Non Toxic Toys
Making daycare centers safe for play!

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New York State Pollution Prevention Institute

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Focus

• How toxic chemicals affect children
• Hot topic: Phthalates and bisphenol A
• Toxics found in toys and their effect on the environment
• Recall and testing information sources
• Consumer Product Safety Improvement Act
Children’s Vulnerability

Children are at higher risk of suffering effects

1. Children have greater pound-for-pound intake of air, water, and food
2. Hand to mouth behavior
3. Greater portion of time spent close to the ground
4. Their bodies are growing and developing. Development can be interrupted by exposure to toxins and cause lower IQ, hormone-dependent cancer, asthma, or other health problems
Product Safety

• Companies do not have to disclose to consumers what is in their products
• Consumer Product Safety Commission
  – Charged with protecting 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 toys before sale to ensure they are safe
Consumer Product Safety Improvement Act

• Enacted Jan08
• Goal to protect children from lead and phthalate hazards by
  – Reducing lead limit
  – Establishing phthalate limit
  – Requiring product testing to ensure products meet limits
• Guidance & changes
  – Jan08: resellers do not need to certify products against lead and phthalate requirements
  – Jan30: one year extension for testing of certain products
    • Articles must meet the lead & phthalate limits, but manufacturers do not need to test products to verify they meet the requirements
• First major deadline passed Feb10
  – Lead limit reduced to 600ppm
  – Limit for certain phthalates set to 0.1% (100ppm)
1. Lead paint ban strengthened
   1977 limit of 600ppm down to 90ppm by Aug09
2. Lead in children’s products is a banned hazardous substance
   600ppm Feb09
   300ppm Aug09
   100ppm Aug11
3. Ban on phthalates in toys & children’s products
   ✓ Products with DEHP, DBP, BBP higher than 0.1% are permanently banned Feb09
   ✓ Products children can put in their mouth with DINP, DnOP, & DIDP higher than 0.1% are provisionally banned Feb09
4. CPSC significant funding & staff increases
5. Increased penalties
Toxics that have been found in Toys

1. Plastics
2. Metals
3. Wood
4. Fabrics
Plastics

Soft, squishy, mouthed

Hard, shatter proof
Phthalates - group of chemicals commonly used as softener

- Soft toys typically contain 15-20% phthalates
- New shower curtain smell
- Not bound to plastic so they can leach out
- Children are at especially high risk as they mouth toys
- Health effects are very controversial

**Actions you can take**

- Avoid plastic with #3 or PVC identification
- Avoid toys labeled “vinyl”
- Avoid soft plastic toys when possible
- Choose products labeled “phthalate free”
- Call toll free number on product to contact manufacturer and ask about presence of PVC
## Phthalates Controversy

<table>
<thead>
<tr>
<th>In animals they have been shown to cause</th>
<th>No documented human illness due to phthalate exposure</th>
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<tbody>
<tr>
<td>✓ Damage to reproductive and endocrine systems</td>
<td></td>
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<tr>
<td>✓ Liver and kidney abnormalities</td>
<td></td>
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<tr>
<td>✓ Premature birth</td>
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<tr>
<td>✓ Reproductive defects</td>
<td></td>
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<tr>
<td>✓ Early onset of puberty in girls</td>
<td></td>
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<tr>
<td>✓ Harm reproductive system of males</td>
<td></td>
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<tr>
<td>Expected – but not yet proven – to cause same effects in humans</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Mouthing behavior creates unique risk for children</th>
<th>Toy industry say phthalates in toys do not put children at risk as the exposure is too low to do damage</th>
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<tr>
<th>European Union and California banned 6 phthalates from children’s products</th>
<th>Decision to avoid phthalates is precautionary</th>
</tr>
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<tbody>
<tr>
<td>CPSIA limits levels of certain phthalates in children’s toys &amp; articles</td>
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</table>
Lead, cadmium, mercury, arsenic are common PVC stabilizers
What happens to PVC?

**Dioxin** is a carcinogen and hormone disruptor. It bioaccumulates and takes a long time to degrade, remaining in the air, water, and soil.

**Phthalates** cause developmental and reproductive damage, altered liver and kidney function, and are linked to the development of respiratory problems in children.

**Heavy Metals** build up and do not degrade in the environment. Small concentrations are needed to sustain life, but larger concentrations can impair mental and neurological function.

**Hydrochloric Acid** creates toxic fumes and damages pollution control equipment during incineration. Long-term exposure to low levels can cause respiratory problems, eye and skin irritation, and discoloration of the teeth.

**Bisphenol A** causes hormone disruption and is linked to early puberty, breast cancer, prostate disease and cancer, and brain damage.

**Vinyl Chloride** causes damage to the liver, lungs, blood, nervous system, immune system, cardiovascular system, skin, bones and reproductive system.

**Incineration**
- Dioxin, phthalates, and heavy metals are emitted
- Hydrochloric acid damages pollution control equipment and reacts with other additives to create toxic fumes
- Ash has concentrated levels of dioxin and heavy metals that must be landfilled

**Landfill**
- Does not biodegrade, but additives leach out of the plastic
- Phthalates, dioxin, bisphenol A, vinyl chloride, and heavy metals leach into the soil and groundwater
- Accidental fires release dioxin into the environment

**Recycle**
- Very low recycling rate
- Hydrochloric acid is generated
- Contaminates recycling of other plastics
- Poor quality of recycled goods
- Cannot be blended with virgin PVC
PVC-Free Manufacturers

- A-One
- Ambitoys
- Ampa Hispania
- APRICA Kassai
- Artbaby
- Babelito
- Bandai
- Big Toys (playgrounds)
- Brio
- Bullyland Toys
- Chicco
- Continua
- Early Start
- Fashy
- First Years
- Giochi Perziosi
- Grazioli
- Juguetes y Herrajes Joal
- Kiko International
- Lamaze Infant Development
- Lego Group
- Little Tykes
- Mapa
- McDonalds
- Novatex
- People Co.
- Pilot Ink
- Play by Play
- Playmobil
- Ravensburger
- Sassy Products
- Tiny Love
- Toho
- Tomy
- Young Epoch

- Toys R Us began phasing out PVC in its branded products and announced in January 2009 all products sold in Toys R Us & Babies R Us will not have phthalates
- Comprehensive list of manufacturers eliminating PVC use at http://www.besafenet.com/pvc/companypolicies.htm
Polycarbonate & BPA

Bisphenol-A – found in some polycarbonate shatter resistant plastics

- Baby bottles, metal can linings, sippy cups, food storage
- Water soluble
- Heating a container increases BPA leaching into liquid
- Endocrine disruptor
  - Linked to down’s syndrome, obesity, hyperactivity, breast & prostate cancer
  - Causes breast cancer, testicular cancer, and diabetes in laboratory animals at low doses
- Canada banned baby bottles with BPA
- Toxic to aquatic environment

Actions you can take

- Avoid plastic with #7, OTHER, or PC identification for storing foods and drinks
- Avoid heating drinks or food in PC plastic
- Avoid using strong cleaners on PC containers as they release BPA from the plastic
- Choose products labeled “BPA free”
- Call toll free number on product to contact manufacturer and ask about presence of BPA
BPA Free Products

Now the whole family can sleep like a baby.
Bisphenol A-free. Phthalate-free. Worry free.

For more info, go to [www.bisphenolafree.org](http://www.bisphenolafree.org)
Metals

Lead
**Found in:** PVC, paint of old wood and metal toys (imports and metal soldiers)
**Health & environmental effects:** neurotoxin, learning disabilities, behavior disorders, low exposures have lifelong effects, bioaccumulative

Cadmium
**Found in:** PVC
**Health & environmental effects:** known carcinogen and kidney toxin, bioaccumulative, animals suffer similar effects as humans

Mercury – banned from novelty products
**Found in:** batteries
**Health & environmental effects:** nerve, brain, and kidney damage; learning disabilities; converts to methyl mercury in the environment which accumulates in fish and other organisms
HealthyToys.org

Tested 1,528 toys for lead, cadmium, chlorine, arsenic, bromine, mercury, chromium, tin and antimony

**Lead** detected in 20%
*•* American Academy of Pediatrics recommend 40ppm as safe lead level
*•* Federal recall standard is 600ppm
*•* 3.5% lead level above 600ppm
*•* Jewelry 5x more likely to have 600ppm or greater lead concentration

Highest lead levels:
*•* 8,000-190,000ppm in 4 sets of holiday jewelry
*•* 4,113ppm in children’s sandals
*•* 2,446ppm in a set of blocks
Heavy Metals

Thistle Blocks
By Edushape

Orange
Chromium: 506 ppm
Arsenic: 175 ppm
Mercury: 58 ppm
Lead: 2,446 ppm

Red
Chromium: 274 ppm
Arsenic: 83 ppm
Mercury: 783 ppm
Lead: 1,075 ppm

Green
Chromium: 282 ppm
Arsenic: 1,589 ppm

8-Mini Twist Up Crayons
By Alex

Purple Crayon
Mercury: 783 ppm

New York State Pollution Prevention Institute

Rochester Institute of Technology
Funding Provided by NYS Department of Environmental Conservation
Wood

- 80% of forests have been destroyed or degraded due to clear cutting for lumber & paper
- Heavy metals often used in paints
- Plywood and particleboard can contain formaldehyde
  - Offgasses from the wood
  - Short term: irritate eyes, skin, and throat; cause nausea and lethargy
  - Over the long term it can cause cancer
  - Look for: pressed wood at edge of toys and puzzle pieces
  - Pressure treated wood play sets can contain arsenic

Actions you can take
- Avoid old painted toys as the paint may contain lead
- Avoid those not made in the US, Canada, or Europe where standards aren’t strictly enforced
- Choose solid wood with nontoxic paints and finishes – linseed & walnut oils & beeswax are best
- Choose wood certified by the FSC or SFI
- Look for toys made out of recycled wood
Pressed Wood & Plywood
Cotton, Wool, and Other Fabrics

- Traditionally use heavy amounts of herbicides, insecticides, and fertilizers
- Cotton production uses ¼ of the world’s insecticides
- Heavily pollute the groundwater
- Azo dyes can be carcinogenic, toxic, and eco-toxic – usually in products that come from eastern Asia
- Most are stain and moth proof – Teflon and Scotchguard
  - Perfluorinated compounds: toxic & persistent
- Brominated flame retardants are commonly used
  - Persistent & bioaccumulative
  - Impair attention, learning, memory and behavior in lab animals

Actions you can take
- Avoid azo dyes
- 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
Brominated Flame Retardants

Road Racers with Play Mat
By Fun Club
Mat: Bromine 30,831ppm

Princess Jewelry
By Dollar Tree
Necklace: Lead 257ppm
   Bromine 12,550 ppm
   Chlorine/PVC 257,196 ppm
Hair Clip:
   Lead 57ppm
   Bromine 25ppm

Lightning McQueen Racing Chair
By Disney
Seat: Bromine 14,905
   Mercury 39ppm
Base: Lead 34ppm
   Bromine 25,562ppm
   Mercury 156ppm
Information Sources

Product Testing: Healthy Toys [www.healthytoys.org](http://www.healthytoys.org)


Washington State Toxics Coalition
Toxic Free Toys Campaign [http://www.watoxics.org/issues/saferproducts](http://www.watoxics.org/issues/saferproducts)


Healthy Child Healthy World [http://healthychild.org](http://healthychild.org)

US PIRG (Public Interest Research Group) [www.uspirg.org/issues/toy-safety](http://www.uspirg.org/issues/toy-safety)

Environmental Working Group [www.ewg.org](http://www.ewg.org)
Healthy Toys.org

• Tests sample of toys & children’s articles every year
• Results released each fall

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<thead>
<tr>
<th></th>
<th>Found in:</th>
<th>Concern:</th>
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</thead>
<tbody>
<tr>
<td><strong>Lead</strong></td>
<td>jewelry, paint, PVC</td>
<td>neurotoxicity</td>
</tr>
<tr>
<td><strong>Cadmium</strong></td>
<td>PVC, coatings, pigments in plastic &amp; paint</td>
<td>developmental effects, known carcinogen</td>
</tr>
<tr>
<td><strong>Chlorine</strong></td>
<td>vinyl (soft plastic)</td>
<td>phthalate additives are endocrine disruptors</td>
</tr>
<tr>
<td><strong>Arsenic</strong></td>
<td>dye in textiles &amp; plastics</td>
<td>known carcinogen, kidney damage</td>
</tr>
<tr>
<td><strong>Bromine</strong></td>
<td>flame retardants in textiles &amp; electronics</td>
<td>persistent and toxic, possible carcinogen</td>
</tr>
<tr>
<td><strong>Mercury</strong></td>
<td>inks, adhesives</td>
<td>persistent, toxic, kidney damage</td>
</tr>
<tr>
<td><strong>Chromium</strong></td>
<td>stainless steel, pigments</td>
<td>some are known carcinogens, cause birth defects and reproductive problems</td>
</tr>
<tr>
<td><strong>Tin</strong></td>
<td>PVC</td>
<td>organotins are toxic at low exposure, several cause nervous system damage</td>
</tr>
<tr>
<td><strong>Antimony</strong></td>
<td>flame retardant, polyester</td>
<td>weakly mimics estrogen</td>
</tr>
</tbody>
</table>
Fairy & Flowers Sandals
HuanCheng

**Overall Level**
HIGH

<table>
<thead>
<tr>
<th>Lead</th>
<th>Bromine</th>
<th>Cadmium</th>
<th>Chlorine</th>
<th>Arsenic</th>
<th>Mercury</th>
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<tbody>
<tr>
<td>HIGH</td>
<td>NONE</td>
<td>HIGH</td>
<td>MED</td>
<td>NONE</td>
<td>NONE</td>
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</table>

* Other chemicals detected: Tin

**Industry Classification/Product Type**
Shoes

**Manufacturer**
Chaozhou Huancheng Craft Shoes Factory

**Manufacturer Code/UPC**
0000000000na5

**Made In**
China

**Test Date/Place**
21 August, 2008/MI

**Test Method**
XRF

**Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Lead</th>
<th>Bromine</th>
<th>Cadmium</th>
<th>Chlorine/PVC</th>
<th>Arsenic</th>
<th>Mercury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strap</td>
<td>0</td>
<td>0</td>
<td>71</td>
<td>248,306</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Purple painted area</td>
<td>4.113</td>
<td>0</td>
<td>700</td>
<td>304,679</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sole</td>
<td>3,948</td>
<td>0</td>
<td>756</td>
<td>341,248</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

† Note: numbers in this table represent parts per million of the given chemical.

**IMPORTANT NOTE:** HealthyToys.org ratings do not provide a measure of health risk or chemical exposure associated with any individual toy or children's product, or any individual element or related chemical. Follow this link to read more.
CPSC Voluntary Product Recalls

Categories

1. Child products (not including toys)
2. Toys
3. Household products
4. Outdoor products
5. Sports & recreation products
6. Specialty products
DDI Inc. Recalls Toy Construction Play Sets Due to Violation of Lead Paint Standard

WASHINGTON, D.C. - The U.S. Consumer Product Safety Commission, in cooperation with the firm named below, today announced a voluntary recall of the following consumer product. Consumers should stop using recalled products immediately unless otherwise instructed.

**Name of Product:** Construction Play Sets

**Units:** About 3,000

**Manufacturer/Distributor:** DDI Inc., of Dubuque, Iowa

**Hazard:** Surface paint on the play sets can contain lead, violating the federal lead paint standard.

**Incidents/Injuries:** None reported.

**Description:** The recall involves the 136-piece Mega Construction Play Set (item# 911346) and includes various construction equipment, vehicles, buildings and roads. The play sets are packaged in a black and yellow box with the word “Builder” printed in the upper left hand corner of the package.

**Sold at:** Home centers, hardware stores and farm stores nationwide from October 2008 through December 2008 for about $20.

**Manufactured in:** China

**Remedy:** Consumers should immediately take the recalled play sets away from children and contact the firm for a refund of the purchase price.

**Consumer Contact:** For additional information, contact DDI at (800) 220-2390 between 8 a.m. and 4:30 p.m. ET Monday through Friday or visit the firm's Web site at www.ddiretail.com.
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.
Provide guidelines for choosing safer products

- Arts & craft supplies
- Baby bottles, sippy cups, pacifiers
- Clothing & apparel
- Furniture
- Lunchboxes and storage
- Mattresses and changing pads
- Personal care products
- Toys
- Tableware
Quick Tips Buying Guidelines

Choose
✓ Products made from natural materials
✓ Products labeled “phthalate free” and “BPA free”
✓ Made in the USA, Japan, Canada or Europe
✓ Solid wood instead of pressed wood with nontoxic paints and finishes
✓ Wood certified by FSC or SFI
✓ Organic and untreated cotton, hemp, wool
✓ Brands that have committed to using environmentally friendly or sustainable materials
✓ Call toll free number on product to contact manufacturer and ask about presence of PVC and/or BPA

Avoid
✗ Cheap metal jewelry due to lead content
✗ Old painted toys as the paint may contain lead
✗ Permanent markers and paints
✗ Pressed or layered wood due to toxic glue
✗ Lights and sounds due to small batteries with mercury
✗ Play cosmetics as they often contain heavy metals
✗ Plastic labeled vinyl, #3, or PVC as it typically contains lead and phthalates
✗ Plastic with #7, OTHER, or PC identification for storing foods and drinks
✗ Moth, stain, and fire proof fabrics
Questions?

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