Environmental Health & Children’s Products & Toys

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

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Agenda

• Prenatal & children’s vulnerability to environmental hazards
• Review of US consumer product safety law
• Toxics that may be found in children’s products & safer alternatives
• Toy testing & recall information
• Sources for more information
• Purchasing tips
Why should pregnant women be concerned about environmental health?

We are exposed to hundreds of chemicals every day.

Chemicals enter our body – we breathe them in, they pass through our skin, or we eat them – and many are stored in body fat.

Chemicals pass to your unborn baby – research has linked prenatal exposure to some chemicals to birth defects.
Why should pregnant women be concerned about environmental health?

Chemicals pass from you to your baby through breast milk (breast milk is still nutritionally best for baby!)

Babies are exposed to hundreds of chemicals every day – exposed to some chemicals more than adults and exposed to chemicals that adults may not be exposed to

Children are more vulnerable & at higher risk of suffering effects than adults
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 chemicals today, it is important to consider
  – How is the chemical getting into my body?
  – How much am I exposed to?
  – How long or often am I exposed to it?
Personal Risk

• 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
Common Potential Environmental Effects of Chemicals

- Affect fish & other wildlife
- Chemical may remain in the environment without breaking down, the longer it persists the higher the potential for exposure
- Levels of chemicals in an organism are higher up the food chain
Common Potential Human Health Effects of Chemicals

• Affect the **nervous system**, including confusion, fatigue, irritability, and other behavioral changes
• Affect the **reproductive system**, including alterations in sexual behavior, decreases in fertility, or loss of the fetus during pregnancy
• Affect the **developing child**, including birth defects, low birth weight, biological dysfunctions, psychological or behavioral deficits that become manifest as the child grows
• Affect the **endocrine system**, including obesity, diabetes, and thyroid problems
Endocrine Disruption

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. an over- or under-active thyroid)

Exposure linked to: learning disabilities, severe attention deficit disorder, cognitive and brain development problems, deformations of the body, sexual development problems, feminizing of males, masculine effects on females
Product Safety Regulations

• For the most part, companies do not have to disclose to consumers what is in toys and other children’s products

• Consumer Product Safety Commission
  – Protect the public from unreasonable risk from consumer products
  – Protect from products that pose fire, electrical, chemical, or mechanical hazard or can harm children
  – Operates voluntary recall program

• CPSC can’t test products before sale to ensure they are safe
Consumer Product Safety Improvement Act

Enacted Jan 2008 to protect children from lead and phthalate hazards

1. **Lead paint ban** strengthened
2. **Lead in children’s products** is a banned hazardous substance
3. **Ban on phthalates** in toys & children’s products
   - DEHP, DBP, BBP must be less than 0.1%
   - DINP, DnOP, & DIDP must be less than than 0.1%
   for products children can put in their mouth
4. **Tracking label** must be on any product for children under 12
Bisphenol A

What is the concern?

• BPA is typically found in polycarbonate, shatter resistant plastic, resin used to line metal cans, and thermal receipt paper
• BPA is an *endocrine disruptor*
• BPA can *leach out of containers into food/drink* and it is then ingested
  – Heating a container increases BPA leaching
• It is toxic to fish
• *Baby bottles & sippy cups* containing BPA are banned
Bisphenol A

How can pregnant women & infants be exposed?

- Eating/drinking food contaminated from containers
- **Metal can linings may contain BPA**
  - BPA leaches into the food and is ingested
  - July 2013 FDA bans use of BPA in infant formula packaging
- Contact with thermal receipt paper

The **US Food & Drug Administration (FDA) is concerned about potential effects on the brain, behavior, and prostate gland of fetuses, infants and children**

Source: USFDA, Bisphenol A (BPA): Use in Food Contact Application, January 2010; updated March 30, 2012

Studies show that **99% of our exposure comes from food** and BPA has been found in both solid and liquid food.
## Actions you can Take to Avoid BPA

<table>
<thead>
<tr>
<th>Use</th>
<th>Good</th>
<th>Better</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infant formula</strong></td>
<td>✗ Avoid heating milk or formula in polycarbonate bottles</td>
<td>✓ Replace polycarbonate bottles</td>
</tr>
<tr>
<td><strong>Children’s containers,</strong></td>
<td>✗ Don’t clean with bleach</td>
<td>✓ Replace polycarbonate containers with PETE (#1), PET (#5), or PE (#2 &amp; #4), or stainless steel (some metal containers are lined with epoxy resins, so choose wisely)</td>
</tr>
<tr>
<td><strong>food storage containers,</strong></td>
<td>✓ Replace when they start to degrade</td>
<td>✓ Choose containers labeled “BPA free”</td>
</tr>
<tr>
<td><strong>kitchen appliances,</strong></td>
<td>✗ Don’t let children chew on them</td>
<td>✓ Choose glass baby bottles &amp; use with care</td>
</tr>
<tr>
<td><strong>toys</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Canned foods</strong></td>
<td>✗ Limit the amount of canned foods you consume each day</td>
<td>✓ Choose fresh foods when possible</td>
</tr>
<tr>
<td></td>
<td>✓ Choose containers labeled “BPA free”</td>
<td>✓ Purchase food in glass, aseptic boxes or <em>frozen vegetables in plastic bags</em></td>
</tr>
</tbody>
</table>
The Cost of Going Green

Example Plastic Bottles

$1.43
Evenflo Classic Light Tint Nurser, 8 oz.

$4.99
Dr. Brown's BPA Free Polypropylene Bottle, 8 oz.

$4.66
NUK Orthodontic Trendline, 10 oz.

Example Glass Bottles

$1.70
Evenflo Classic Glass Bottle, 8oz.

$5.79
Born Free Glass Bottle with Bonus Sleeve, 9 oz.

$12.32
Lifefactory Glass Baby Bottle with Silicone Sleeve, 9 oz.

Prices from Amazon.com, accessed 2/20/13. Prices may reflect multi-pack or bulk quantity packages.
Phthalates

What is the concern?

- Phthalates are found in **PVC plastics** and **scented products**, as they are components of “fragrance”
- Phthalates can **leach out of plastic when children chew on plastic** and are then ingested
- Phthalates can offgas from plastic and are then **breathed in**
- Controversial health effects, many are **known/suspected endocrine disruptors**
Phthalates

How can pregnant women & infants be exposed?

- **Main source is diet**, particularly fatty foods
- **Products that may contain phthalates:**
  - Products made from PVC, such as plastic clothing/fabrics, vinyl decals, upholstery, floor tiles, food packaging, children’s products
  - Personal care products, cosmetics & nail polish
  - Scented products
- Children are at **especially high risk as they mouth things**
- Infants may have greater exposures from ingesting **indoor dust**
- Phthalates can **be transferred through breast milk** from mom to baby

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Prenatal exposure is linked with developmental and behavioral problems such as aggression, ADHD, and depression in young boys & girls and reduced masculine play in young boys²-⁵
Phthalates & Toys

What is the concern?

- Three phthalates were banned/restricted in 2009 in products children will put in their mouth and **may be found in toys**
  - Most may cause **endocrine disruption** or **affect reproduction**
  - May affect the **ability to have children** or **cause birth defects**
- The banned/restricted phthalates may be in products children will put in their mouth **made before 2009**
- These phthalates **may also be found in**
  - Vinyl & PVC soft and flexible toys and childcare items
  - PVC foams like children’s swords, masks, floor puzzles
  - Artificial leather and footwear

examples of teethers made from safer materials

ethylene vinyl acetate (EVA)  silicone  natural rubber  beech & maple
# Actions you can Take to Avoid Phthalates

<table>
<thead>
<tr>
<th>Use</th>
<th>Good</th>
<th>Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toys</td>
<td>✗ Avoid “vinyl”</td>
<td>✗ Prioritize replacing toys that will be placed in your child’s mouth</td>
</tr>
<tr>
<td></td>
<td>✗ Avoid unidentifiable plastic</td>
<td>✗ Choose safer materials, such as natural wood and organic fabric &amp; cloth</td>
</tr>
<tr>
<td></td>
<td>✗ Choose cornstarch, silicone, polypropylene (#5) or polyethylene (#2 or #4)</td>
<td>✗ Prioritize purchasing toys made of safer materials</td>
</tr>
<tr>
<td></td>
<td>✗ Choose “PVC free” &amp; “phthalate free”</td>
<td>✗ Avoid plastic teethers when possible</td>
</tr>
<tr>
<td></td>
<td>✗ Choose teethers made from cornstarch, silicone, polypropylene (#5) or polyethylene (#2 or #4)</td>
<td>✗ Choose organic fabric teethers that are free of flame retardants</td>
</tr>
<tr>
<td></td>
<td>✗ Choose plastic teethers labeled “PVC free” &amp; “phthalate free”</td>
<td>✗ Choose natural wood teethers</td>
</tr>
</tbody>
</table>
The Cost of Going Green

Example Products

$1.79
Munchkin Fun Ice Soothing Ring Teether (BPA free)

$4.00
green sprouts Fruit Cool Soothing Teether (EVA filled with sterilized water)

$5.99
Nuby Silicone Teether with Bristles (silicone)

$18.98
Vulli Sophie the Giraffe Teether (natural rubber)

Prices from Amazon.com, accessed 2/20/13.
Metals in Toys

What is the concern?

- **Lead** causes neurological effects & heart disease
- **Cadmium** causes cancer
- **Mercury** causes nerve, brain, & kidney damage; learning disabilities
- **Tin** is toxic at low exposure and may cause nervous system damage
- **Arsenic** causes cancer & kidney damage
- Some manufacturers replaced lead with cadmium because it is not regulated
Metals in Toys

How can pregnant women & children be exposed?

• Children mouth toys & metal in coatings or paints can flake off and be ingested
• **Plastic toys**: PVC may contain lead, cadmium, mercury, tin, and zinc
• **Painted or coated toys**: coating may contain lead or cadmium
• **Metal toys & jewelry**: may contain lead and cadmium
• **Crayons and other “brittle” toys**: metals may be used as colorants
• **Bibs**: PVC may contain metals

- **Green**: lead, cadmium
- **Red**: lead, cadmium, arsenic
- **Orange**: lead, cadmium, arsenic, mercury

backpack contains lead
bath toys contain lead & cadmium
# Actions you can Take to Avoid Hazardous Metals

<table>
<thead>
<tr>
<th>Use</th>
<th>Good</th>
<th>Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal jewelry &amp; small toys</td>
<td>❌ Avoid painted or coated metal toys and/or jewelry</td>
<td>✓ Purchase uncoated, unpainted, stainless steel metal or precious materials (silver, gold, etc) toys and jewelry</td>
</tr>
<tr>
<td></td>
<td>✓ Purchase metal jewelry and/or toys from reputable sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Don’t let children chew on them</td>
<td></td>
</tr>
<tr>
<td></td>
<td>❌ Do not give babies small metal parts that they may swallow</td>
<td></td>
</tr>
<tr>
<td>Plastic toys</td>
<td>✓ Don’t let children chew on coated/painted toys</td>
<td>❌ Avoid coated/painted plastic toys</td>
</tr>
<tr>
<td></td>
<td>✅ Avoid coated/painted plastic toys</td>
<td>❌ Avoid PVC toys</td>
</tr>
<tr>
<td>Bibs</td>
<td>✅ Choose products labeled “vinyl free” or “PVC free”</td>
<td>✅ Choose bibs with fabric graphics &amp; embroidery instead of screen printing</td>
</tr>
<tr>
<td></td>
<td>✓ Choose bibs that have been screen printed with water based inks</td>
<td>❌ Avoid bibs that are 100% plastic</td>
</tr>
</tbody>
</table>

**Note:**
- Use Good Better metal jewelry and small toys.
- Avoid painted or coated metal toys and/or jewelry.
- Purchase metal jewelry and toys from reputable sources.
- Don’t let children chew on them.
- Do not give babies small metal parts that they may swallow.
- Avoid coated/painted plastic toys.
- Avoid PVC toys.
- Avoid coated/painted plastic toys.
- Avoid PVC toys.
Flame Retardants

What is the concern?

- **Chemicals** are added to products to make them less likely to catch fire and burn
- These chemicals are released from the product they’re in, and we **inhale them or ingest dust** that contains them
- We are typically exposed through (1) aging and wear of consumer products, (2) direct exposure from use, and (3) ingesting dust
- **Children’s exposure may be greater than adult’s**

**Bromine** is toxic to the liver, brain, reproductive system & may affect thyroid function

**High levels of antimony** can cause fertility problems and lung cancer in animals

**Chlorinated compounds** may cause cancer; damage to the liver, kidney, brain, and testes; and reproductive harm
Flame Retardants

What children’s products typically contain them?

Foam Products

Car Seats

Children’s Sleepwear
Flame Retardants

How much are pregnant women & infants exposed to?

- Chlorinated & brominated FRs have been found in foam baby products
  - Chlorinated FR in 85% of products
  - Chlorinated/brominated FRs in 78% of products
  - Products tested: changing pads, bassinet pads, nursing pillows, walker, sleep positioner, car seats, portable mattresses, baby carriers, rocking chairs, high chairs, infant bath mat/sling, stroller, bath toy, pillow, infant seat, nap mat, toilet seat
- **Infants have a greater exposure** from these products than average child & adult
- **Children are exposed to more than what’s acceptable**

Bromine is commonly found in foam and fabrics

Lightning McQueen Racing Chair
By Disney
Seat: bromine & mercury
Base: lead, bromine & mercury

Princess Jewelry
By Dollar Tree
Necklace: lead, bromine, chlorine/PVC
Hair Clip: lead, bromine

source: HealthyStuff test results
Foam Products

**Overall Level**

- **Lead**: HIGH
- **Chlorine**: HIGH
- **Cadmium**: NONE
- **Arsenic**: NONE
- **Mercury**: NONE
- **Bromine**: NONE
- **Tin**: MED

Components Tested

**XRF Components Tested**

<table>
<thead>
<tr>
<th>Component</th>
<th>Lead</th>
<th>Chlorine</th>
<th>Cadmium</th>
<th>Arsenic</th>
<th>Mercury</th>
<th>Bromine</th>
<th>Tin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabric (ergonomically)</td>
<td>0</td>
<td>1.72</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>64</td>
<td>0</td>
</tr>
<tr>
<td>Fabric (gold)</td>
<td>0</td>
<td>1.457</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>Fabric (orange)</td>
<td>0</td>
<td>774</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>Felt</td>
<td>0</td>
<td>395</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>38</td>
<td>0</td>
</tr>
<tr>
<td>Foam</td>
<td>0</td>
<td>23,500</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>847</td>
</tr>
<tr>
<td>Foam</td>
<td>0</td>
<td>24,788</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>839</td>
</tr>
<tr>
<td>Foam</td>
<td>0</td>
<td>19,961</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>520</td>
</tr>
<tr>
<td>Styrofoam</td>
<td>0</td>
<td>674</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2,308</td>
<td>234</td>
</tr>
<tr>
<td>Velcro</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>32</td>
<td>0</td>
</tr>
</tbody>
</table>

**Note:** The above results are in parts per million (PPM) of a given chemical.

**Contoured Changing Pad**

**Overall Level**

- **Lead**: NONE
- **Chlorine**: HIGH
- **Cadmium**: NONE
- **Arsenic**: NONE
- **Mercury**: NONE
- **Bromine**: LOW
- **Tin**: MED

Components Tested

**XRF Components Tested**

<table>
<thead>
<tr>
<th>Component</th>
<th>Lead</th>
<th>Chlorine</th>
<th>Cadmium</th>
<th>Arsenic</th>
<th>Mercury</th>
<th>Bromine</th>
<th>Tin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top of mattress pad</td>
<td>0</td>
<td>201,879</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Backboard</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Side</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Note:** The above results are in parts per million (PPM) of a given chemical.
Flame Retardants

Shopping tips to avoid them

✓ Opt for materials that may not contain flame retardants, like leather, wool, or cotton

✗ Avoid furniture that says it meets the CA flame retardant standard TB 117 unless the manufacturer states they meet it without added chemical flame retardants

✓ When purchasing electronics, choose from brands that do not contain or are committed to phasing out brominated & chlorinated flame retardants

Don’t forget to check portable cribs too!
Flame Retardants

Actions you can take to avoid them

✓ Babies and pregnant women should avoid spending significant time near products treated with flame retardants

✓ Wash foam products & covers regularly with soap and water

✓ Avoid children chewing on electronic products, including toys

✓ Vacuum your home regularly with a HEPA filter

✓ Dust your home regularly

✓ Inspect and replace foam items when they start to rip, tear, or degrade

choose soft pillows (above) instead of hard, foam pillows (below) as soft pillows are less likely to contain FRs
Car Seats & Brominated Flame Retardants

- Use of brominated flame retardants is declining, but many seats contain them
- Amount of bromine varies from manufacturer to manufacturer and model to model
- May be found in foam and plastic parts

two versions of the same model car seat
LEFT has 56x more bromine in the seat
(source: HealthyStuff test results)
Actions You can take to Avoid Flame Retardants in Car Seats

<table>
<thead>
<tr>
<th>Use</th>
<th>Good</th>
<th>Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car seats</td>
<td>✓ Do your homework and find a car seat that meets your needs &amp; avoids chemicals of concern &lt;br&gt; ✓ Get information from the product packaging and/or manufacturer’s website &lt;br&gt; ✓ Are brominated or chlorinated flame retardants used? In foam? In plastic frame or buckles? &lt;br&gt; ✓ What type of plastic is used for foam, frame, and buckles? &lt;br&gt; ✗ Avoid babies sleeping &amp; spending time in car seats for longer than necessary</td>
<td>✓ Air out new car seats &amp; wash before using. Remove the seat from the packaging. Place the seat, uncovered, in your garage or other ventilated space for a couple weeks before using. Wash the cover per the manufacturer’s instructions and keep the cover off the seat until needed. &lt;br&gt; ✓ Consider a used car seat from a person you trust. A used seat may contain less flame retardants in the foam than that of a new seat. Ensure the seat meets all current safety requirements and has not been recalled. If you are unsure if a seat has been in a car accident, do not use it. &lt;br&gt; ✓ Choose seats with low levels of flame retardants.</td>
</tr>
</tbody>
</table>
Sleepwear & Flame Retardants

Children’s sleepwear 9mo-14yr must be flame resistant

Two ways to do this:

1. Snug fitting cotton or cotton blend
2. Flame resistant materials
   - Polyester or other materials that are naturally flame resistant
   - Chemical flame retardant is applied

*No or negligible cost difference*

Sleepwear Tips

| Sleepwear smaller than 9 months is exempt |
| Look for yellow tag when purchasing snug-fitting sleepwear |
| Don’t buy oversized snug-fitting sleepwear |
| Not advised for baby to sleep in loose, non flame resistant, clothes |

For child’s safety, garment should fit snugly. This garment is not flame resistant. Loose-fitting garment is more likely to catch fire.
Flame Retardant Labels
Wood Toys & Furniture

What is the concern?

• **Metals** may be used in paints
• Plywood & particleboard can contain **formaldehyde**
  – Offgasses from the wood
  – Irritate eyes, skin, and throat; cause nausea and lethargy
  – Over the long term it can cause cancer
• **Benzene, xylene and toluene** are often used in adhesives, solvents, and finishes
  – VOCs that can irritate the eyes, skin, and throat
Wood Toys & Furniture

How can pregnant women & children be exposed?

- Chemicals are emitted from the wood & we breathe them in, children may also be exposed when playing with & chewing on wood products
- Plywood & particleboard furniture
  - particleboard (shelving, cabinets, some furniture),
  - plywood paneling (cabinets, some furniture),
  - medium density fiberboard (drawer fronts, cabinets, furniture tops)
- Plywood & particleboard toys: puzzles, toy boxes, etc

pressed wood & plywood examples
# Actions You can take to Avoid Metals & VOCs in Wood

<table>
<thead>
<tr>
<th>Good</th>
<th>Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Avoid toys not made in the US, Canada, or Europe where standards aren’t strictly enforced</td>
<td>✓ Choose wood toys free of formaldehyde and VOCs</td>
</tr>
<tr>
<td>✗ Do not allow children to chew on plywood toys</td>
<td>✓ Choose wood toys with water based paint</td>
</tr>
<tr>
<td>✗ Avoid old painted toys as the paint may contain lead</td>
<td>✓ Avoid old painted toys as the paint may contain lead</td>
</tr>
<tr>
<td>✓ Choose solid wood with nontoxic paints and finishes – linseed &amp; walnut oils and beeswax are best</td>
<td>✓ Choose wood certified by the FSC or SFI</td>
</tr>
<tr>
<td>✓ Look for toys made out of recycled wood</td>
<td>✓ Look for toys made out of recycled wood</td>
</tr>
</tbody>
</table>
Fabrics

What is the concern?

• Use a lot of herbicides, insecticides, and fertilizers
• May be stain or moth proof – Teflon and Scotchguard
  – Toxic & persistent, potential developmental effects
• Brominated flame retardants are commonly used
• Azo dyes may be used
  – Linked to cancer
Fabrics

How can pregnant women & children be exposed?

• Teflon, Scotchguard and flame retardants flake off
  – Children ingest them when chewing/sucking on fabric
  – Children ingest dust when playing on the floor
• Azo dyes may be ingested when babies suck on clothing, blankets, and other fabrics
  – Absorbed through sweat

Actions you can take

✔ Avoid moth, stain, and fire proof fabrics
✔ Choose organic, untreated cotton and wool
✔ Choose nontoxic colorfast dyes
✔ Choose wool for its natural fire resistance
✔ Look for fleece dolls and stuffed animals made out of recycled materials
Personal Care Product Safety in the US

- FDA regulates personal care products & cosmetics
- Cosmetics & ingredients are not tested by the FDA before sale
- Companies responsible for ensuring the safety of products before they go to market
- FDA can’t recall products containing a toxic chemical
Personal Care Product Use

- 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
Body Burden

**SHAMPOO**
Avg number of chemicals: 15
Possible side effects: irritation, possible eye damage

**HAIRSPRAY**
Avg number of chemicals: 11
Possible side effects: allergies, irritation to eyes, nose, and throat; hormone disruption

**PERFUME**
Avg number of chemicals: 250
Possible side effects: mouth, throat, and eye irritation; nausea; linked to kidney damage

**FAKE TAN**
Avg number of chemicals: 22
Possible side effects: rashes, irritation, hormonal disruption

**BODY LOTION**
Avg number of chemicals: 32
Possible side effects: rashes, irritation, hormonal disruption

**NAIL VARNISH**
Avg number of chemicals: 31
Possible side effects: linked to fertility issues and problems in developing babies

**EYESHADOW**
Avg number of chemicals: 26
Possible side effects: linked to cancer, infertility; hormonal disruptions and damage to the body’s organs

**BLUSH**
Avg number of chemicals: 16
Possible side effects: rashes, irritation, hormonal disruption

**FOUNDATION**
Avg number of chemicals: 24
Possible side effects: allergies, disrupts immune system, links to cancer

**LIPSTICK**
Avg number of chemicals: 33
Possible side effects: allergies, links to cancer

**DEODORANT**
Avg number of chemicals: 15
Possible side effects: eye, skin, and lung irritation; headache; dizziness; respiratory problems

[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)
# Ingredients of Concern

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Ingredients of Concern</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>water based products</td>
<td>methyl, ethyl, propyl, butyl parabens&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Linked to cancer and may be toxic to the endocrine, reproductive, immune, and nervous systems</td>
</tr>
<tr>
<td>scented products</td>
<td>fragrance, phthalates, musk&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Linked to diabetes and asthma, potential risks to reproductive system &amp; thyroid</td>
</tr>
<tr>
<td>antibacterial products</td>
<td>triclosan&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Linked to thyroid function may be toxic to the endocrine system</td>
</tr>
<tr>
<td>pH balanced products</td>
<td>triethanolamine&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Linked to allergic skin reactions; may be toxic to the immune and respiratory systems and the skin, may be toxic to fish</td>
</tr>
<tr>
<td>products that lather/foam</td>
<td>sodium lauryl sulfate (SLS), sodium laureth sulfate&lt;sup&gt;e&lt;/sup&gt;</td>
<td>Linked to skin &amp; eye irritation</td>
</tr>
<tr>
<td>nail polish</td>
<td>toluene, formaldehyde, dibutyl phthalate&lt;sup&gt;f&lt;/sup&gt;</td>
<td>Linked to reproductive &amp; developmental effects; headaches; dizziness; fatigue; irritates the eyes, nose, throat, &amp; skin; formaldehyde is a known carcinogen</td>
</tr>
<tr>
<td>antiperspirant deodorant</td>
<td>Aluminum Zirconium Tetrachlorohydrex GLY&lt;sup&gt;g&lt;/sup&gt;</td>
<td>Research suggests that aluminum-based compounds may be absorbed by the skin and may contribute to breast cancer</td>
</tr>
</tbody>
</table>
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 2010: 40+ organizations urge J&J to remove the chemicals
- October 2011: J&J to phase out the carcinogenic preservatives from baby products
  - Already make Johnson’s Natural that does not contain these chemicals
Personal Care Product Actions You can Take

<table>
<thead>
<tr>
<th>Good</th>
<th>Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Prioritize high exposure, frequently used products for replacement</td>
<td>✓ Eliminate unnecessary products</td>
</tr>
<tr>
<td>✓ For example, replacing lotion may be higher priority than replacing shampoo, and replacing shampoo may be higher priority than replacing infrequently used hair products</td>
<td>✓ Choose fragrance free soap for mom and baby</td>
</tr>
<tr>
<td>✓ Buy from companies you trust</td>
<td>✓ Avoid baby perfume and perfume for mom</td>
</tr>
<tr>
<td>✓ Choose “three free” nail polish and avoid painting your nails while pregnant</td>
<td>✓ Avoid nail polish for mom and baby</td>
</tr>
<tr>
<td></td>
<td>✓ Choose products without harsh chemicals</td>
</tr>
<tr>
<td></td>
<td>✓ Shampoos &amp; body washes without sulfates, phthalates, parabens</td>
</tr>
<tr>
<td></td>
<td>✓ Lotions without parabens</td>
</tr>
<tr>
<td></td>
<td>✓ Make your own products</td>
</tr>
</tbody>
</table>
The Cost of Going Green

Example Conventional Products

- $0.16/oz  
  Suave Shampoo Kids 2in1

- $0.20/oz  
  Johnson's Baby Shampoo

- $0.35/oz  
  L'Oreal Paris Kids 2-in-1 Shampoo

- $0.44/oz  
  Aveeno Baby Wash & Shampoo

Example Greener Products

- $0.48/oz  
  Johnson's Baby Natural Shampoo

- $0.60/oz  
  Burt's Bees Baby Bee Shampoo and Wash

- $0.80/oz  
  Yes To Baby Carrots Fragrance Free Shampoo and Body Wash

- $1.32/oz  
  California Baby Shampoo & Bodywash

Prices from Amazon.com, accessed 2/20/13. Prices may reflect multi-pack or bulk quantity containers.
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 Natural Eco-friendly Eco-healthy</td>
<td>USDA Organic Label USDA Certified Biobased Product Label NSF/ANSI 305: Personal Care Products Containing Organic Ingredients with logo Free of phthalates, sulfates, parabens, etc</td>
</tr>
</tbody>
</table>
Resources
To provide better service in alerting the American people to unsafe, hazardous or defective products, six federal agencies with vastly different jurisdictions have joined together to create www.recalls.gov -- a "one stop shop" for U.S. Government recalls.

Follow the tabs above to obtain the latest recall information, to report a dangerous product, or to learn important safety tips.

**Recalls on the Go**

When you're buying and using products, safety comes first. And now, with this product recalls application, you have vital safety information available whenever and wherever you need it - right on your mobile phone, thanks to the [RECALLS.GOV mobile application](https://www.recalls.gov). Whether you're at your child's day care center or a yard sale, whether you're at a store or at home, you can now type a product's name into your phone and learn immediately whether that product has been recalled because of a safety concern. You can also see photos of recalled products and learn what to do with recalled products in your homes.

Stay informed, stay safe, check for product recalls.
FOR IMMEDIATE RELEASE  
December 20, 2012  
Release #13-079

Sassy and Carter's-branded Hug N' Tug Baby Toys Recalled Due to Choking Hazard

WASHINGTON, D.C. - The U.S. Consumer Product Safety Commission and Health Canada, in cooperation with the firm, announced a voluntary recall of the following consumer product. Consumers should stop using recalled products immediately unless otherwise instructed. It is illegal to resell or attempt to resell a recalled consumer product.

Name of Products: Sassy®-branded Hug N' Tug Puppy and Monkey and Carter's®-branded Hug N' Tug Monkey Toys

Units: About 45,300


Hazard: The beads inside the clear plastic sphere at the center of the toys can be released and pose a choking hazard to infants.

Incidents/Injuries: The firm has received 12 reports of beads being released from the plastic clear plastic sphere body but no choking incidents have been reported.

Description: The recalled toys for infants can be attached to a stroller or car seat using a ring connector on the toy’s head. The toy is about 12 inches tall, made of multicolored fabric inside a clear plastic sphere and have the face of either a puppy or monkey. Recalled styles include: Sassy Hug N' Tug Puppy model #80213; Sassy Hug N' Tug Monkey model #80214; and Carter's-branded Hug N' Tug Monkey models #61083 that were sold on a grey packaging card. Sassy®-branded toys have “Sassy®” written on the sewn-in label located on the back of the character’s head. The Carter’s®-branded toys have “Carter's®” written in red on the blue plastic ring connected to the toy body above the sewn-in label located on the back of the character's head.

Sold at: Mass merchandisers such as Toys R Us and Target, independent specialty stores nationwide and online retailers Sassy.com and Carters.com between July 2012 and October 2012 for Sassy-branded models; and from August 2011 to October 2012 for Carter’s®-branded models. Carter's®-branded models were also sold in Carter's retail stores. The Sassy-branded models sold for about $14.

Manufactured in: China

Remedy: Consumers should immediately take the toys from children and contact Sassy for instructions on how to return the replacement toy.

Consumer Contact: Sassy at (800) 323-6336 from 8 a.m. to 5 p.m. ET Monday through Friday or visit the firm’s website at http://www.sassy.com and go to the Product Recall Information link.

• Nonprofit organization that tests products for chemicals of concern
• Contains testing results from 5,000+ products in the following categories:
  – Toys
  – Children’s products
  – Pets
  – Cars
  – Apparel & Accessories
  – Home Improvement
• Searchable database of results
Healthy Stuff example results

KeyFit 30 in Fuego
Chicco

Product Rating

Overall Level

Bromine

Chlorine

Lead

Others

Product Data

<table>
<thead>
<tr>
<th>Product Name</th>
<th>KeyFit 30 in Fuego</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Chicco</td>
</tr>
<tr>
<td>Manufacture Year</td>
<td>2011</td>
</tr>
<tr>
<td>Manufacturer Code</td>
<td>49796603347</td>
</tr>
<tr>
<td>Test Date/Location</td>
<td>2011-02-17/MI</td>
</tr>
<tr>
<td>Product Group</td>
<td>Children's Products</td>
</tr>
<tr>
<td>Product Type</td>
<td>Car Seat (Infant)</td>
</tr>
<tr>
<td>Test Method</td>
<td>XRF</td>
</tr>
<tr>
<td>View Full Report</td>
<td>Grace Bans Hazardous Flame Retardants</td>
</tr>
</tbody>
</table>

Components Tested

<table>
<thead>
<tr>
<th>Component</th>
<th>Bromine</th>
<th>Chlorine</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>45</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clip</td>
<td>39</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Seat</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: The above results are in parts per million (PPM) of a given chemical.

IMPORTANT NOTE: HealthyStuff.org ratings do not provide a measure of health risk or chemical exposure associated with any individual product, or any individual element or related chemical. Follow this link to read more.
**GoodGuide**

- Rating system that looks at health impacts of products based on their ingredients and a company’s social and environmental practices
- Over 145,000 food, toys, personal care and household products
Good Guide example product rating

Johnson's Natural Head To Toe Foaming Baby Wash

Rank: 888 out of 7,752 bath, shower & soap products - Company: McNeil-PPC, Inc.

6.2

Health
This product contains one or more ingredients that raise a low level of health concern.

6.0

Human Health Impacts [-]

5.0

Level of Health Concern of Ingredients [-]

LOW CONCERN
Sodium Laureate (Below Threshold)
Sodium Hydroxide

6.0

Ingredient Disclosure [+]

6.5

Environment

6.5

Core Company Environmental Performance [-]

8.1

Transparency

6.9

Resource Use [+]

6.8

Environmental Impacts [+]

6.3

Environmental Management [+]

6.1

Society
This company's social policies, practices and performance place it among the best/top 15% of companies rated by GoodGuide.
• Rating system that looks at health impacts of personal care product ingredients
### Ingredient Concerns

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concerns</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRAGRANCE</td>
<td>Ecotoxicology, Allergies/immunotoxicity, Irritation (skin, eyes, or lungs), Miscellaneous, Organ system toxicity (non-reproductive)</td>
<td>$8</td>
</tr>
<tr>
<td>QUATERNIUM-16</td>
<td>Allergies/immunotoxicity, Contamination concerns (FORMALDEHYDE), Irritation (skin, eyes, or lungs), Organ system toxicity (non-reproductive), Use restrictions</td>
<td>$7</td>
</tr>
</tbody>
</table>
Shopping Tips

✓ Only buy **products you really need and will use**
✓ **Donate** used or unused toys and products
✓ Consider **purchasing gently used toys or products and accept hand me downs** – check recall notices to ensure products meet safety requirements
✓ Use products in a **safe way** to reduce or eliminate exposure to chemicals of concern
✓ Replace toys and products when they start to **show signs of wear**
✓ Use safer versions of **high exposure and frequently used products**
✓ **Read product labels before purchasing** to understand what materials the product is made of and how to clean it
Shopping Tips

✓ Choose safer products and toys that your child will **chew or suck on**, like teethers, bottles, & stuffed toys

✓ **Eliminate unnecessary baby care products** like lotions and oils

✓ **Skip hand sanitizers and antibacterial soap** and wash your hands – and your baby’s hands – with soap and water

✓ **Skip air fresheners** and open windows when the weather is nice for fresh air

✓ Choose **glass bottles** with silicone nipples

✓ Avoid fabrics with **stain or antimicrobial treatments**, especially those that your baby will spend significant time near, like mattresses

✓ Use **product safety rating sources** like SkinDeep and GoodGuide or testing sources like HealthyStuff to help you shop smarter

✓ **Find brands you trust** and shop from them
Questions & Discussion

Kate Winnebeck, LCACP
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
Why should pregnant women be concerned about environmental health?
Johns Hopkins Women's and Children's Health Policy Center, Environmental Toxicants and Maternal and Child Health: An Emerging Public Health Challenge


Critical Window

Children are Vulnerable
Landrigan, et. al., Assessing the Effects of Endocrine Disruptors in the National Children’s Study, Environmental Health Perspectives, 111:13, October 2003.

Endocrine Disruption

Consumer Product Safety Improvement Act

Bisphenol A
Vendenberg, et. al., Human exposure to BPA, Reproductive Toxicology, 24 (2007), 139-177


Braun, et. al., Impact of Early Life Bisphenol A Exposure on Behavior and Executive Function in Children, Pediatrics, 2011;128;873, accessible at http://pediatrics.aappublications.org/content/128/5/873.full.html


Phthalates
2Engel, S, et. al., Prenatal Phthalate Exposure is Associated with Childhood Behavior and Executive Functioning, Env Health Persp, 118:4, April 2010.
3Swan, S., Prenatal phthalate exposure and reduced masculine play in boys, Int J Androl, 2010 April, 33(2): 2590269
5Whyatt, 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
ASTDR, ToxFAQs, DEHP http://www.atsdr.cdc.gov/toxFAQs/tf.asp?id=377&tid=65

Phthalates & Toys

Metals & Toys

Flame Retardants
United States Environmental Protection Agency, PBDEs, http://www.epa.gov/oppt/pbde/
<table>
<thead>
<tr>
<th>Slide Reference(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Car Seats and Brominated Flame Retardants</strong></td>
</tr>
<tr>
<td>United States Environmental Protection Agency, PBDEs, <a href="http://www.epa.gov/oppt/pbde/">http://www.epa.gov/oppt/pbde/</a></td>
</tr>
<tr>
<td><strong>Sleepwear &amp; Flame Retardants</strong></td>
</tr>
<tr>
<td><strong>Wood Toys &amp; Furniture</strong></td>
</tr>
<tr>
<td>ASTDR, Formaldehyde ToxFAQs, <a href="http://www.atsdr.cdc.gov/tfacts111.pdf">http://www.atsdr.cdc.gov/tfacts111.pdf</a></td>
</tr>
<tr>
<td><strong>Fabrics</strong></td>
</tr>
<tr>
<td>Washington Toxics Coalition, <a href="http://watoxics.org/chemicals-of-concern/perfluorinated-compounds-pfcs">http://watoxics.org/chemicals-of-concern/perfluorinated-compounds-pfcs</a></td>
</tr>
<tr>
<td><strong>Personal Care Product Safety in the US</strong></td>
</tr>
<tr>
<td>FDA Recall Policy for Cosmetics, <a href="http://www.fda.gov/Cosmetics/ProductandIngredientSafety/RecallsAlerts/ucm173559.htm">http://www.fda.gov/Cosmetics/ProductandIngredientSafety/RecallsAlerts/ucm173559.htm</a></td>
</tr>
<tr>
<td>Ingredients Prohibited &amp; Restricted by FDA Regulations, <a href="http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm127406.htm">http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm127406.htm</a></td>
</tr>
<tr>
<td><strong>Personal Care Product Use</strong></td>
</tr>
</tbody>
</table>
### Ingredients of Concern

- **a**FDA Parabens, [http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm128042.htm](http://www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm128042.htm)
- **b**Agency for Toxic Substances and Disease Registry, Public Health Statements [http://www.fda.gov/forconsumers/consumerupdates/ucm205999.htm](http://www.fda.gov/forconsumers/consumerupdates/ucm205999.htm)
- **d**Cosmetic Ingredient Review, [http://www.cir-safety.org/sites/default/files/120_final_tea.pdf](http://www.cir-safety.org/sites/default/files/120_final_tea.pdf)
- **e**National Library of Medicine, Hazardous Substances Database
- **g**National Cancer Institute, NIH, Antiperspirants/Deodorants and Cancer, [www.cancer.gov/cancertopics/factsheet/Risk/AP-Deo](http://www.cancer.gov/cancertopics/factsheet/Risk/AP-Deo)

### Ingredients in Children’s Personal Care Products

Environmental Working Group, Hazardous and Untested Chemicals in Children’s Products, [http://www.ewg.org/files/Child%27sStudyAttachment.pdf](http://www.ewg.org/files/Child%27sStudyAttachment.pdf)

### Case Study: J&J Baby Shampoo
