Clean, Green & Healthy
Choosing and Using Safer Cleaning & Body Care Products

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Agenda

• Product safety in the US
• Potential EHS effects of products
• Ingredients of concern in products
  – Where are they found?
  – Why are they used?
  – Why are they a concern?
  – Ways to limit our and the environment’s exposure
• Children’s personal care products
• Ecofriendly products
• Resources for more information
New York State Pollution Prevention Institute (NYSP2I)

The vision of the NYS P2I is to foster the transformation and development of sustainable businesses and organizations in NYS in a collaborative program committed to making the State a leader in environmental stewardship.

The mission of the Institute is to provide a high-impact, comprehensive and integrated program of technology research development and diffusion, outreach, training and education aimed at making New York State more sustainable for workers, the public, the environment and the economy through:

– reductions in toxic chemical use
– reductions in emissions to the environment and waste generation
– efficient use of raw materials, energy and water
Understanding Risk

• It’s difficult to conclude that a health effect is the result of exposure to one specific chemical
  – Two people may be exposed to the same substance and have different effects

• As we talk about products today, it is important to consider
  – Our own experiences influence risk
  – How much risk are you willing to take?
  – At what point is the extra cost or effort worth it?
  – No wrong answer
TEDxGreatPacificGarbagePatch - Stacy Malkan - Plastics Industry Makeover

- [https://www.youtube.com/watch?v=sEabJSeS hKM](https://www.youtube.com/watch?v=sEabJSeS hKM)
Personal Care Product Safety in the US

• Personal care products & cosmetics are regulated by the Food & Drug Administration.

• Cosmetics & ingredients are **not tested by the FDA before sale**
  - US: 11 chemicals banned/limited
  - Europe: 1,100 chemicals banned/limited

• **Companies are responsible for ensuring product safety** before they go to market.

• **FDA does not have authority to recall products containing a toxic chemical**

Ingredients Prohibited & Restricted by FDA Regulations, [http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm127406.htm](http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm127406.htm)

How to read a label

• What’s required:
  – Quantity in the container
  – Identity statement
  – Name of the manufacturer & distributor
  – Warning & caution statements
  – Ingredients

• Ingredients listed from highest to lowest quantity

How many products do you use?

- **Cleansing:** soap, body wash, shampoo, conditioner, bubble bath, toothpaste, mouthwash, etc.
- **Hair styling:** spray, gel, pomade, etc.
- **Shaving:** cream, gel
- **Moisturizing:** face & body lotion
- **Nail:** polish, remover
- **Perfume,** cologne, body spray, etc.
- **Deodorant** and antiperspirant
- **Cosmetics:** foundation, concealer, mascara, eyeshadow, eyeliner, lipstick, lip gloss, etc.
Daily use in the US

- Women use 12 products with 168 ingredients
- Teenage girls use 17 products
- Men use 6 products with 85 ingredients
- Children are exposed to 61 ingredients
- One of every 13 women and one of every 23 men are exposed to ingredients that are known or probable human carcinogens
- One of every 24 women are exposed to ingredients that are known or probable reproductive and developmental toxins, linked to impaired fertility or developmental harm for a baby in the womb

WHAT’S YOUR SKIN EATING?

The skin is the body’s largest organ. It’s also the biggest gateway for toxins to get inside. It’s not only what you eat, but what you put on your body that is vital to your health. Yet, conventional bath and beauty products are riddled with harmful chemicals. Read on to find out why it’s important to take notice of what you put on your skin.

OUR SKIN ABSORBS 60 PERCENT OF ANY TOPICAL PRODUCT WE USE!

SAY IT ISN’T SO

More than 10,000 various ingredients are permitted for use in our personal care products. Many are hazardous to our health, but they are allowed in products we use every day.

THE AVERAGE WOMAN WEARS NEARLY 515 CHEMICALS A DAY.
**Body Burden**

**Perfume**
- Avg no. of chemicals: 250
- Possible side effects: mouth, throat, and eye irritation; nausea; linked to kidney damage

**Shampoo**
- Avg no. of chemicals: 15
- Possible side effects: irritation, eye damage

**Fake Tan**
- Avg no. of chemicals: 22
- Possible side effects: rashes, irritation, hormonal disruption

**Deodorant**
- Avg no. of chemicals: 15
- Possible side effects: eye, skin, & lung irritation; headache; dizziness; respiratory problems

**Nail Varnish**
- Avg no. of chemicals: 31
- Possible side effects: fertility issues and problems in developing babies

**Body Lotion**
- Avg no. of chemicals: 32
- Possible side effects: rashes, irritation, hormonal disruption

**Hair Spray**
- Avg no. of chemicals: 11
- Possible side effects: allergies, irritation to eyes, nose, and throat; hormone disruption

**Eyes Shadow**
- Avg no. of chemicals: 26
- Possible side effects: linked to cancer, infertility; hormonal disruptions and damage to the body’s organs

**Blush**
- Avg no. of chemicals: 16
- Possible side effects: rashes, irritation, hormonal disruption

**Foundation**
- Avg no. of chemicals: 24
- Possible side effects: allergies, disrupts immune system, links to cancer

**Lipstick**
- Avg no. of chemicals: 33
- Possible side effects: allergies, links to cancer

[http://www.dailymail.co.uk/femail/beauty/article-1229275/Revealed--515-chemicals-women-bodies-day.html](http://www.dailymail.co.uk/femail/beauty/article-1229275/Revealed--515-chemicals-women-bodies-day.html)
Body Burden

PERFUME Britney Spears Fantasy
Number of chemicals: 19
Possible side effects: biochemical or cellular level changes, endocrine disruption, irritation (skin, eyes, or lungs)

SHAMPOO Herbal Essences Drama Clean
Number of chemicals: 21
Possible side effects: irritation (skin, eyes, or lungs), organ system toxicity, enhanced skin absorption, cancer, ecotoxicology, neurotoxicity

DEODORANT Secret Antiperspirant & Deodorant Invisible Solid, Powder Fresh
Number of chemicals: 13
Possible side effects: irritation (skin, eyes, or lungs), organ system toxicity, cancer, ecotoxicology, endocrine disruption, neurotoxicity

LOTION The Body Shop Madagascan Vanilla Flower
Number of chemicals: 24
Possible side effects: biochemical or cellular level changes, irritation (skin, eyes, or lungs), cancer, organ system toxicity, enhanced skin absorption, ecotoxicology, endocrine disruption

NAIL Rimmel 60 Second Nail, Cupcake Pink
Number of chemicals: 48
Possible side effects: biochemical or cellular level changes, endocrine disruption, irritation (skin, eyes, or lungs), organ system toxicity, neurotoxicity, cancer, ecotoxicology

FACE Almay Clear Complexion Makeup, Neutral
Number of chemicals: 45
Possible side effects: endocrine disruption, irritation (skin, eyes, or lungs), biochemical or cellular level changes, organ system toxicity, enhanced skin absorption, cancer, ecotoxicology, neurotoxicity

LIP ChapStick Skin rotectant/Sunscreen Moisturizer, SPF 15
Number of chemicals: 18
Possible side effects: biochemical or cellular level changes, endocrine disruption, organ system toxicity, irritation (skin, eyes, or lungs), enhanced skin absorption, cancer, ecotoxicology

BLUSH CoverGirl Cheekers Blush, Natural Rose 148
Number of chemicals: 24
Possible side effects: cancer, endocrine disruption, irritation (skin, eyes, or lungs), biochemical or cellular level changes, organ system toxicity, ecotoxicology

EYES Maybelline EyeStudio Baked Eyeshadow Duo, Mocha Mirage 40
Number of chemicals: 34
Possible side effects: biochemical or cellular level changes, cancer, endocrine disruption, irritation (skin, eyes, or lungs), neurotoxicity, organ system toxicity, enhanced skin absorption, ecotoxicology
Body Burden

**SHAMPOO** Old Spice High Endurance
Number of chemicals: 13 + fragrance
Possible side effects: cancer; toxic to organs; allergies; & irritation

**SHAVING CREAM** Edge Shave Gel Clean & Refreshing
Number of chemicals: 13
Possible side effects: affects development, reproductive system and organs; hormone disruption; allergies & irritation; persistent & bioaccumulative

**HAIR GEL** Redkin for Men Maneuver
Number of chemicals: 27 + fragrance
Possible side effects: biochemical or cellular level changes; affects development, reproductive system and organs; cancer; endocrine disruption; allergies & irritation; persistent & bioaccumulative

**FACIAL SOAP** Clean & Clear Facial Scrub, Morning Burst
Number of chemicals: 27 + fragrance
Possible side effects: biochemical or cellular level changes; affects development, reproductive system and organs; cancer; hormone disruption; allergies & irritation; persistent & bioaccumulative

**DEODORANT** Axe Antiperspirant/Deodorant - Phoenix
Number of chemicals: 9 + fragrance
Possible side effects: affects development, nervous & reproductive systems, and organs; hormone disruption; cancer; allergies & irritation

**MOUTHWASH** Listerine Cool Mint
Number of chemicals: 12
Possible side effects: affects development, reproductive system and organs; persistent & bioaccumulative

**COLOGNE** Hollister Newport Beach
Number of chemicals: 8 + fragrance
Possible side effects: affects development, nervous & reproductive systems, and organs; hormone disruption; cancer; allergies & irritation; persistent & bioaccumulative

**SOAP** Irish spring
Number of chemicals: 15 + fragrance
Possible side effects: cancer; toxic to organs; allergies & irritation; persistent & bioaccumulative

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Product & ingredient info, including number of chemicals & possible side effects from EWG’s SkinDeep at [www.ewg.org/skindeep](http://www.ewg.org/skindeep), accessed 5/28/13
Why is it important to Green Your Clean?

**Health**

Many ingredients in cleaning products can be hazardous to your health

- Skin, nose, throat, and eye irritation
- May interfere with, mimic or block hormones
- Contribute to or cause asthma

**Environment**

Products are released to the environment during normal use through evaporation of volatile components and rinsing down the drain of residual product from cleaned surfaces, sponges, etc.

- A May 2002 nationwide study by the U.S. Geological Survey (USGS) showed that nearly **70% of the streams tested contained breakdown products of detergents, while 66% contained disinfectants**


Cleaning Product Regulations

- Cautionary labeling on immediate container and outer containers of hazardous household substances to:
  - help consumers handle and use the products safely
  - give consumers information about immediate first aid steps to take if an accident occurs
- The EPA regulates antimicrobial cleaners, disinfectants, and other products that kill organisms as pesticides
Product Labels: Signal Words

- **Toxic**: poisonous or lethal when ingested, touched and/or inhaled
- **Danger**: extremely flammable, corrosive or highly toxic
  - One taste to one teaspoon is fatal to a 180-pound male
- **Warning** or **Caution**: all other hazardous products
  - Caution: One ounce to one pint may be harmful or fatal to a 180-pound male
  - Warning: One teaspoon to one ounce may be harmful or fatal to a 180-pound male

Federal Hazardous Substances Act, 15USC1251
What ingredients in cleaners & body care products should we be concerned about?
Cleaners used in the Bathroom

**Chlorinated phenols** are toxic to respiratory and circulatory systems.

**Formaldehyde** is a respiratory irritant and suspected carcinogen.

**Fragrance** contains phthalates and/or musk which may disrupt the endocrine system.

**Chlorine and alkyl ammonium chlorides** are caustic, may cause breathing problems and will burn your throat if swallowed.

**Lye (sodium hydroxide or potassium hydroxide)** is extremely corrosive and can burn your skin and eyes.

**Sulfuric acid** has dangerous fumes, can cause skin burns and blindness in contact with your eyes.

**mold & mildew**

**air freshener**

**toilet bowl**

**drain opener**
Cleaners used in the Kitchen

**Lye** (sodium hydroxide or potassium hydroxide) is extremely corrosive and can burn your skin and eyes. Lye is also a disinfectant and can burn your skin and eyes.

**Petroleum solvents** damage mucous membranes.

**Phenols** are toxic to respiratory and circulatory systems.

**Nonylphenol ethoxylates** are banned in Europe & have been shown to biodegrade slowly into even more toxic compounds.

**Butyl cellosolve** damages bone marrow, the nervous system, kidneys and the liver.

**Sulfuric acid** has dangerous fumes, can cause skin burns and blindness in contact with your eyes.

**Phosphates** cause algae growth.

**All purpose**

**Oven**

**Drain opener**

**Dishwasher**

**Disinfectant**

**Floor**
Cleaners used in the Living Room

**Formaldehyde** is a respiratory irritant and suspected carcinogen. **Fragrance** contains phthalates and/or musk which may disrupt the endocrine system.

**Diethylene glycol** depresses the nervous system. **Nonylphenol ethoxylates** are banned in Europe & have been shown to biodegrade slowly into even more toxic compounds. **Butyl cellosolve** damages bone marrow, the nervous system, kidneys and the liver.

**Perchloroethylene and napthalene fumes** given off can cause cancer, damage your liver, and may cause dizziness, sleepiness, nausea, loss of appetite and disorientation.

**Petroleum solvents** damage mucous membranes.

**petroleum distillates** and **oil of cedar** irritate your skin, eyes, and respiratory tract.

**Formaldehyde** is a respiratory irritant and suspected carcinogen. **Fragrance** contains phthalates and/or musk which may disrupt the endocrine system.
<table>
<thead>
<tr>
<th>Type of Cleaner</th>
<th>Chemical</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass &amp; Surface Cleaners</td>
<td>Diethylene glycol</td>
<td>depresses the nervous system</td>
</tr>
<tr>
<td>Disinfectants</td>
<td>Phenols</td>
<td>toxic to respiratory and circulatory systems</td>
</tr>
<tr>
<td>Toilet bowl cleaners</td>
<td>Chlorinated phenols</td>
<td>Toxic to respiratory and circulatory systems</td>
</tr>
<tr>
<td>Laundry Detergents &amp; All-Purpose Cleaners</td>
<td>Nonylphenol ethoxylate</td>
<td>Banned in Europe; has been shown to biodegrade slowly into even more toxic compounds</td>
</tr>
<tr>
<td>Spray &amp; Wick Deodorizers</td>
<td>Formaldehyde</td>
<td>Respiratory irritant and suspected carcinogen</td>
</tr>
<tr>
<td>Floor Cleaners</td>
<td>Petroleum solvents</td>
<td>Damage mucous membranes</td>
</tr>
<tr>
<td>Stain Remover</td>
<td>Perchloroethylene, naphthalene</td>
<td>fumes given off can cause cancer, damage your liver, and may cause dizziness, sleepiness, nausea, loss of appetite and disorientation</td>
</tr>
<tr>
<td>All-purpose, Glass, &amp; Surface Cleaners</td>
<td>Butyl cellosolve</td>
<td>Damages bone marrow, the nervous system, kidneys and the liver</td>
</tr>
<tr>
<td>Oven Cleaners</td>
<td>lye (sodium hydroxide or potassium hydroxide)</td>
<td>Lye is extremely corrosive, and can burn your skin and eyes</td>
</tr>
<tr>
<td>Mildew Removers</td>
<td>chlorine and alkyl ammonium chlorides</td>
<td>Caustic, may cause breathing problems and will burn your throat if swallowed</td>
</tr>
<tr>
<td>Furniture Polish</td>
<td>petroleum distillates, oil of cedar</td>
<td>irritate your skin, eyes, and respiratory tract</td>
</tr>
<tr>
<td>Drain cleaners</td>
<td>lye, sulfuric acid</td>
<td>dangerous fumes, can cause skin burns and blindness if they come in contact with your eyes</td>
</tr>
</tbody>
</table>

Volatile Organic Compounds (VOCs)

Chemicals that are emitted from solids or liquids at room temperature & contaminate air

• Concentrations of many VOCs can be **up to ten times higher indoors** than outdoors

• Emitted by a wide array of products including: paints, paint strippers, and other solvents; wood preservatives; aerosol sprays; cleansers and disinfectants; moth repellents and air fresheners; stored fuels and automotive products; hobby supplies; dry-cleaned clothing

Volatile Organic Compounds (VOCs)

Health effects

• **Vary greatly** from highly toxic to no known health effects between chemicals
• Effects include: *eye, nose, and throat irritation; nosebleed; headache, loss of coordination, nausea; allergic skin reaction; damage to liver, kidney, and central nervous system*
• Some can **cause cancer in animals**; some are **suspected or known to cause cancer in humans**
• Long term exposure can cause **sick building syndrome**

Actions you can take

✗ Use products according to manufacturer's directions and meet or exceed any label precautions
✗ Provide plenty of fresh air when using these products.
✗ Throw away unused or little-used containers safely; buy in quantities that you will use soon.
✗ Keep out of reach of children and pets.
✗ Never mix household care products unless directed on the label.

Volatile Organic Compounds (VOCs)

Aerosol products

- Propellants propel the pressurized contents out of a container
  - n-butane: VOC, flammable
  - Isobutane: VOC, flammable
  - Dimethyl ether: flammable
- Mists – small particles can easily enter your lungs
- **Safer alternative:** pump sprays

Aerosol air fresheners

- Typically contain
  - Formaldehyde: respiratory irritant and suspected carcinogen
  - aerosol propellant: flammable, VOC
  - petroleum distillates: irritate skin, eyes, throat
  - p-dichlorobenzene: disinfectant, may be a carcinogen
  - Fragrance
- Usually highly flammable and strong irritant to eyes, skin, and throat
- **Safer alternative:** baking soda

What is the concern?

- We are exposed to a lot of scented products – personal care, cleaners, air fresheners, laundry soap, etc.
- Usually made up of a **blend of chemicals**
- May be from natural or synthetic sources
- **Breathe it in** – perfume, cleaners, air freshener, scented candles, other airborne products
- **Absorbed through the skin** – shampoo, soap, lotion, other personal care products, laundry soap on clothes & bed sheets

Phthalates

- Act as solvents and carriers for those chemicals that create the scent in a fragrance
- Shown to cause reproductive and developmental harm in laboratory animals, and are linked to similar impacts in humans
- Linked to diabetes and asthma, potential risks to reproductive system & thyroid
- *EPA is concerned about phthalates because of their toxicity and the evidence of pervasive human and environmental exposure to these chemicals*

Synthetic Musks

- Man-made chemicals produced to replicate musk scents originally obtained from musk deer & musk ox
- Don’t break down in the environment and can accumulate in our bodies
- Potential hormone disruptors and may break down the body’s defenses against other toxic chemical exposure

Testing shows phthalates are in about 75% of all PCPs
Nail polish, hair spray, solvents & perfumes in other products contain ~10%
Can be transferred through breast milk from mom to baby

EPA [link](http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/phthalates.html)
Campaign for Safe Cosmetics, [link](http://safecosmetics.org/article.php?id=643)
• Find out from EWG which toxins are contained in various fragrance products used daily.

• https://www.youtube.com/watch?v=sN5liaOaIt8&index=20&list=PL0A8B744556EA286B
Fragrance

Actions you can take

✓ Choose **fragrance free products** labeled “free of perfumes and dyes” or “fragrance free” – “Unscented” does not mean the same as “fragrance free”
✓ Use **homemade fragrance free** cleaners
✓ Choose **naturally scented products**
✓ Use **baking soda** to naturally absorb odors
× Avoid products with “-phthalate”, “musk”, “parfum”, or “fragrance” as an ingredient
× Avoid **air fresheners and scented candles**

example fragrance free products
Diethanolamine & Monoethanolamine

Surfactants that help other components of the cleaner penetrate grime; also used to control pH

<table>
<thead>
<tr>
<th>Diethanolamine (DEA)</th>
<th>Monoethanolamine (MEA)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>May be found in</strong></td>
<td><strong>May be found in</strong></td>
</tr>
<tr>
<td><strong>Cleaners:</strong> laundry detergent, floor strippers, oven cleaners, tub &amp; tile, carpet cleaners</td>
<td><strong>Cleaners:</strong> laundry detergent, floor strippers, oven cleaners, tub &amp; tile, carpet cleaners</td>
</tr>
<tr>
<td><strong>Body care:</strong> foundation, moisturizer, other cleansers</td>
<td><strong>Body care:</strong> hair color &amp; bleach, styling mousse</td>
</tr>
<tr>
<td><strong>Can cause or worsen asthma; irritate nose, throat, &amp; skin; breathing can cause headache, nausea, and vomiting; can cause skin allergy</strong></td>
<td><strong>Can cause or worsen asthma; irritate nose, throat, &amp; lungs causing coughing, wheezing, shortness of breath</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Corrosive, contact can severely burn eyes &amp; skin, may cause skin allergy</strong></td>
</tr>
<tr>
<td></td>
<td><strong>May damage liver and kidneys</strong></td>
</tr>
<tr>
<td></td>
<td><strong>High exposure can affect the nervous system</strong></td>
</tr>
</tbody>
</table>

Example products that contain DEA or MEA
Triethanolamine

Used to control pH, works well at removing make up

- pH of skin is below 7 - typically basic solutions are used to clean the skin
- Potential for TEA to convert to carcinogenic nitrosamines

<table>
<thead>
<tr>
<th>Triethanolamine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Look for</strong> triethanolamine on the product label</td>
</tr>
<tr>
<td><strong>Found in</strong></td>
</tr>
<tr>
<td><strong>Cleaners:</strong> bath, laundry, disinfectants</td>
</tr>
<tr>
<td><strong>Body care:</strong> mascara, shampoo, face cleanser, face moisturizer, skin lotion, and other pH balanced products</td>
</tr>
<tr>
<td><strong>Linked to</strong> allergic skin reactions; suspected immunotoxicant, respiratory toxicant, skin or sense organ toxicant</td>
</tr>
<tr>
<td><strong>Possibly toxic</strong> to fish with short term and long term exposure</td>
</tr>
</tbody>
</table>

Example products that contain TEA

Parabens

Prevent bacteria from growing in water based products

• **Parabens** are the most widely used preservatives
• Most common parabens are methyl-, ethyl-, and butyl-
• Studies have detected parabens in breast tumors but it’s unclear whether the presence leads to cancer

<table>
<thead>
<tr>
<th>Parabens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look for methyl, ethyl, propyl, butyl parabens on product labels</td>
</tr>
<tr>
<td>Found in</td>
</tr>
<tr>
<td>Cleaners: air fresheners, deodorizers</td>
</tr>
<tr>
<td>Body care: moisturizers, face &amp; skin cleansers, shampoo, conditioner, sunscreen, toothpaste, makeup</td>
</tr>
<tr>
<td>Linked to cancer, endocrine disruption, reproductive toxicity, immunotoxicity, neurotoxicity, skin irritation</td>
</tr>
</tbody>
</table>

FDA Parabens, [http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm128042.htm](http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm128042.htm)
Formaldehyde-Releasing Preservatives

- **Formaldehyde** is used as a preservative & is an impurity released by a number of cosmetic preservatives
- About 20% of cosmetics & PCPs in the US contain a formaldehyde releasing chemical

<table>
<thead>
<tr>
<th>Formaldehyde &amp; Formaldehyde Releasing Preservatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Look for</strong> DMDM hydantoin, diazolidinyl urea, Quaternium-15, bronopol, imidazolidinyl urea, formalin, formic aldehyde, merthiolate, methanal on labels</td>
</tr>
<tr>
<td>FORMALDEHYDE has been found in nail treatment, nail polish, eyelash glue...</td>
</tr>
<tr>
<td>FORMALDEHYDE RELEASING PRESERVATIVES have been found in shampoo, conditioner, styling gel/lotion, body wash, moisturizer, foundation, eye shadow, powder, blush, mascara...</td>
</tr>
<tr>
<td>QUATERNARY AMMONIUM COMPOUNDS have been found in spray cleaners, disinfecting air fresheners, disinfectant/antibacterial cleaners...</td>
</tr>
</tbody>
</table>

- **Known** human carcinogen, asthmagen, neurotoxicant, developmental toxicant
- **Can cause** allergic skin reactions
- **Quats** are very toxic to aquatic life

Environmental Working Group, Guide to Healthy Cleaning, [http://www.ewg.org/guides/cleaners](http://www.ewg.org/guides/cleaners)
Case Study: J&J Baby Shampoo

• March 2009: Compact for Safe Cosmetics reports that Johnson’s baby shampoo contains 2 cancer causing chemicals that aren’t listed on the label

• October 2011: J&J to phase out the carcinogenic preservatives from baby products

• January 2014: cancer causing preservatives replaced
Revising a Formula for Baby Shampoo

Responding to pressure from consumers’ groups, Johnson & Johnson revised the ingredients in its baby shampoo to remove a formaldehyde-releasing preservative called quaternium-15.

**Johnson’s No More Tears Baby Shampoo**

**OLD FORMULATION**

Ingredients: Water, Cocamidopropyl Betaine, PEG-80 Sorbitan Laurate, Sodium Trideceth Sulfate, PEG-150 Distearate, Fragrance, Tetrasodium EDTA, Polyquaternium-10, Quaternium-15, Sodium Hydroxide, Citric Acid, Yellow 10, Orange 4.

**REMOVED:**
Quaternium-15 *a formaldehyde-releasing preservative*

**NEW FORMULATION**

Ingredients: Water, PEG-80 Sorbitan Laurate, Cocamidopropyl Betaine, Sodium Trideceth Sulfate, PEG-150 Distearate, Phenoxyethanol, Glycerin, Citric Acid, Fragrance, Sodium Benzoate, Tetrasodium EDTA, Polyquaternium-10, Ethylhexylglycerin, Sodium Hydroxide, Potassium Acrylates Copolymer, Yellow 6, Yellow 10.

**ADDED:**
- Potassium Acrylates Copolymer
  - helps maintain proper shampoo thickness
- Phenoxyethanol, Sodium Benzoate and Ethylhexylglycerin
  - components of the new preservative system
- Glycerin
  - helps with moisturization

# Triclosan

## Kills or slows the growth of bacteria

<table>
<thead>
<tr>
<th>Triclosan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Look for</strong> triclosan on the product label</td>
</tr>
<tr>
<td><strong>Found in</strong> antibacterial soap, toothpaste (to prevent gingivitis), deodorant, face &amp; body wash, cosmetics, mouthwash, dish soap, and other consumer products</td>
</tr>
<tr>
<td><strong>Linked to</strong> thyroid function and emergence of bacteria resistant to antibacterial products, studies show it’s interaction with hormone receptors</td>
</tr>
<tr>
<td><strong>Toxic to</strong> aquatic bacteria at levels found in the environment and inhibits photosynthesis in algae</td>
</tr>
</tbody>
</table>

*example products that contain triclosan*


FDA News Release, FDA issues proposed rule to determine safety and effectiveness of antibacterial soaps, [http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm378542.htm](http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm378542.htm)
Nail Polish

- Toxic trio: dibutyl phthalate, toluene, and formaldehyde
- DBP is prohibited in cosmetics in the European Union because it’s a possible human reproductive or developmental toxin¹
- U.S. Environmental Protection Agency restricts toluene in drinking water because it can cause nervous system disorders and damage the liver and kidneys²
- U.S. National Toxicology Program classifies formaldehyde as “a known human carcinogen” ³

<table>
<thead>
<tr>
<th>Dibutyl phthalate (DBP)</th>
<th>Toluene</th>
<th>Formaldehyde</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adds flexibility</td>
<td>Helps suspend color</td>
<td>Found in nail hardeners</td>
</tr>
<tr>
<td>Moisturizing sheen</td>
<td>Forms a smooth finish</td>
<td></td>
</tr>
<tr>
<td>Helps dissolve other ingredients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reproductive &amp; developmental toxin that is linked to feminizing effects in boys</td>
<td>Can cause headaches, dizziness, fatigue; possible reproductive &amp; developmental toxin</td>
<td>Known carcinogen; irritates the eyes, nose, and throat; can cause skin irritation</td>
</tr>
</tbody>
</table>

Nail Polish

- Look for brands that advertise their polish as “three free” either on the product packaging or website
- May contain other ingredients of concern

<table>
<thead>
<tr>
<th>Organic Solvents</th>
<th>Acrylics</th>
<th>Prevents Chipping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene: toxic by all routes of exposure, can cause headache, dizziness, skin and eye irritation, kidney and liver impairment¹; very persistent in air²</td>
<td>Methyl methacrylate: vapors irritate eyes, nose, and throat; irritates skin¹; toxic to fish²</td>
<td>Benzyl acetate: irritating to skin, eyes, and respiratory tract¹; toxic to fish, very persistent in air²</td>
</tr>
<tr>
<td>Methyl ethyl ketone: vapors irritate eyes, nose &amp; throat¹; very persistent in air²</td>
<td>Ethyl methacrylate: vapors irritate eyes and respiratory system, irritates skin¹; toxic to fish²</td>
<td></td>
</tr>
<tr>
<td>Acetone: vapors irritate eyes, nose, and throat¹; very persistent in air²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

² PBT Profiler, http://www.pbtprofiler.net
Antiperspirant & Deodorant

- Aluminum compounds slow the flow of sweat
  - Usually listed as Aluminum Zirconium Tetrachlorohydrex GLY on label

- Controversial research: There is no conclusive research linking the use of underarm antiperspirants or deodorants and the subsequent development of breast cancer
  - Some research suggests that aluminum-based compounds may be absorbed by the skin and cause estrogen-like effects
  - Estrogen has the ability to promote the growth of breast cancer cells
  - Some scientists suggest that aluminum-based compounds may contribute to the development of breast cancer

- Alternatives: aluminum free products, reduced aluminum content

How may these products be affecting our health & the environment?
Developmental Disabilities on the Rise

- About **1 in 6 US children (~17%)** had a DD in ‘06–’08
  - 7.66% learning disability
  - 6.7% attention deficit hyperactivity disorder (ADHD)
  - 3.65% other developmental delay
  - 0.47% autism
- Prevalence of any DD increased from **12.8% in ’97 to 15% in ’08**
- Over the last 12 years, prevalence of DDs has increased **17.1%**
  - Prevalence of autism increased **289.5%**
  - Prevalence of ADHD increased **33%**

Boys had twice the prevalence of any DD than girls – higher prevalence of ADHD, autism, learning disabilities, stuttering/stammering

Theories:
- Biology – X-linked genetic disorders that result in intellectual disabilities
- Cultural – greater incentive for case finding in boys
- Gender specific presentation – ie. ADHD girls tend to exhibit less impulsivity than boys

Why?! Between 1992 & 2005,
- ~26% of the increase could be directly attributed to changes in diagnostic criteria, specifically the shift from mental retardation diagnoses to autism diagnoses
- ~16% due to social influence and increased awareness
- ~11% due to older parents

Reasons for 47% of the increase is UNKNOWN

*Recent research has indicated that changes in diagnostic practices may account for at least 25% of the increase in prevalence over time, however much of the increase is still unaccounted for and may be influenced by environmental factors.
Girls are hitting puberty sooner


(Foster, 1977; Wu, 2002; Herman-Giddens, 1997; Reynolds and Wines, 1948; Lee, 2001)
Girls are hitting puberty sooner

When comparing women born before 1920 & those born btwn 1980-84, mean age declined
  - By 10 months for white women
  - By 12 months for Mexican American women
  - By 15 months for African American women
And mean age fell faster and farther for African American girls than white girls

(Anderson, 2003; Parent, 2003; Wattigney, 1999; Freedman, 2002; Foster, 1977; Biro 2006a; Wu, 2002; Anderson, 2005; Freedman, 2002; Herman-Giddens, 1997; Chumlea, 2003; Reynolds and Wines, 1948; Mac Mahon, 1973; Foster, 1977)

(Foster, 1977; Wu, 2002; Herman-Giddens, 1997; Reynolds and Wines, 1948; Lee, 2001)
Example known & suspected endocrine disruptors:
- Oral contraceptives
- Phthalates
- Parabens
- Bisphenol A
- DDT
- PCBs
- PBDEs
- PFOA

Disruption of the endocrine system can occur in various ways:

1. **MIMIC a natural hormone**
   - Fools the body into over-responding (e.g., growth hormone that results in increased muscle mass)
   - Fools the body to respond at inappropriate times (e.g., producing insulin when not needed)

2. **BLOCK the effects of hormones**
   - For example, blocks growth hormones required for normal development

3. **DIRECTLY STIMULATE or INHIBIT the endocrine system**
   - Causes an overproduction or underproduction of hormones (e.g., over- or under-active thyroid)

Exposure is linked to:
n - learning disabilities,
 - attention deficit disorder,
 - cognitive and brain development problems,
 - sexual development problems,
 - feminizing of males or masculine effects on females

Link to Breast Cancer in Women

Studies have shown a link between exposure to endocrine disruptors and breast cancer

- Lifetime exposures to estrogen increases risk\textsuperscript{1,2}
- Exposure to non-natural estrogen may increase risk\textsuperscript{3,4}

Chemicals in everyday products are linked to endocrine disruption

- **Phthalate & paraben exposure** is associated with numerous reproductive health and developmental problems\textsuperscript{6,7}
  - Exposure to diethyl phthalate may be associated with an increased risk of breast cancer in premenopausal women\textsuperscript{5}

\textsuperscript{5}López-Carrillo et al., Exposure to phthalates and breast cancer risk in northern Mexico, Environmental Health Perspectives, 118:4, April 2010
\textsuperscript{6}NIEHS, Phthalates: the Everywhere Chemical, http://www.niehs.nih.gov/research/supported/assets/docs/j_q/phthalates_the_everywhere_chemical_handout_.pdf#search=phthalates
Link to Reproductive Effects in Men

• Prenatal **phthalate exposure at environmental levels can adversely affect male reproductive development**¹
  – Short AGD has been shown to relate to male genital birth defects in children and impaired reproductive function in adult men²

• Link between **phthalate exposure and DNA damage in sperm** from men that were not exposed to high levels of phthalates
  – 52% had some type of abnormal sperm (ie. count, motility, etc)
  – Conclude that **DNA sperm damage due to phthalates may be widespread in American men**
  – Unknown whether this damage is linked to infertility or to reproductive outcomes

¹ the Study for Future Families Research Team. Decrease in Anogenital Distance among Male Infants with Prenatal Phthalate Exposure. Environmental Health Perspectives 2005;113(8):1056-1061. doi:10.1289/ehp.8100.
Link to Behavioral Effects in Children

- Research shows **BPA** is associated with moderately increased internalizing and externalizing behaviors, withdrawn/depressed behavior, somatic problems, and Oppositional/Defiant Disorder traits in boys\(^1\)
- Research shows **phthalates** are associated with
  - inattention, rule breaking, aggression, conduct problems, somatic problems, oppositional behavior in boys\(^2\)
  - 3yr: dec in psychomotor development, dec in girl’s mental development, inc in behavioral problems\(^3\)
  - 4-9yr: poor parent rated behavior; linked to aggression, attention problems, conduct problems, depression, ADHD, and externalizing problems\(^4\)
  - 4-7yr: association between exposure & reduced masculine play in boys, no association with girls\(^5\)
  - 7-9yr: poor social cognition, communication, awareness\(^6\)

\(^3\) Whyatt, R., et. al., Maternal Prenatal Urinary Phthalate Metabolite Concentrations and Child Mental, Psychomotor, and Behavioral Development at 3 years of age, Env Health Persp, 120:2, Feb 2012
\(^4\) Engel, S, et. al., Prenatal Phthalate Exposure is Associated with Childhood Behavior and Executive Functioning, Env Health Persp, 118:4, April 2010.
\(^5\) Swan, S., Prenatal phthalate exposure and reduced masculine play in boys, Int J Androl, 2010 April, 33(2): 2590269

The US FDA is concerned about potential effects on the brain, behavior, and prostate gland of fetuses, infants and children from **BPA**
Source: USFDA, Bisphenol A (BPA): Use in Food Contact Application, January 2010; updated March 30, 2012
Environmental Effects

• **Ingredients have been found in water** bodies - research is needed to determine the extent of harm they cause

• Found in water because they **don’t dissolve easily nor evaporate** at normal temperature and pressures

Effects on Aquatic Life

• In 2007, over 100 different body care ingredients were identified in environmental samples and drinking water

• Exposure risks are much larger than those for people, due to
  – continual exposures
  – multi-generational exposures
  – possible low dose effects
  – exposure to higher concentrations in untreated water

• Effects may be subtle because body care product ingredients occur in the environment at low concentrations

US EPA, Pharmaceuticals and Personal Care Product FAQs, [http://www.epa.gov/ppcp/faq.html](http://www.epa.gov/ppcp/faq.html)
Environmental Impact

- Some ingredients take a long time to break down into non-toxic counterparts when they enter the environment
  - Longer persistence means higher potential for exposure
- Some ingredients are also toxic to fish

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Days to be removed from water</th>
<th>Days to be removed from sediment</th>
<th>Toxic to Fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl paraben (preservative)</td>
<td>90</td>
<td>840 (~2.3yr)</td>
<td>YES</td>
</tr>
<tr>
<td>Triclosan (antibacterial)</td>
<td>360</td>
<td>3240 (~8.8yr)</td>
<td>YES</td>
</tr>
<tr>
<td>Dibutyl phthalate (nail polish, fragrance)</td>
<td>52</td>
<td>468 (~1.3yr)</td>
<td>YES</td>
</tr>
<tr>
<td>Formaldehyde (nail polish, preservative)</td>
<td>90</td>
<td>840 (~2.3yr)</td>
<td>MODERATELY</td>
</tr>
<tr>
<td>Diethanolamine</td>
<td>8.7</td>
<td>78 (~2.5mo)</td>
<td>NO</td>
</tr>
<tr>
<td>Triethanolamine</td>
<td>15</td>
<td>140 (~4.66 mo)</td>
<td>NO</td>
</tr>
</tbody>
</table>

Data from the US EPA's PBT Profiler, [http://www.pbtprofiler.net](http://www.pbtprofiler.net)
MICROBEADS FACE TO FISH

A TUBE OF FACEWASH CAN CONTAIN OVER 330,000 MICROBEADS
This means billions of plastic microbeads are flowing into our global waterways.

1,147 PERSONAL CLEANSING PRODUCTS CONTAIN MICROBEADS
1,147 personal cleansing products in the US and around the world contain micro-plastic particle abrasives (MICROBEADS), employed as exfoliant.

MICROBEADS ARE DESIGNED TO WASH DOWN THE DRAIN

1. WASTE TREATMENT
Many sewage treatment facilities do not capture synthetic, floating particles the size of microbeads that are only about 0.5 mm in diameter.

2. SEWAGE OVERFLOW
During heavy rains, some treatment facilities let sewage overflow go directly into our waterways.

FERTILIZER
663 SPECIES OF MARINE WILDLIFE ARE AFFECTED BY PLASTIC POLLUTION

Over 663 species of marine wildlife are affected by plastic pollution through ingestion or entanglement. Micro-plastics attract other pollutants in the environment including PCBs, flame-retardants, and other industrial chemicals.

43,000 PLASTIC PARTICLES 5 Gyres found an average of 43,000 plastic particles /km² in Lake Erie.

Micro-plastic particles are being found in all oceanic gyres, bays, gulfs and seas worldwide.

SLUDGE & FERTILIZER RUNOFF
Sewage sludge used as fertilizer, beads seep into soil, get into rivers/aquifers.

A SINGLE PLASTIC PARTICLE CAN ABSORB UP TO 1,000,000 TIMES MORE TOXIC CHEMICALS THAN THE WATER AROUND IT.

Microbeads in NYS

• Estimated **19 tons of microbeads** are discharged into NY’s wastewater each year

• **Hudson River** contains 160,580 particles per square mile

• **Feb’15: AG Eric Schneiderman proposes Microbead-Free Waters Act** to ban “production, manufacture, distribution and sale of any beauty product, cosmetic or other personal care product containing plastic particles <5 mm in size”
  
  — US Sen. Kirsten Gillibrand introduced national legislation to ban microbeads


How to Avoid Microbeads

• Read ingredients lists &
  – **Choose** products with **natural exfoliants**, such as apricot kernel shells and jojoba beads
  – **Avoid** products that contain plastics – **polyethylene (PE)**, but can be also be made of **polypropylene (PP)**, **polyethylene terephthalate (PET)**, **polymethyl methacrylate (PMMA)**, **nylon**

• Avoid exfoliating products

Industry Response
- Plastic free: Unilever, Colgate Palmolive
  - **Free by end 2015** – Target, Body Shop
  - **Free by 2017** – Proctor & Gamble, Johnson & Johnson (goal: half products reformulated by end 2015)

Source: corporate websites

Five gyres, http://5gyres.org/how_to_get_involved/campaigns-microbead/
THE FIVE GYRES

Although not widely discussed there are in fact 5 main gyres in the world’s oceans and several smaller gyres throughout Alaska and Antarctica. The most commonly discussed gyre is the North Pacific Gyre, known as the garbage patch due to the mass of marine debris that has collected there.

A GYRE
A gyre is a place where currents meet and form a whirlpool type system - this forms a meeting place for ocean debris. Millions of tiny and large pieces of plastics accumulate here; due to the currents they remain trapped here, breaking down over time to become smaller and smaller pieces of plastic until they eventually become plastic dust. This 'dust' will never go away but will instead stay in the ocean accumulating toxins and working its way into the food chain as more animals ingest these invisible and dangerous items of plastic waste.

1. NORTH PACIFIC GYRE

5. INDIAN OCEAN GYRE

6. SOUTH PACIFIC GYRE

7. SOUTH ATLANTIC GYRE

8. NORTH ATLANTIC GYRE

9. PLASTIC POLLUTION IN THE NORTH ATLANTIC

10. PLASTIC MILLIONS TIMES the size of the USA.

11. 80% of the plastic is of marine origin.

12. 80% of the plastic found in the oceans.

13. 80% of the plastic is found in the North Atlantic.

14. 80% of the plastic is found in the Pacific Ocean.

15. 80% of the plastic is found in the Atlantic Ocean.

16. 80% of the plastic is found in the Indian Ocean.

17. 80% of the plastic is found in the South Pacific Ocean.

18. 80% of the plastic is found in the South Atlantic Ocean.

19. 80% of the plastic is found in the North Atlantic Ocean.

20. 80% of the plastic is found in the North Pacific Ocean.

21. 80% of the plastic is found in the Ocean.

22. 80% of the plastic is found in the Ocean Gyres.

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99. 80% of the plastic is found in the Ocean Gyres.

100. 80% of the plastic is found in the Ocean Gyres.
Midway Atoll, where these photos were taken, is more than 2,000 miles from the nearest land. These photos portray baby albatrosses, which are fed the plastic by their parents. A chick can have an ounce of plastic in its belly and remain healthy; the dead chicks have twice as much.

Photo Credit: Chris Jordan
What are some things we can do?
What You Can Do

- Eliminate unnecessary products
- Prioritize high exposure (i.e. products that aren’t rinsed from the skin, eating & drinking), frequently used products for replacement, such as body care products, cups and plates, pots & pans, kids pajamas
- Choose third party certified products
- Buy from companies you trust
- Make your own products
- Use tools to help you choose safer products

example third party certifications
Eco Friendly Products

- The use of most eco friendly terms are not defined or regulated
- Third party certifications (someone other than the company) are preferable
- Just because a product or ingredient is ‘organic’, doesn’t mean it’s safe!

<table>
<thead>
<tr>
<th>Unregulated terms</th>
<th>Preferable terms &amp; labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Toxic</td>
<td>USDA Organic Label</td>
</tr>
<tr>
<td>Natural</td>
<td>NSF/ANSI 305: Personal Care Products Containing Organic Ingredients with logo</td>
</tr>
<tr>
<td>Eco-friendly</td>
<td>Free of phthalates, sulfates, parabens, etc</td>
</tr>
<tr>
<td>Eco-healthy</td>
<td></td>
</tr>
</tbody>
</table>
Certified Organic Products

- USDA regulates “organic” as it applies to agricultural products through the National Organic Program.
- If a product contains agricultural ingredients, and meets the USDA organic production, handling, processing and labeling standards, it may be eligible to be certified.

<table>
<thead>
<tr>
<th>Package says</th>
<th>Composition of the PCP</th>
<th>What must be on the product packaging</th>
</tr>
</thead>
</table>
| 100% Organic                 | Must contain 100% organic ingredients  | USDA Organic Seal
                                            Certifying agent’s name & address                         |
| Organic                      | Must contain at least 95% organic ingredients | USDA Organic Seal
                                            Certifying agent’s name & address                         |
| Made with organic ingredients| Must contain at least 70% organic ingredients | Certifying agent’s name & address
                                            Indicate which ingredients are certified organic       |
| Cannot be labeled organic    | Products with less than 70% organic ingredients | Indicate which ingredients are certified organic            |
Certified Biobased Products

- Biobased products: commercial or industrial products (other than food or feed) that are composed in whole, or in significant part, of biological products, renewable agricultural materials (including plant, animal and marine materials) or forestry materials

<table>
<thead>
<tr>
<th>Product type</th>
<th>Min. content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaving products</td>
<td>92%</td>
</tr>
<tr>
<td>Lip care</td>
<td>82%</td>
</tr>
<tr>
<td>Conditioner</td>
<td>78%</td>
</tr>
<tr>
<td>Deodorant</td>
<td>73%</td>
</tr>
<tr>
<td>Shampoo</td>
<td>66%</td>
</tr>
<tr>
<td>Hand cleaners</td>
<td>64%</td>
</tr>
<tr>
<td>Bath products</td>
<td>61%</td>
</tr>
<tr>
<td>Lotions &amp; moisturizers</td>
<td>59%</td>
</tr>
<tr>
<td>Sun care products</td>
<td>53%</td>
</tr>
</tbody>
</table>
Using Cleaning Products Safely

Use in well ventilated areas

Use in areas away from pregnant women, babies and young children, seniors, people with asthma, and others who may be sensitive

Store all cleaners and other chemicals away from children

Mixing ammonia & bleach creates chloramine gas
  – Toxic, causes coughing shortness of breath, chest pain, wheezing, nausea, watery eyes, irritates the throat, nose & eyes, pneumonia & fluid in the lungs

Do not use two drain cleaners together, or one right after the other as they may contain bleach or acid - mixing acids and bleach creates chlorine gas, & hydrochloric acid when mixed with water
  – Chlorine gas causes coughing and breathing problems, burning & watery eyes, and runny nose. Higher levels cause chest pain, more severe breathing difficulties, vomiting, pneumonia, and fluid in the lungs. Very high levels can cause death. It is absorbed through the skin & causes pain, inflammation, swelling, & blistering.
  – Hydrochloric acid causes burns to the skin, eyes, nose, throat, mouth & lungs.

If you think or know you mixed these together –
  – Leave the room & get fresh air immediately. Don’t return until the room has been well ventilated.
  – Contact your local Poison Control (1-800-222-1222)
## Alternative Cleaning Ingredients

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>USED TO</th>
<th>PRACTICAL EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baking soda</td>
<td>Clean, deodorize, water soften, scour</td>
<td>Clean toothbrush or hairbrush</td>
</tr>
<tr>
<td>Unscented, non-antibacterial soap</td>
<td>Clean a huge range of materials and surfaces</td>
<td>Hand soap, dish soap</td>
</tr>
<tr>
<td>Lemon</td>
<td>Fight household bacteria</td>
<td>Rub on cutting board, garbage disposal</td>
</tr>
<tr>
<td>Borax</td>
<td>Clean, deodorize, disinfect, water soften, clean floors, wallpaper, and printed walls</td>
<td>Alternative to bleach, boosts soaps, and removes stains</td>
</tr>
<tr>
<td>White vinegar</td>
<td>Cuts grease, removes mildew, odors, some stains, and wax build-up</td>
<td>Remove grease from clothes, towels, carpets, rugs</td>
</tr>
<tr>
<td>Cornstarch</td>
<td>Clean windows, polish furniture, shampoo carpets and rugs</td>
<td>Absorbs smell; sprinkle on carpet, let sit for 30 minutes, and vacuum up</td>
</tr>
<tr>
<td>Citrus solvent</td>
<td>Cleans paint brushes, oil and grease, some stains</td>
<td>Use to clean paint materials</td>
</tr>
</tbody>
</table>
What You Can Do

- **Choose fragrance free** & eliminate artificially scented products
- **Eliminate triclosan** containing antibacterial soaps, toothpaste, and other body products
- Choose **concentrates** instead of ready to use formulas
- Choose **refills** when available
- Choose **recyclable packaging**
- Choose packaging with **recycled content**
- Consider packaging with **biobased content**, such as “compostable”
Make Your Own Products

Healthy Byte: Making an Eco-Friendly Soft Scrub
•  https://www.youtube.com/watch?v=6GwfN3IN9PE

Healthy Byte: Creating a Furniture Polish from Scratch
•  https://www.youtube.com/watch?v=SaG9e90z1j8

Healthy Byte: Make Your Own Nontoxic Disinfecting Cleaner
•  https://www.youtube.com/watch?v=5rruKZ6uw8c
EWG’s Guide to Healthy Cleaning

https://www.youtube.com/watch?v=0ffzwjAw5Z8
### Windex Original Glass Cleaner with Ammonia-D

**See:** General Purpose Cleaner

**Brand:** Windex

**Company:** S.C. Johnson

- **Asthma/Respiratory:** Moderate Concern
- **Skin Allergies & Irritation:** Some Concern
- **Developmental & Reproductive Toxicity:** Low Concern
- **Cancer:** Low Concern
- **Environment:** Moderate Concern

**How does it rate:** Scores for similar cleaners ranged from A to F. Search for a better General Purpose Cleaner.

**Top Scoring Factors:** May contain ingredients with potential for acute aquatic toxicity; respiratory effects; skin irritation/allergies/damage

**Ingredient Disclosure:** Poor

**Green Certified:** No

### Product ingredients

**Known Ingredients**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Health, Environment, and Disclosure Concerns</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMMONIUM HYDROXIDE</td>
<td>High Concern: acute aquatic toxicity, Moderate Concern: respiratory effects, Some Concern: damage to vision, skin irritation/allergies/damage</td>
<td>F</td>
</tr>
<tr>
<td>2-BENZYLAMINOHEXANE</td>
<td>Moderate Concern: respiratory effects, Some Concern: skin irritation/allergies/damage</td>
<td>D</td>
</tr>
</tbody>
</table>
Find **safe, healthy, green, & ethical** product reviews based on scientific ratings.

With over **250,000** products on our site, we can help you find what you’re looking for.

**OUR RATINGS**

GoodGuide scientists rate products on a 0 – 10 scale for their health, environment, and social impact.
Dove White Bar Soap - 6-4.25 Oz

**HEALTH**
This product has insufficient ingredient information. 6.0

- **Level of Health Concern of Ingredients**
  - **LOW CONCERN**
    - Lauric Acid
    - Cocamidopropyl Betaine
    - Tetrasodium EDTA

- **Data Adequacy, Ingredient Disclosure**
  - Amount of Ingredient Detail 6.0

**ENVIRONMENT**
This company's environmental policies, practices and performance place it among the best 25% of companies rated by GoodGuide. 6.6

**SOCIETY**
This company's social policies, practices and performance place it among the best 10% of companies rated by GoodGuide. 6.1

**INGREDIENTS**
- Sodium Laureth sulfate
- Stearic Acid
- Sodium Tallowate
- Sodium Palmitate
- Lauric Acid
- 2-OXYETHANESULFONATE
- Water
- Sodium Stearate
- Cocamidopropyl Betaine
- Sodium C14-16 Olefin Sulfonate
- Sodium Cocoyl
- Sodium Palm Kernelate
- Fragrance
- Sodium Chloride
- Tetrasodium EDTA
- Titanium Dioxide

**ALTERNATIVE PRODUCTS**
- Mrs. Meyer's Clean Day Basil All Purpose Soap
- Seventh Generation Sensitive Care Bar
- Nature Box Brazil Nut Emollient Bar Soap
- Aubrey Organics Honeyuckle
- Badger Unscented Natural Body Soap
- Alaffa African Black Soap, Unscented

**CERTIFICATIONS**
- ISO 14001
- RSPO Member of Roundtable on Sustainable Palm Oil (RSPO)
- GMP Certified
Skin Deep is Mobile!

Get critical information about your personal care products right at your fingertips!

Search more than 73,000 products...

Smarter Choices, Healthier Living

Coming This Spring: EWG’s 2014 Sunscreen Guide

Companies: To have your sunscreen products included in this year’s guide, email skindeep@ewg.org for submission instructions.

The deadline for submitting your formulations is March 21.

 EWG’s Healthy Living Corner

 Featured Research & News

 Exposing the Cosmetics Cover-up
 Read more »

 Essential Tips and Facts
 See that long list of ingredients on the back of the bottle? Some probably aren’t as safe as you’d hope.

1  Top tips for safer products
2  Frequently asked questions (FAQs)
3  Why Skin Deep®?
4  Myths on cosmetic safety
5  User’s guide to Skin Deep®
EWG scientists reviewed Dove White Beauty Bar for safety according to the methodology outlined in our Skin Deep Cosmetics Database. We assess the ingredients listed on the labels of personal care products based on data in toxicity and regulatory databases, government and health agency assessments and the open scientific literature. EWG's rating for Dove White Beauty Bar is 4.

**Ingredient Concerns:**

- **Overall Hazard**
- **Cancer**
- **Developmental & reproductive toxicity**
- **Allergies & immunotoxicity**
- **Use restrictions**

**Other HIGH concerns:** Multiple, additive exposure sources, Miscellaneous, Occupational hazards; Other MODERATE concerns: Contamination concerns, Irritation (skin, eyes, or lungs), Organ system toxicity (non-reproductive), Other LOW concerns: Enhanced skin absorption, Data gaps, Ecotoxicology

### Ingredient Concerns

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concerns</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRAGRANCE</strong></td>
<td>Ecotoxicology, Allergies/immunotoxicity, Irritation (skin, eyes, or lungs), Miscellaneous, Organ system toxicity (non-reproductive)</td>
<td>8</td>
</tr>
<tr>
<td><strong>COCAMIDOPROPYL Betaine</strong></td>
<td>Ecotoxicology, Allergies/immunotoxicity, Contamination concerns (COCAMIDOPROPYL DIMETHYLAMINE)</td>
<td>4</td>
</tr>
</tbody>
</table>
Resources for More Information

Understand health & safety of specific products, product classes, and manufacturers

CA Safe Cosmetics Program Product Database, [http://safecosmeticsact.org/search/](http://safecosmeticsact.org/search/)

The GoodGuide, [www.goodguide.com](http://www.goodguide.com), mobile app for iPhone and Android with bar code scanner


EWG’s SkinDeep Cosmetics Database, [www.cosmeticsdatabase.com](http://www.cosmeticsdatabase.com), mobile app for iPhone and Android with bar code scanner


Information about ingredients and the industry


US FDA Cosmetics (regulatory & safety information), [http://www.fda.gov/Cosmetics/default.htm](http://www.fda.gov/Cosmetics/default.htm)
Thank You

Kate Winnebeck
Sr. Environmental Health & Safety Specialist
Email: kate.winnebeck@rit.edu
Phone: 585-475-5390

New York State Pollution Prevention Institute
http://www.nysp2i.rit.edu
Back up Slides
Lipstick & Lead

• FDA limit for lead in colorants used in cosmetics, typically 20ppm
• FDA 2010 survey of 400 lipsticks
  – Average lead concentration 1.11 ppm
  – Results ranged from the detection limit of 0.026 ppm to 7.19 ppm

FDA: Is there a safety concern about the lead levels FDA found in lipsticks? No. We have assessed the potential for harm to consumers from use of lipstick containing lead at the levels found. Lipstick, as a product intended for topical use with limited absorption, is ingested only in very small quantities. **We do not consider the lead levels we found in the lipsticks to be a safety concern.** The lead levels we found are within the limits recommended by other public health authorities for lead in cosmetics, including lipstick.

CDC: no threshold for adverse health effects in young children has been demonstrated (**no safe blood level has been identified**), all sources of lead exposure for children should be controlled or eliminated.

FDA Lipstick and Lead: Questions and Answers, http://www.fda.gov/Cosmetics/ProductandIngredientSafety/ProductInformation/ucm137222...
Sunscreen Tips

• **Avoid sprays and powders**, as they contain tiny particles that may not be safe to breathe and choose creams instead

• **Avoid retinyl palmitate** aka Vitamin A, as tumors & lesions develop on skin coated with Vitamin A faster in studies and oxybenzone, a synthetic estrogen that penetrates the skin; choose zinc, titanium, avobenzone or Mexoryl SX, as they protect from UVA radiation and most remains on the skin

• **Avoid sunscreens with insect repellant** and purchase separate products instead

• **Reapply often** as sunscreen breaks down in the sun, washes off, and is rubbed off on towels and clothes

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<table>
<thead>
<tr>
<th>Avoid these</th>
<th>Look for these</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ingredients</strong></td>
<td><strong>Products</strong></td>
</tr>
<tr>
<td>Oxybenzone</td>
<td>Cream</td>
</tr>
<tr>
<td>Vitamin A (retinyl palmitate)</td>
<td>Broad spectrum protection</td>
</tr>
<tr>
<td>titanium</td>
<td>Water resistant for beach, pool &amp; exercise</td>
</tr>
<tr>
<td>avobenzone</td>
<td>SPF 30+ for beach &amp; pool</td>
</tr>
<tr>
<td>Mexoryl SX</td>
<td></td>
</tr>
<tr>
<td>Added insect repellent</td>
<td></td>
</tr>
</tbody>
</table>
Rates the safety and efficacy of 1,800 SPF products

- Products with high ratings provide broad spectrum, long lasting protection, with ingredients that pose low human health concerns
FDA Banned & Restricted Ingredients

Banned
- **Bithionol**: may cause photo-contact sensitization
- **Chlorofluorocarbon propellants**: environmental concern
- **Chloroform**: animal carcinogenicity and likely hazard to human health
- **Halogenated salicylanilides (di-, tri-, metabromsalan and tetrachlorosalicylanilide)**: may cause photocontact sensitization
- **Methylene chloride**: animal carcinogenicity and likely hazard to human health
- **Vinyl chloride**: prohibited as an ingredient of aerosol products, because of its carcinogenicity
- **Zirconium-containing complexes**: use in aerosol cosmetic products is prohibited because of their toxic effect on lungs
- **Prohibited cattle materials**: to protect against bovine spongiform encephalopathy (BSE), also known as "mad cow disease," cosmetics may not be manufactured from, processed with, or otherwise contain, prohibited cattle materials.

Restricted
- **Hexachlorophene**: Because of its toxic effect and ability to penetrate human skin, may be used only when an alternative preservative has not been shown to be as effective
  - concentration may not exceed 0.1%
  - may not be used in cosmetics that may be applied to mucous membranes, such as lips
- **Mercury compounds**: compounds are readily absorbed through the skin and tend to accumulate in the body. They may cause allergic reactions, skin irritation, or neurotoxic manifestations.
  - limited to eye area cosmetics at concentrations not exceeding 0.0065%
  - permitted only if no other effective and safe preservative is available for use
  - all other cosmetics may contain less than 0.0001%
- **Sunscreens in cosmetics.** The term "sunscreen" generally causes the product to be regulated as a drug. Sunscreen ingredients may also be used in some products for nontherapeutic, nonphysiologic uses (ie, color additive or to protect the color of the product).

US FDA, Ingredients Prohibited and Restricted by FDA Regulations. [http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm127406.htm](http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm127406.htm)
## Choosing Safer Products

<table>
<thead>
<tr>
<th>Product Type</th>
<th>tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soap</td>
<td><strong>Avoid</strong> triclosan, triclocarban</td>
</tr>
<tr>
<td>Skin moisturizer &amp; lip products</td>
<td><strong>Avoid</strong> retinyl palmitate, retinyl acetate, retinoic acid &amp; retinol in daytime products</td>
</tr>
<tr>
<td>Hand sanitizers</td>
<td><strong>Choose</strong> ethanol or ethyl alcohol in at least 60% alcohol</td>
</tr>
</tbody>
</table>
| Sunscreen                        | **Avoid** SPF>50, retinyl palmitate, aerosol spray, powder, oxybenzone, added insect repellant  
**Choose** hats & shade, zinc oxide or titanium dioxide as the active ingredient, avobenzone at 3%, apply frequently |
| Hair care                        | **Avoid** dark permanent hair dyes & chemical hair straighteners     |
| Toothpaste                       | **Avoid** triclosan                                                  |
| Nail polish                      | **Avoid** formaldehyde & formalin, hardeners, toluene, dibutyl phthalate |
| Make up                          | **Avoid** loose powders, vitamin A (listed as retinol, retinyl palmitate, retinyl acetate) in skin & lip products |
| Anti-aging products              | **Avoid** alpha & beta hydroxy acids                                 |

# Cosmetics

<table>
<thead>
<tr>
<th>Product</th>
<th>Common ingredients</th>
<th>Ingredient concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blush</td>
<td>Talc, powdered silica, alumina, coal tar dyes, acrylates, parabens</td>
<td>Neurotoxic, strong irritants, endocrine disruptors</td>
</tr>
<tr>
<td>Mineral makeup</td>
<td>i.e., Bismuth oxychloride</td>
<td>Irritate sensitive skin, cause redness &amp; itching</td>
</tr>
<tr>
<td>Face powder</td>
<td>Talc, powdered silica, coal tar dyes, quaternium-15, lanolin, fragrances, parabens, triclosan</td>
<td>Can release formaldehyde, allergic reactions, skin irritation, endocrine disruption</td>
</tr>
<tr>
<td>Foundation</td>
<td>Talc, powdered silica, alumina, octenylsuccinate, mineral oil, TEA, parabens, quaternium-15, fragrance, coal tar dyes</td>
<td>Neurotoxic, skin irritation, promote acne, may contain formaldehyde</td>
</tr>
<tr>
<td>Concealer</td>
<td>Propylene glycol, polyethylene glycol, parabens, retinyl palmitate, may be contaminated with 1.4-dioxane and ethylene oxide</td>
<td>Skin irritation, endocrine disruption, cause gene mutations &amp; damage DNA, contaminants are suspected &amp; known carcinogens</td>
</tr>
<tr>
<td>Eyeshadow</td>
<td>Coal tar dyes, talc, powdered silica, BHA, parabens</td>
<td>Carcinogens, endocrine disruptors</td>
</tr>
<tr>
<td></td>
<td>Cream: mineral oil, petrolatum, &amp; lanolin oil</td>
<td>Creams: allergens</td>
</tr>
<tr>
<td></td>
<td>Glitter: aluminum or bronze</td>
<td>Glitter: linked to cancer &amp; neurotoxic effects</td>
</tr>
<tr>
<td>Mascara</td>
<td>Petroleum distillates, phenoxyethanol, propylene glycol, TEA, parabens, synthetic plastics, parabens</td>
<td>Skin &amp; eye irritation, endocrine disruption, immune system toxicant</td>
</tr>
<tr>
<td>Lipstick</td>
<td>Coal tar dyes, parabens, sunscreen chemicals, fragrance</td>
<td>Skin irritation, endocrine disruption</td>
</tr>
</tbody>
</table>