



“Most parents know to read the label on food or drink products before giving them to their baby or child. Parents are becoming more aware of the potential harm caused by products found in their child’s environment. But baby care products? Of course, these are safe or they would not be made and sold for use with your baby. Wrong!

Unfortunately, parents — and not the Food and Drug Administration — have the responsibility for monitoring the products they use with their baby. Current laws do not require the FDA to approve products before they go on the market. Firms test their own ingredients and products for safety but do not have to inform the FDA. As a result of this lack of regulation, there are potentially harmful ingredients in baby care products.

Information on the ingredients and products of greatest concern are reviewed in this article. Specific recommendations are offered to minimize your baby’s exposure to these potentially harmful items. Websites are listed in the article that provide parents with the information needed to make the best choices.

In the best of all possible worlds, the federal government would monitor baby products to assure full safety for your child. In this best world, companies making products for babies and children would be conscientious about assuring that these products are safe for the intended consumer. We do not yet have this world.

With the efforts of environmental groups and with your help by expressing your concerns about the current situation to your local, state, and federal policymakers, we may some day have such a world. Until then, it remains the job of parents to protect their babies and children from potentially dangerous ingredients found in some baby products.

This reality is not fair, but it is reality. Read this article carefully. Seek out the resources listed to learn more.”

- Larry B. Silver, MD

*from the Learning and Developmental Disabilities Initiative, January 2007*

## Are baby care products safe?

As a new parent, you often have an overwhelming number of decisions to make about caring for your child. You want to assume that the baby care products – from lotions to shampoos to diapers – are safe. Unfortunately, that’s not always the case.

Baby care products, as all cosmetics, are not as strictly evaluated or controlled in the United States as other products regulated by the Food and Drug Administration. According to the FDA’s Office of Cosmetics and Colors, most cosmetic products and ingredients are not subject to FDA premarket approval authority. Cosmetic firms are required to test their own ingredients and products for safety, but they are not required to register with the FDA, file data on ingredients, or report cosmetic-related injuries. Even ingredients that are harmful in tests can be included if a warning label is put on the product.<sup>1</sup> Also, ingredients can be included in products but not listed on labels if they are considered a fragrance<sup>2</sup> or a trade secret. Given this lack of regulation, it should come as no surprise that there are many harmful ingredients in baby care products.

## How might these products harm children?

Children are especially vulnerable to chemicals in baby shampoos, lotions, powders, ointments, baby wipes and other products. Children’s brains, nervous systems and other organs are still developing, and so substances that have a small effect on adults can contribute to developmental problems in children. A baby’s blood-brain barrier – which prevents chemicals from traveling from the blood into the brain – is not fully developed.<sup>3</sup> Babies also ingest products that are meant for external use only by putting fingers, hands, toes, toys and other objects into their mouths. Babies’ skin is more permeable than adult skin,<sup>4</sup> allowing more chemicals to be absorbed. Many personal care products contain “penetration enhancers” which further increase the absorption of chemicals through

the skin.

Some of the known health effects of the more harmful ingredients include developmental problems, cancer, reproductive problems, mutations, nervous system disorders and even death. Other ingredients may irritate the skin, eyes, respiratory tract or digestive tract.

The National Institutes of Health and National Library of Medicine (NIH/NLM) maintain a database of household products.<sup>5</sup> This database lists ingredients in many common U.S. products and summarizes scientific evidence regarding those ingredients. The following information draws heavily from this database.

## Ingredients of Concern

The following is an overview of ingredients of highest concern in baby care products listed in the NIH/NLM database and what is known about them.

### Parabens

Parabens are used as preservatives in many baby care products, including lotions, baby washes, wipes and other products for children.<sup>5,6</sup> Parabens can cause allergic reactions,<sup>7</sup> are irritating to skin and eyes and have been shown to harm human sperm.<sup>5</sup> They are also weak estrogen mimics (chemicals that act like estrogen in the body), making them a concern for reproductive problems and breast cancer.<sup>6</sup> Parabens are readily absorbed through the skin<sup>8</sup> and have been detected in human breast tissue<sup>9</sup> and tumors. There are several specific parabens – propylparaben, methylparaben, ethylparaben, butylparaben, and others – and several of these may be used in the same product. Because parabens are in so many products, children can be exposed repeatedly every day.

### Formaldehyde

Formaldehyde is a probable human carcinogen<sup>5</sup> and is associated with gene damage, mutations and developmental problems.<sup>10</sup> It is used in at least one baby wash product.

### Triethanolamine and Cocamide DEA

Triethanolamine and cocamide DEA can become carcinogenic if mixed with nitrosating agents –

agents that form cancer-causing nitrosamines in the manufacturing process or the body.<sup>11</sup> Some of the many nitrosating agents:

- 2-bromo-2-nitropropane-1,3-diol
- 5-bromo-5-nitro-1,3-dioxane (Bronidox C)
- Cocoyl Sarcosinamide DEA
- DEA compounds

Even without the nitrosating agents, both of these ingredients are irritants, and triethanolamine can cause contact dermatitis. Triethanolamine is used in some shampoos and lotions. Cocamide DEA is used in some bubble baths.

### Benzethonium Chloride

Benzethonium chloride used in some baby wipes is highly toxic. Ingesting even a small amount may cause vomiting, collapse, convulsions, coma or death.<sup>5</sup>

### Benzyl Alcohol

Benzyl alcohol is moderately toxic if inhaled or absorbed through skin contact. It is a moderate skin and eye irritant, and larger exposures can lead to vomiting, diarrhea, central nervous depression or deterioration, respiratory distress and even death.<sup>5</sup> It is found in some baby lotions and diaper rash treatments.

### PEGs

Polyethylene glycols (PEGs) and PEGs Lanolins should not be used on damaged skin due to concerns over kidney toxicity.<sup>5,12</sup> These chemicals are also prone to ethylene oxide contamination. Ethylene oxide is associated with cancer of the blood and lymph systems.<sup>13</sup> PEGs are found in cleaning products and lotions.

### Isopropanol

Isopropanol (isopropyl alcohol) can cause dizziness, loss of coordination, headache, confusion, stupor, vomiting and other serious effects.<sup>5</sup> Isopropanol is found in at least one shampoo.

### 2-Phenoxyethanol

2-Phenoxyethanol can cause central nervous depression; nausea, vomiting, and sometimes diarrhea; prominent headache or other pain.<sup>5</sup> It is found in some baby cleansing cloths.

### Colorings

FD&C Yellow #5 is an allergen and has been associated with hyperactivity in children.<sup>5</sup> It is added to some bubble baths and baby washes.

### Talc

Talc, often used in baby powder, can cause adverse reactions when applied to damaged skin. Talc can also irritate the eyes and damage the lungs if inhaled.<sup>5</sup> It can be found in baby powders and diaper rash treatments.

### Other Ingredients of Concern

While not as harmful as the ingredients listed above, the following ingredients can still lead to adverse effects in children:

**Glycerin** can cause mild headache, dizziness, nausea, vomiting, thirst and diarrhea if ingested.<sup>5</sup>

**Linoleic acid** can cause nausea and vomiting.<sup>5</sup>

**Cholecalciferol** (Vitamin D) intoxication can lead to excess calcium in the blood. Early symptoms may include weakness, fatigue, drowsiness, headache, loss of appetite, dry mouth, metallic taste, nausea, vomiting, abdominal cramps, constipation, diarrhea, vertigo, tinnitus, loss of control over muscle movement, skin eruptions, low eye fluid pressure (in infants), muscle pain, bone pain and irritability.<sup>5</sup>

**Triclosan** is an ingredient of concern in many antibacterial soaps and products. Although it is not used in any of the baby products listed here, many parents are misled into thinking that it is safer for their baby to wash with antibacterial soap. Triclosan has been shown to disrupt thyroid hormone processes in frogs.<sup>14</sup> While there's a big difference between frogs and humans, thyroid hormones play a key role in human brain development and so caution is recommended (see our related "Thyroid Fact Sheet"). Triclosan has been found in human breast milk, although so far not at levels that would cause harm.<sup>15</sup> Triclosan use has also been linked to increased antimicrobial resistance in bacteria – causing harmful bacteria to become resistant to medical antibiotics.<sup>16</sup>

**Fragrance** is a catch-all term that manufacturers can use without listing specific ingredients. Phthalates, which are often ingredients in fragrances, include chemicals that are suspected carcinogens and hormone disruptors. Some phthalates are increasingly being linked to reproductive disorders.<sup>5</sup> There are many different phthalates, each with its own chemical structure and properties, so it is difficult to generalize their effects. The most widely used phthalate in fragrances is diethyl phthalate (DEP),<sup>17</sup> which has not been shown to be toxic or cause reproductive harm.<sup>18</sup> However, other phthalates are not so harmless, and until manufacturers list all ingredients in their products, it will be difficult to determine if fragrances are safe.

Several additional ingredients can irritate a baby's skin, eyes, respiratory tract and/or digestive tract.<sup>5</sup> These are listed in the summary table on pages 5 and 6.

### Products of Concern

#### Plastic Baby Bottles

Bottles made of polycarbonate plastic generally contain bisphenol-A. This chemical disrupts proper hormone functioning, alters genes and disrupts normal physical and behavioral development.<sup>19</sup> (For more information about bisphenol-A and plastics, see our related columns.)

#### Disposable Diapers

Disposable diapers may contain harmful solvents such as toluene, xylene, ethylbenzene, styrene and isopropylbenzene that are known to be toxic to the respiratory system. Off-gassing of these chemicals from disposable diapers has caused asthma-like symptoms in mice.<sup>20</sup> Some diapers are also made from chlorine-bleached pulp. While the chlorine does not appear to put the baby wearing the diaper at any immediate risk, the bleaching process releases cancer-causing dioxins into the air,<sup>21</sup> increasing the risk for those who work or live anywhere that those dioxins travel.

## As a parent, what are some things I can do to protect my child from unnecessary exposures?

### Plastic Bottles

Chose either plastic baby bottles free of bisphenol-A or glass baby bottles.

### Diapers

Use less toxic disposable diapers (including those that are chlorine-free). Better yet, use cloth diapers to remove exposures to solvents.

### Skin and Hair Care Products

Read the labels of the products that you purchase, but remember that not all ingredients are required to be listed on products.

Avoid products that contain the ingredients listed above and in the summary table at right.

Search online to find out more about the ingredients in products. Two excellent databases are available – one from NIH/NLM as mentioned before and the other from the Environmental Working Group (EWG). Both databases list various brand name baby care products, the ingredients in each, and the

potential toxic effects of each. Users can search by product or by ingredient:

<http://householdproducts.nlm.nih.gov/products.htm>

[http://www.ewg.org/reports/skindeep2/search.php?main\\_cat=BABY+PRODUCTS](http://www.ewg.org/reports/skindeep2/search.php?main_cat=BABY+PRODUCTS)

On the EWG site, products are also ranked and color-coded according to the level of health threat posed by the ingredients: green indicates little or no concern, yellow indicates moderate concerns and red indicates higher concern. For example, the database includes the evaluation of 30 baby shampoos, six of which pose “little or no concern” (green) but 24 of which pose “moderate concerns” (yellow).

### Alternatives to Harmful Products

The table below provides suggestions for safer alternatives, including homemade substitutes and old-fashioned methods of baby care.

Product	Replacements	Alternatives
baby wipes	homemade wipes: see recipes at <a href="http://www.craftbits.com/viewProject.do?projectID=402">www.craftbits.com/viewProject.do?projectID=402</a> or <a href="http://or.essortment.com/howtohomemade_rhjpg.htm">http://or.essortment.com/howtohomemade_rhjpg.htm</a> or search the Internet for more recipes	washcloths or spare cloth diapers, soap and warm water
baby powder	FamilyDoctor.org suggests using products that contain petrolatum (such as Vaseline) to protect your baby's diaper area from moisture. <sup>22</sup>	Keeping your baby's diaper area clean, cool and dry is recommended for treatment of diaper rash. Neither talc nor cornstarch is recommended. <sup>22</sup>
shampoo	nontoxic adult shampoos, such as Avalon Organics	
polycarbonate plastic baby bottles	bottles made of glass or polypropylene plastic (see recommended brands at right)	breast feeding
disposable diapers	(see recommended brands at right)	cloth diapers

## Summary of products and health concerns

Type of Product	Ingredients to Avoid (most dangerous in bold)	Recommended Brands*
soap, baby bath, bubble bath and baby wash	calcium silicate (irritant) citric acid (irritant) <b>cocamide DEA</b> (potential carcinogen) cocoamidopropylbetaine (irritant) <b>FD&amp;C Yellow #5</b> (allergen, aggravates hyperactivity) <b>formaldehyde</b> (probable carcinogen) fragrance glycerin (toxic) laureth-4 (irritant) <b>parabens</b> (severe irritant, spermicide, estrogen mimic) <b>PEGs</b> (mild irritant, kidney damage) propylene glycol (irritant) quaternium-15 (irritant, causes dermatitis) sodium hydroxide (irritant) sodium lauryl (or laureth) sulfate (irritant) styrene (irritant)	Avalon Burt's Bees California Baby Terressentials
baby oil, lotion or ointment and diaper rash treatment	<b>benzyl alcohol</b> (irritant) cholecalciferol (Vitamin D) (toxic) fragrance glycerin (mild toxic) hexylene glycol (irritant) isopropyl palmitate (irritant) lactic acid (irritant) linoleic acid (irritant) <b>parabens</b> (severe irritant, spermicide, estrogen mimic) <b>PEGs</b> (mild irritant, kidney damage) propylene glycol (irritant) quaternium-15 (irritant, causes dermatitis) sodium borate (borax) (irritant) sodium hydroxide (irritant) stearic acid (irritant) <b>talc</b> (irritant, harmful to lungs) <b>triethanolamine</b> (potential carcinogen, irritant)	A+D (original ointment only) Baby Aquaphor Badger Burt's Bees (diaper ointment only) Cosmic Dance Earth Mama Angel Baby See the Dawn Terressentials Vaseline
baby powder	cholecalciferol (Vitamin D) (toxic) fragrance <b>talc</b> (irritant, harmful to lungs)	Aromababy Baby Magic Burt's Bees California Baby Johnsons (powder without talc only)
shampoo and conditioner	citric acid (irritant) cocoamidopropylbetaine (irritant) fragrance glycerin (mild toxic) <b>isopropanol</b> or isopropyl alcohol (toxic) lactic acid (irritant) <b>PEGs</b> (mild irritant, kidney damage) potassium sorbate (irritant) quaternium-15 (irritant, causes dermatitis) sodium lauryl (or laureth) sulfate (irritant)	Aubrey Organics

Type of Product	Ingredients to Avoid (most dangerous in bold)	Recommended Brands*
baby wipes	<b>2-Phenoxyethanol</b> (toxic) <b>benzethonium chloride</b> (highly toxic) citric acid (irritant) cocoamidopropylbetaine (irritant) fragrance glycerin (mild toxic) <b>parabens</b> (severe irritant, spermicide, estrogen mimic) <b>PEGs</b> (mild irritant, kidney damage) propylene glycol (irritant) sodium lauryl (or laureth) sulfate (irritant)	Tushies Seventh Generation
disposable diapers	<b>toluene</b> (nervous system toxic, associated with birth defects) <b>xylene</b> (toxic, nervous system depressant) <b>ethylbenzene</b> (toxic, animal carcinogen, irritant to respiratory and nervous systems) <b>styrene</b> (toxic, irritant) <b>isopropylbenzene</b> (toxic, nervous system depressant)	Tushies (no solvents and chlorine-free) Seventh Generation (chlorine-free)
polycarbonate plastic baby bottles	<b>bisphenol-A</b> (toxic, hormone disrupter)	BornFree polypropelene bottles made by Gerber, Medela, Sassy or Platex

\*The brands recommended here are from a review of products listed in the NIH/NLM database,<sup>5</sup> supplemented with information from the EWG database and other sources as noted. Recommended brands were found to have none of the most dangerous chemicals and few or none of the less harmful ingredients listed in the table. This is not a complete listing of all brands or ingredients. We highly recommend that parents check labels of specific products before purchase.

## Additional Resources

- *Mothers and Others for a Livable Planet Guide to Natural Baby Care: Nontoxic and Environmentally Friendly Ways to Take Care of Your New Child*, by Mindy Pennybacker and Aisha Ikramuddin, published by Wiley, 1999. (search Amazon.com for “Natural Baby Care”)
- *Natural Baby Care: Pure and Soothing Recipes and Techniques for Mothers and Babies*, by Colleen K. Dodt, published by Edwards Brothers, 1997.
- Mothering magazine and website ([www.mothering.com](http://www.mothering.com))
- The Green Guide ([www.thegreenguide.com](http://www.thegreenguide.com))
- Tiny Footprints from the Oregon Environmental Council ([www.tinyfootprints.org](http://www.tinyfootprints.org))
- Safer Products Store, from the Children’s Health Environmental Coalition (<http://chec.greenhome.com/products/>)
- Campaign for Safe Cosmetics (<http://www.safecosmetics.org>); while not limited to baby care products, this site includes a list of manufacturers that have signed the Compact for Safe Cosmetics, pledging not to use chemicals in their products that are known or strongly suspected of causing cancer, mutation or birth defects.

## Do the best you can

The information in this column may seem overwhelming. Please know you are not failing your child if you have to buy some of the more toxic products because they are the only ones available in your local stores or you can't afford to pay a little extra for the suggested alternatives. Ask your local store owners to provide less toxic products to their customers. This can help bring down prices and offer safer choices to other parents.

You can also take these concerns to your local, state and federal policymakers. Let them know you want better labeling laws and tighter regulations on consumer products for babies. Remember: any steps you might take to reduce your child's exposures – whether in terms of using less toxic products or educating your legislators – helps create a healthier future for all children.

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**For more information or for other Practice Prevention columns, visit the Institute for Children's Environmental Health (ICEH) online at [www.iceh.org/resources.html](http://www.iceh.org/resources.html) or call 360-331-7904.**



**ICEH serves as the national coordinator for the Collaborative on Health and the Environment's Learning and Developmental Disabilities Initiative.**



**Footnoted resources**

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