



STOP	Everyone is vulnerable to toxins in the environment. Children are more vulnerable because of their size and rapid growth.
STUDY	We will discuss three groups of toxins that can be easily hidden in our environment; lead, PVC/phthalates and plastics/BPA.
ACT	Lead is a neurotoxin seen in paint and toys, PVC/Phthalates and BPA are hormone disrupters found in plastics, toys, cans, bottles, etc.

1.0 Reducing your families exposure to toxic chemicals

Everyone is vulnerable to toxins in the environment. Children are more vulnerable when it comes to toxins for many reasons, including:

- Children’s metabolisms are faster and therefore they absorb toxins faster.
- Their developing brains and immature reproductive and immune systems are unable to detoxify chemicals to which they are exposed.
- Babies and toddlers spend most of their time on or very close to the ground and are therefore exposed to many more contaminants.
- Infants explore things by putting things in their mouths, they also get more cuts and rashes which leads to more exposure.
- Children eat three to four times more food per pound of body weight than the average adult.

There is a lot of reputable information about toxins from government agencies and The Environmental Working Group website (see Section 5.0). We encourage you to take a look. It is surprising what companies are allowed to sell in the open market. A little research can protect you and your family from unnecessary nasties in your home.

2.0 Lead

Lead is a heavy metal that is classified as a neurotoxin, basically a chemical that affects the nervous system. Children are at an increased risk for lead poisoning because their blood brain barrier, the body’s built in mechanism for protecting the brain from poisonous substances is not as well developed as it is in an adult. Lead gets past this barrier imitating calcium which babies and toddlers brains crave. As a result, until age six, children absorb three to four times more lead than an adult absorbs, and that rate is even greater for children who are calcium deficient.

Where is lead found? The most common source is in paint. In Europe, The United States and Australia lead paint was outlawed in the 1970’s. However it is still legal, available for sale and used in many places in Asia as well as Malaysia. We bought a lead testing kit from the USA and used it to test the paint in our house (which we found out was lead free) – see <http://www.leadinspector.com/>, it was easy to use and they deliver internationally.

Another high-risk lead contaminant is from calcium supplements. If you give these to your children make sure they are NOT stated as “Natural Source Calcium Carbonate” or “Calcium Phosphate (bone)”, only use chelated calcium (in Malaysia the most common we have seen is citrate based, others include gluconate and lactate) or “Refined Calcium Carbonate”. For further information refer to <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1695147/>.

Lead can also be found in; water, toys, soil, old vinyl mini-blinds, and dishware. Have a look at the above links for ways on how to avoid having lead and remove it from your home.



The main online information sources we used were:

1. Environmental Protection Authority: <http://www.epa.gov/lead/brochure.html>
2. Center for Disease Control and Prevention: www.cdc.gov/nceh/lead

3.0 PVC and Phthalates

PVC products can be all around us if we don't avoid them: pacifiers, water bottles, shower curtains, vinyl flooring, baby bathtub books to name a few. According to the American Centre for Health and Environmental Justice, PVC, which is commonly referred to as vinyl is "one of the most hazardous consumer products ever created". Made from flammable gas vinyl chloride (a known carcinogen), PVC "off gases" which means that it releases poisonous chemicals that can be inhaled. This chemical is dangerous from the factory, to the home, to the landfill.

PVC is frequently used in children's toys and is combined with other dangerous additives such as lead, cadmium and when it needs to be soft and flexible, phthalates. Cadmium which can leach out of toys has been linked to brain damage. Phthalates are hormone disrupters, which mean that they interfere with the hormone systems that regulate normal growth and reproductive development in children.

The main online information sources we used were:

- PVC – Center for Health, Environment & Justice: <http://chej.org/campaigns/pvc/>
- The PVC-Free Guide: <http://www.ct.gov/dcf/lib/dcf/nurses/pdf/pvc-guide-1.pdf>

3.1 How can you avoid having PVC & Phthalates in your home?

If you suspect a toy you own or are planning to buy may have PVC or phthalates, or if you smell that strong toxic "shower curtain smell"; you don't want it in your home. Look for the "PVC free" label when you are shopping.

- Avoid bibs made of vinyl. Choose cloth bibs, ideally organic cotton is your best choice.
- Don't install vinyl flooring, it has also "inconclusively" been linked to autism in children (see <http://www.scientificamerican.com/article/link-between-autism-and-vinyl/>).
- Avoid toys from cheap discount stores or vending machines, they often have no safety regulations. The paint could also be lead based.
- Avoid PVC nappy/diaper changing pads, particular the portable type kept in your changing pad. Also the type that sit on your changing table probably containing polyurethane foam. Which in addition to PVC could contain flame retardants.
- Be cautious of products usually made of or coated with PVC, which can include various items such as bibs, hats, bags, raingear, and shoes.
- Avoid products with synthetic fragrances, which are likely to include phthalates. Look for phthalate free products.

Check out the Skin Deep website of the Environmental Working Group (EWG) at <http://www.ewg.org/skindeep/> and search the product safety guide to see if the products that you use have unsafe toxins.

Document Number			
TSE-	FHE-	DOC-	001
By	Checker	Revision	Date
MH	SS	1	31 Aug 2014

Copyright © The Safety Educator, 2014



4.0 Plastics and BPA

Bisphenol A, commonly known as BPA, is toxic. BPA is a proven hormone disrupter that mimics estragon and has been associated with cancer, heart disease, liver abnormalities, early onset puberty and interference with the reproductive system, hyperactivity, learning disorders, obesity and neurological impairment. In 2008, in the United States, it was reported that 95% of baby bottles contained BPA. To make matters worse, heating a bottle, even with hot water, releases BPA five times faster than water at room temperature. Heat milk in a glass container then decant it into a bottle. Never heat bottles in a saucepan on the stove.

BPA is also added to the lining of formula milk containers for powdered and liquid formula, in particular for liquid formula unsafe levels of BPA can be leached into the liquid formula. According to the environmental working group powdered milk formulas are the best choice for parents who want to avoid BPA in their baby's diet.

The Environmental Health Perspectives Journal recently published their summary of findings on BPA research from 2007-2013. Their conclusion "Based on reports that BPA impacts female reproduction and has the potential to affect male reproductive systems in humans and animals, we conclude that BPA is a reproductive toxicant."

5.0 Alternatives to BPA Plastic Drinking Bottles

Some plastic adult drinking bottles have BPA linings (particularly the soft plastic ones, or the aluminium or steel ones that have plastic linings), these also leach toxic chemicals. Especially when left in hot cars. From our research the best alternatives to plastic drinking bottles are;

- A stainless steel drinking bottle that does not have a BPA lining. Remember to check that there is no BPA lining on the label, more info can be found in the below links or specifically the Environmental Working Group listed below.
- A glass drink container with a rubber over protector, these work well and can help the container "bounce" if dropped.

The main online information sources we have used for our research are:

- EWG's Guide to Infant Formula and Baby Bottles:
<http://www.ewg.org/research/ewg%E2%80%99s-guide-baby-safe-bottles-and-formula>
- Bisphenol A: Toxic Plastics Chemical in Canned Food: Canned food exposures are significant: <http://www.ewg.org/research/bisphenol>
- Consumer tips to avoid BPA exposure:
<http://www.ewg.org/research/bisphenol/consumer-tips-avoid-bpa-exposure>
- Bisphenol A and Reproductive Health: Update of Experimental and Human Evidence, 2007–2013, The Environmental Health Perspectives Journal
<http://ehp.niehs.nih.gov/1307728/>

6.0 Further Information and References

A lot of the data taken from this article was paraphrased from SuperBaby by Dr Jenn Berman. We refer to it countless times a month and highly recommend it if you are looking for a book that encompasses the many facets of having a child under 3 years of age.

- SuperBaby: 12 Ways to Give Your Child a Head Start in the First 3 Years, By Dr Jenn Berman

Document Number			
TSE-	FHE-	DOC-	001
By	Checker	Revision	Date
MH	SS	1	31 Aug 2014
Copyright © The Safety Educator, 2014			