Clean, Green & Healthy
Identifying Potential Environmental Health Toxins in Cleaners & Personal Care Products

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February 4, 2015

New York State Pollution Prevention Institute (NYSP2I)
Rochester Institute of Technology (RIT)

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Contains portions of some materials initially prepared with support of the US Environmental Protection Agency Great Lakes Restoration Initiative in the amount of $104,192 and by the NYS Pollution Prevention Institute through a grant from the NYS Department of Environmental Conservation.
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Cleaners Used Around the House

**Glass & Surface Cleaners**
- Toilet Bowl Cleaners, Mildew Removers, Air Fresheners, Drain Openers
- Oven Cleaners, Dishwashing Soap

**Disinfectants**
- Floor & Carpet Cleaners

**Floor & Carpet Cleaners**
- Furniture Polish, Laundry Detergents
- Stain Removers

Cleaners

What is the concern?

- Many cleaning product ingredients are linked to health effects
  - Many cause skin, nose, throat, and eye irritation and/or are suspected endocrine disruptors
- Cleaning products are released to the environment through evaporation and rinsing down the drain
  - Many chemicals are not removed from water before it is discharged to the environment
  - Phosphorus can contribute to nutrient-loading in water bodies, affecting water quality
  - May have other negative effects on plants and animals living in water
  - May accumulate in the food chain
Cleaners

What you can do

✓ Choose cleaners without harmful chemicals
  ❌ Avoid cleaners labeled “danger” or “poison”
  ❌ Avoid air fresheners & choose “fragrance-free”
  ✓ Choose third-party certified cleaning products

✓ Choose cleaners with environmentally preferable packaging

✓ Make your own cleaning products

✓ Use & store cleaners safely
  ✓ Use in well ventilated areas away from pregnant women, infants, children, seniors, people with asthma, and others who may be sensitive
  ✓ Follow the manufacturer’s use, storage, and disposal instructions carefully

✓ Use online tools to help you choose safer products
## Windex Original Glass Cleaner with Ammonia-D

**See:** General Purpose Cleaner  
**Brand:** Windex  
**Company:** S.C. Johnson

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma/Respiratory</td>
<td>Moderate Concern</td>
</tr>
<tr>
<td>Skin Allergies &amp; Irritation</td>
<td>Some Concern</td>
</tr>
<tr>
<td>Developmental &amp; Reproductive Toxicity</td>
<td>Low Concern</td>
</tr>
<tr>
<td>Cancer</td>
<td>Low Concern</td>
</tr>
<tr>
<td>Environment</td>
<td>Moderate Concern</td>
</tr>
</tbody>
</table>

**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  
### Share on: Facebook, Twitter, LinkedIn

## 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>HEXETHYLAMINE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,2-ETHANEDIOL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Contact Company

### Sign up:

Want email updates about products, news, and events?
# Fragrance

## 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

<table>
<thead>
<tr>
<th>Phthalates</th>
<th>Musks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvents/carriers for chemicals</td>
<td>Man-made chemicals that replicate musk scents originally obtained from deer &amp; ox</td>
</tr>
<tr>
<td>that create the scent</td>
<td></td>
</tr>
<tr>
<td><strong>Also in</strong> nail polish &amp; moisturizers</td>
<td></td>
</tr>
<tr>
<td><strong>Look for</strong> fragrance, -phthalate, parfum on the product label</td>
<td><strong>Look for</strong> fragrance, synthetic musk, musk on the product label</td>
</tr>
<tr>
<td><strong>Linked to</strong> diabetes and asthma, potential risks to reproductive system &amp; thyroid</td>
<td><strong>Potential hormone disruptors that may break down the body’s defenses against other chemicals</strong></td>
</tr>
</tbody>
</table>

Fragrance

What you can do

✗ Avoid products with “-phthalate”, “musk”, “parfum”, or “fragrance” as an ingredient
✗ Avoid air fresheners and scented candles
✓ Choose **fragrance free products** labeled “free of perfumes and dyes,” “fragrance free”, or “unscented”
✓ Use **homemade unscented** cleaners & personal care products
✓ Choose **naturally scented products**
Personal Care Products

Use in the US

- On average, women use 12 products containing 168 ingredients every day
- Men use 6 products with 85 ingredients
- Children are exposed to an average of 61 ingredients daily

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
Europe List of Substances Prohibited in Cosmetics Products,
New York State Pollution Prevention Institute

**Body Burden**

<table>
<thead>
<tr>
<th>Product</th>
<th>Avg number of chemicals</th>
<th>Possible side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PERFUME</strong></td>
<td>250</td>
<td>mouth, throat, and eye irritation; nausea; linked to kidney damage</td>
</tr>
<tr>
<td><strong>SHAMPOO</strong></td>
<td>15</td>
<td>irritation, possible eye damage</td>
</tr>
<tr>
<td><strong>FAKE TAN</strong></td>
<td>22</td>
<td>rashes, irritation, hormonal disruption</td>
</tr>
<tr>
<td><strong>DEODORANT</strong></td>
<td>15</td>
<td>eye, skin, and lung irritation; headache; dizziness; respiratory problems</td>
</tr>
<tr>
<td><strong>BODY LOTION</strong></td>
<td>32</td>
<td>rashes, irritation, hormonal disruption</td>
</tr>
<tr>
<td><strong>NAIL VARNISH</strong></td>
<td>31</td>
<td>linked to fertility issues and problems in developing babies</td>
</tr>
<tr>
<td><strong>HAIRSPRAY</strong></td>
<td>11</td>
<td>allergies, irritation to eyes, nose, and throat; hormone disruption</td>
</tr>
<tr>
<td><strong>EYESHADOW</strong></td>
<td>26</td>
<td>linked to cancer, infertility; hormonal disruptions and damage to the body’s organs</td>
</tr>
<tr>
<td><strong>BLUSH</strong></td>
<td>16</td>
<td>rashes, irritation, hormonal disruption</td>
</tr>
<tr>
<td><strong>FOUNDATION</strong></td>
<td>24</td>
<td>allergies, disrupts immune system, links to cancer</td>
</tr>
<tr>
<td><strong>PERFUME</strong></td>
<td>250</td>
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http://www.dailymail.co.uk/femail/beauty/article-1229275/Revealed--515-chemicals-women-bodies-day.html
Nail Polish

- May contain the “toxic trio”: dibutyl phthalate, toluene, and formaldehyde
- DBP is prohibited in cosmetics in Europe because it’s a possible human reproductive or developmental toxin\(^1\)
- USEPA restricts toluene in drinking water because it can cause nervous system disorders and damage the liver and kidneys\(^2\)
- Formaldehyde is “known to be a 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>Helps form 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, linked to feminizing effects in boys</td>
<td>Can cause headaches, dizziness, fatigue and is a 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 as “three free” on the product packaging or company 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><strong>Xylene</strong>: toxic by all routes of exposure, can cause headache, dizziness, skin and eye irritation, kidney and liver impairment(^1); very persistent in air(^2)</td>
<td><strong>Methyl methacrylate</strong>: vapors irritate eyes, nose, and throat; irritates skin(^1); toxic to fish(^2)</td>
<td><strong>Benzyl acetate</strong>: irritating to skin, eyes, and respiratory tract(^1); toxic to fish, very persistent in air(^2)</td>
</tr>
<tr>
<td><strong>Methyl ethyl ketone</strong>: vapors irritate eyes, nose &amp; throat(^1); very persistent in air(^2)</td>
<td><strong>Ethyl methacrylate</strong>: vapors irritate eyes and respiratory system, irritates skin(^1); toxic to fish(^2)</td>
<td></td>
</tr>
<tr>
<td><strong>Acetone</strong>: vapors irritate eyes, nose, and throat(^1); very persistent in air(^2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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\(^2\) PBT Profiler, [http://www.pbtprofiler.net](http://www.pbtprofiler.net)
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

**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

**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

**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

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

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

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
Ingredients in Children’s Personal Care Products

2007 survey of 3,300 parents to identify the personal care products their children use

The survey found

- Infants are exposed to **45 chemicals every day** & 40% have not been found safe for kids
- 82% are exposed to 1+ ingredients linked to **brain and nervous system damage**
- 69% are exposed to 1+ **endocrine disruptor**
- 4% are exposed to 1+ ingredients linked to **cancer**
- 41% of products warn “keep out of reach of children”
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, will start seeing the product on store shelves in first half of 2014
Personal Care Products

What you can do

- Eliminate unnecessary products
- Prioritize high exposure, frequently used products for replacement
- Choose organic products
- Buy from companies you trust
- Make your own products
- Choose products without harsh chemicals
- Consider if the ingredient is necessary – ie. Does hand soap have to be antimicrobial? Does face soap have to be pH balanced? Does the scent matter?
- Use tools like SkinDeep to help you choose safer products
Pantene Pro-V Classic Shampoo, All Hair Types

Ingredient Concerns:
- Overall Hazard
- Cancer
- Developmental & reproductive toxicity
- Allergies & immunotoxicity
- Use restrictions

Other HIGH concerns: Multiple, additive exposure sources, Contamination concerns, Irritation (skin, eyes, or lungs), Miscellaneous, Persistence and bioaccumulation; Other MODERATE concerns: Organ system toxicity (non-reproductive); Other LOW concerns: Enhanced skin absorption, Cancer, Data gaps, Ecotoxicology, Neurotoxicity
# Pantene Pro-V Classic Shampoo, All Hair Types

## Ingredient Concerns

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concerns</th>
<th>Score</th>
<th>Data</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>
<td>Fair</td>
</tr>
<tr>
<td><strong>METHYLISOTHIAZOLINONE</strong></td>
<td>Ecotoxicology, Allergies/Immunotoxicity, Irritation (skin, eyes, or lungs), Neurotoxicity, Use restrictions</td>
<td>5</td>
<td>Limited</td>
</tr>
<tr>
<td><strong>METHYLCHLORISOTHIAZOLINONE</strong></td>
<td>Cancer, Ecotoxicology, Allergies/Immunotoxicity, Irritation (skin, eyes, or lungs), Use restrictions</td>
<td>5</td>
<td>Limited</td>
</tr>
<tr>
<td><strong>COCAMIDE MEA</strong></td>
<td>Contamination concerns (NITROSAMINES-in the presence of nitrosating agents), Use restrictions</td>
<td>1</td>
<td>Limited</td>
</tr>
</tbody>
</table>
Example Baby Shampoos & Wash

1. Earth's Best
2. Seventh Generation
3. Avalon Organics
4. Aveeno Baby
5. Baby Magic
6. pHisoderm
Safer Product Tips

✓ Use safer versions of **high exposure and frequently used** products
✓ Only buy **products you really need and will use**
✓ Consider **purchasing gently used toys/products and accept hand me downs** – check recall notices to ensure products meet safety standards
✓ Replace toys and products when they start to **show signs of wear**
✓ **Read product labels before purchasing** to understand the materials and how to use, clean, and dispose of the product
✓ **Find brands you trust** and shop from them
✓ **Donate** used/unused toys and products
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New York State Pollution Prevention Institute
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