



FASHION FWD

A DEEP DIVE INTO WHAT
CHEMICALS MIGHT EXIST IN YOUR
CLOTHING



FASHION FWD

DEAR READER,

We have designed this lookbook to give you a glimpse into which chemicals may be present in your garments.

Here are some tips:

- Shop certified products (check out our website's Certification Resource for more information)
- Wash your clothes before use
- If you smell chemicals on the garment before purchase, don't buy it
- Buy pre-loved
- Do your research! Look into the company website to see if they are addressing chemicals. See what to look for by visiting our "Blueprint for Nontoxic Apparel" on our website.



LOOKS

01 CASUAL
WEAR

02 WORK WEAR

03 ACTIVE WEAR

04 CHILDREN'S
CLOTHING

05 UNDERGARMENTS

LOOK 1 CASUAL WEAR



A DEEPER DIVE

Plain White Tee



The plain white tee - a classic. However, like many garments, it may contain [Alkylphenol ethoxylates \(APEO\)](#), which are used as detergents in the wet processing stage. They are slow to biodegrade and they can even bioaccumulate in our systems. The [U.S. EPA](#) has noted rising levels of APEOs in water samples taken from streams and rivers throughout the U.S. which are toxic to marine life and can disrupt hormone levels in animals and humans.

Genuine Leather Jacket

Leather jackets are the definition of cool. However, there is a chemical called Chromium 3, which is the main agent in the leather tanning process, and in 90% of the leather goods you'll find in stores today. [Chromium 3](#) becomes [chromium 6](#) with high temperatures, exposure to sunlight, and low humidity. According to [OSHA](#), associated exposure to chromium 6 includes a weakened immune system, kidney, and/or liver damage.



White Sneakers



White sneakers are a great staple, but are also full of chemicals! The chemical that you might come into contact with the most is called [Titanium Dioxide](#), which gives these sneakers the bright white color. Canada's official occupational health organization, [Workplace Health Materials Information Systems \(WHMIS\)](#), classifies it as carcinogenic.

Jeans

[Azo dyes](#) are a huge culprit in color fabrics. Your classic pair of blue jeans can include these azo dyes. These dyes are a family of colorants that make up 80% of dyes currently in the textile industry. In low doses, they can cause rashes and irritation. They are known to be endocrine disruptors and cause cancer.



Black Socks with logo



Black socks may contain [lead](#) simply because of the heat transfer print on them. According to the [AFIRM Group](#), are often used in low-cost pigments and inks. Long-term exposure can lead to a myriad of [health issues](#) including leading to reproductive and endocrine disruption.

LOOK 2

BUSINESS ATTIRE



A DEEPER DIVE

Wrinkle free button down



A wrinkle-free button-down can include **formaldehyde**, used to prevent wrinkling and is sometimes added during overseas shipping to keep the garment from developing mold. Health concerns include irritation to the eyes, nose throat, and...cancer.

Polyester Dress Pants



As with many polyester garments, they contain **disperse dyes** to give the garment color. Disperse dyes are a group in the azo dye family. These dyes can cause allergic reactions. After a long day in polyester clothing, it is common to get an itchy feeling. It is particularly irritating when the garment is close-fitting.

Leather Shoes



Men's and women's leather shoes can be full of **Dimethyl fumarate** often used as an anti-molding agent in leather. Found in the little silica packets that are placed in the soles of the shoes. They can cause skin burns and rashes when the substance comes in contact with body heat.



Silk Printed Dress

This beautiful silk printed dress is great for the office. Be careful of [chlorinated phenols](#) (they are used as antimicrobials in the silk production). They are preservatives to protect leather and textile materials from fungi and bacteria during storage and transport. They are [harmful substances](#) because they can easily penetrate skin, and above some exposure levels, are highly toxic by inhalation or skin contact. For workers, [exposure](#) has been shown to lead to heart disease non-Hodgkin's lymphoma, lung cancer and sarcoma.

Leather Bag

Leather bags for men or women can have [nonylphenol ethoxylates or nonylphenols \(NPEOs\)](#). NPEOs are a type of APEOs. These added chemicals are used during the tanning process as degreasing agents. It has been shown to mimic and outcompete naturally occurring estrogen. Its exposure is linked to an increased risk of breast cancer.



LOOK 3
ACTIVE WEAR



FASHION FWD DEEPER DIVE

A DEEPER DIVE



Waterproof Shell Jacket

In many waterproof garments, you can still find the chemical Per- and polyfluoroalkyl substances (PFAS). They also are known as "forever chemicals" because they are very difficult to break down. Exposure to PFAS have been associated with both kidney and testicular cancer, obesity and decreased response to vaccines.



Running Shoes

Isocyanate is the chemical that forms the foamy midsole of the sneaker. Only a small amount of exposure is needed for someone to experience health problems like irritated eyes, asthma, and bronchitis. It is a known carcinogen, can disrupt the central nervous system and is a respiratory irritant.



Dri Wick Polyester

Next time you purchase an odor-eliminating workout shirt, make sure to look out for organotins. [Organotins](#), act as a biocide protecting against odor. These compounds have been linked to liver and kidney damage as well as disruption in the enzyme system and blood-forming mechanisms. Organotins are easily absorbed into the skin.

Yoga Tights

Spandex is a staple in many a closet. [Phthalates](#) are found in many screenprints on spandex when used to soften the ink and preventing cracking. Phthalates are hormone-disrupting. Moreover, they've been linked to ADHD, asthma, diabetes, breast cancer, and a number of reproductive issues. Opt for any garments without any prints.



LOOK 4
CHILDRENS' PJS

FASHION FWD DEPPER DIVE



A DEEPER DIVE

Children's Pajamas



Flame retardants can be found in children's clothing. In the US and Canada, it is required that sleepwear for children 9 months to 14 years must meet flammability requirements. The flame retardant chemicals have been linked to cancer and hormone disruption, deficits in motor skills, reduced attention, and IQ in children. Even though the most toxic chemicals were phased out, they were replaced with poorly studied alternatives that are just as harmful.

Bibs



Baby bibs can have antimony, another flame retardant. Antimony is locked into the polyester fibers as a catalyst for polyester production but has a chance of leaching when washed under high temperatures. It is a carcinogen, toxic to the heart, lungs, liver, and skin. Long-term inhalation can cause chronic bronchitis and emphysema.

LOOK 5

UNDERGARMENTS



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A DEEPER DIVE

Polyester Bra



There can be many chemicals in this tight-fitting garment. [Triclosan](#) is a coating in antibacterial and antimicrobial garments. It has been linked to liver and inhalation toxicity, with the ability to penetrate the skin on contact and enter the bloodstream. It is a hormone disruptor and can weaken organ function.

Menstrual Underwear



Similar to triclosan, [nanosilver](#) is an antimicrobial agent. Nanosilver is what it sounds like - tiny bits of silver placed to prevent odor and kill bacteria on contact. When it comes to menstrual underwear, the silver in these garments can easily be absorbed into tissues and into the bloodstream. It can have an adverse impact on beneficial vaginal bacteria and can be toxic to the vaginal skin cells.