alkylphenol ethoxylates, organotins, lead, and cadmium:** These five chemicals affect children's neurological development, especially phthalates. Because these products were produced legally, no action was taken in the US to rectify this matter. ^[x]



Tyrone Hayes + Penelope Jagessar Chaffer
The toxic baby

Take Action! Choose Organic Fabrics

1. **Choose natural-fiber clothes without chemical finishes:** The safest alternative is to choose textiles like silk, hemp, organic cotton, and wool. Their porous fibers absorb natural dyes without fixatives like ammonia and formaldehyde.^[xi] Hemp is great alternative – though not colorfast, it's durable, hypo-allergenic, and nonirritating, looks like classic linen, is UV resistant, and is a good choice for hot weather.^[xii] Just be sure to choose **cruelty-free textiles!**
2. **Look for textiles without flame-retardants:** There is no safe replacement for formaldehyde as a flame-retardant, but wool is naturally flame-retardant and a viable alternative for baby and adult garments, rugs, curtains, and mattresses, provided it's **cruelty-free wool.**

3. **Buy organic textiles to avoid formaldehyde:** Textiles that follow certifications such as [Global Organic Textile Standards](#) are processed without harmful scouring or descaling chemicals as well as flame retardants, and the dyes must be natural and free of toxic finish.

4. **Choose certified low-toxin clothing:** The [Oeko-Tex Standard](#) is a certification that limits the use of a list of toxins in everything from raw materials to finished clothes. [SMART Sustainable Product Standards](#) promotes sustainability in everything from fabrics to apparel to flooring with environmental, social, and economic standards.

5. **Without certification, examine the care instructions before buying:** If there's an easy-care sticker promising that a garment is stain-proof or wrinkle-proof or has any other finish, buyer beware. Certain buzzwords make toxic textiles easy to spot—for example, “permanent press,” “durable press,” “stain-resistant,” “wrinkle-free,” “wrinkle resistance,” “easy care,” and “wash and wear.” Leave them in the store.

Dig Deeper: Take a Peek Into the Textile Industry

- Watch the video [Toxic textiles – Pesticides drench most cotton products, many we eat](#), which unveils some of the horrors of working in the textile industry.

- NTDTV reports on the China textile industry's toxic runoff in [Greenpeace Reports Textile Industry Pollutes China's Rivers and Chinese River Runs Bright Red After Chemical Dumping](#).

- Find out more about the EPA's [DecaBDE Phase-out Initiative](#).

Image by [Neil Barnwell](#)

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