



# Flame Retardants Finally Fade

## Crib Mattress Makers Respond to Chemical Concerns

### Executive Summary

Two years ago, we reported challenges in finding information about infant crib mattresses. Flame retardant chemicals were of particular concern. Since then, public outcry has burgeoned, and flammability standards are changing. Some retailers are demanding transparency from suppliers and removal of toxic chemicals. To gauge market shifts, we revisited how infant crib mattress makers meet flammability standards.

In 2011, the report *The Mattress Mattered* surveyed 28 crib mattress makers of 190 models. Most were reluctant to disclose all materials used. Only two manufacturers provided all of the information we sought.

For this 2013 review, 31 current manufacturers of full-size crib mattresses were identified, and contacted via phone and email. Each website was reviewed, as were the websites of buybuy Baby and Babies"R"Us to determine what information was readily available to the general consumer.

Today, over 90% crib mattress makers use barriers made of wool, with boric acid, fiberglass, or other materials, to achieve flammability standards. But chlorine or bromine is still present in some mattresses, and several companies didn't reply or refused participation.

Major retailers don't provide adequate information to consumers. buybuy BABY provided no relevant information. Babies"R"Us is more descriptive, about meeting flammability standards, and product materials in general.

In the absence of strong federal legislation, toxic chemicals are routinely found in children's products. This report contains recommendations for retailers, product makers, parents and lawmakers. Together, these four segments of society can accelerate the transition to healthier products for children.

# INTRODUCTION

In 2011, Clean and Healthy New York released a report entitled, “The Mattress Matters: Protecting Babies from Toxic Chemicals While They Sleep.” This report compiled publicly- available information about what infant mattress makers used in their products - from the outside coatings to the deepest interior. It found that only a handful of companies produced crib mattresses made from non-toxic materials.

One use of toxic chemicals came from the methods companies used to meet flammability standards, especially when the mattress interior was comprised of polyurethane foam. Two years later, flammability standards are shifting, and public concern over use of toxic chemicals in

infant products has dramatically increased. In this follow-up report, we ask these questions: How are companies meeting these standards today? Are they responding to customer concern and using the changing regulatory landscape to reduce toxic chemical use? What can people easily learn when shopping in the store or online?

To determine the answers to these questions, we used a two-pronged approach: we conducted extensive out-

reach to infant crib mattress makers - reviewing online statements, placing phone calls, and corresponding via email - to determine what chemicals, materials, or methods they used for meeting flammability standards. Then we reviewed mattresses for sale on buybuy BABY and Babies“R”Us websites.

Why should we care? Flame retardant chemicals are ubiquitous in the environment and are in nearly all humans. Babies are born contaminated with these chemicals in their cord blood.<sup>2</sup> Toddlers have the highest levels of flame retardant chemicals in their bodies, about three times the levels of their mothers.<sup>3</sup> Health concerns in-

clude endocrine disruption, interference with thyroid hormone action, decreased memory, learning deficits, altered motor behavior, hyperactivity, chryptorchidism, hypospadias, reduced ovarian follicles, reduced sperm count, immune suppression, and cancer.<sup>3</sup>

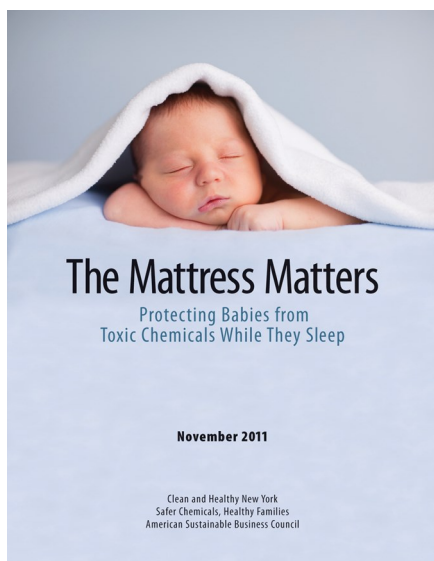
There’s been a flood of recent activity, with top retail chains including Target and Walmart taking major steps to require disclosure and begin to remove certain chemicals from products they carry in their stores. However, there’s been an unfortunate lack of similar declarations thus far by the leading infant product retailers: buybuy BABY and Babies“R”Us.

## The Mattress Matters

The 2011 report surveyed 28 mattress makers that produced a total of 190 models of standard US crib mattresses. We sought to find out just what crib mattresses were made of, and how willing manufacturers were to provide this information.

Available crib mattress options ranged from those made almost entirely of petroleum-based products using chemicals of concern, to others made of natural fibers like wool or cotton. At that time, the significant majority (72%) of mattress models contained at least one chemical of concern. A significant percentage of these models incorporated small changes, like thin layers of organic cotton or use of soybean oil as part of polyurethane foam, and used these changes to market their mattresses as “greener” or healthier.

Most manufacturers were reluctant to disclose all materials used. Manufacturer and retailer websites provided more information than product packaging, but only two manufacturers presented all of the information we sought on their website. For the remaining manufacturers, the most difficult answer to obtain was how they achieved fire safety standards. Concerns that information disclosure might help competitors were most often cited as the reason for limited transparency, especially by larger companies.



<sup>1</sup> <http://www.ewg.org/research/body-burden-pollution-newborns>

<sup>2</sup> Lunder et al, 2010 ES&T, Jul 1;44(13):5256-62.

<sup>3</sup> Environmental Health News has compiled an extensive list of studies on this subject. See, for example, the results of this search: <http://www.environmentalhealthnews.org/archives.jsp?sm=ts68%3B1title%2Cde%2Cdescription%2Ctext%2Csubject%2Cpublishername%2CCoverage%2Creporter%22%3Bflame+retardant+healthfr4%3Btype6%3B5Study18%3BScientific+Studies>

# METHODOLOGY

We identified manufacturers of full-size crib mattresses. We conducted web research and worked from the list of companies from the 2011 report, *The Mattress Matters*. We added companies that have since entered the marketplace, and we removed from consideration companies that no longer make crib mattresses, those that only make non-standard sized mattresses, or companies that do not sell in the US market. The final list of 31 manufacturers received two or more phone calls, with one to two follow-up emails.

The questions we asked were: Do you use any foam materials in your mattresses, such as polyurethane foam? If so, what are those materials? How do you meet government flammability standards? Is it the same for all of your makes and models? Do you use any flame barriers? If yes to question 3, which chemicals are used in your flame barriers? Please provide a full list. If no, which chemicals are used to meet flammability standards? Can you pro-

vide an MSDS for your flame barriers/chemicals? If you do not use flame barriers or chemicals, how do you meet government flammability standards? We asked several companies if they had changed their sourcing of polyurethane foam, after hearing from one that they now sourced flame retardant-free polyurethane foam.

We searched product websites, and the websites of buy-baby Baby and Babies"R"Us, to determine what information was available to the general consumer. We did not purchase products, and we did not have any products tested in a laboratory. We are reporting the information provided to us by manufacturers and retailers as of October 11, 2013.

We did not rank companies in this report because there are many components in mattress construction, of which achieving flammability standards is just one. Without a comprehensive assessment of all materials, ranking companies could be misleading.

## FLAME RETARDANTS: WHAT WE FOUND

We surveyed 31 companies in 2013. We spoke with 22. We found a shift in the marketplace, with leading companies finding ways to eliminate toxics, and laggards continuing to rely on chemicals of concern.

- 21 manufacturers of 23 responding (or 91%) now use a barrier.
- Five of the 21 use boric acid barriers.

### The good news:

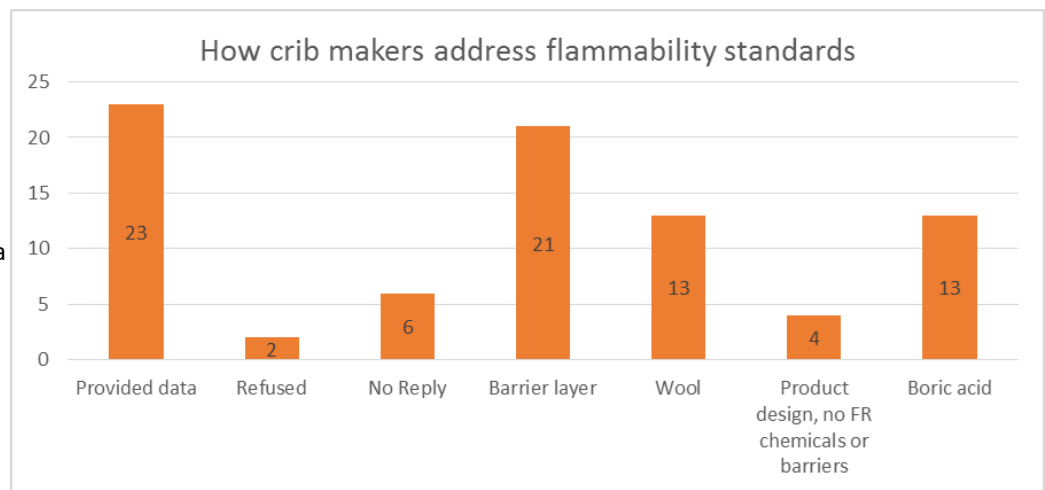
- Four companies offer mattresses designed to meet flammability standards without use of barriers or chemical additives.
  - Two companies do this for every product line.
  - Another offers a mattress made with wool as a key component and without a separate barrier.
  - The fourth company offers a number of flame retardant-free mattresses, and a cotton and innerspring mattress that doesn't meet current flammability stand-

ards, available only with a doctor's prescription.

- In 13 cases, or 57% of manufacturers, at least one of their lines uses wool.
- One manufacturer uses a fiberglass and synthetic fiber barrier—and has transitioned to a formulation without halogens or antimony.

### The bad news:

- Two manufacturers use barriers made of fiberglass and synthetic fibers that include antimony and halogenated compounds.
- One company adds antimony to the vinyl cover.



### Changes are happening:

- Hydrated silica, used by four companies in 2011, is now only used by two.
- Two manufacturers refused to answer any of our questions, however two companies who declined to provide information in 2011, did so in 2013.
- Six companies failed to respond as of the writing of this report.
- Three manufacturers reported that they now source polyurethane foam without added flame retardant chemicals, since they switched to a barrier.

## What We Learned from Retailers

When it comes to information accessibility, particularly at the retailer level, the news isn't so good. buybuy BABY's website says at most that a product meets or passes flammability standards - but even this is only denoted for one manufacturer's products. Babies"R"Us gave more information, as can be seen in the chart in Appendix I.

## Navigating Information

Five Material Safety Data Sheets (MSDS) were provided. These are intended to inform workers about potential

hazards. MSDSes can be difficult to read, confusing, and many do not fully describe the materials or hazards.

Two MSDS sheets came from Jones Fiber Products. Both listed bonded cotton, fire retardant - (non-toxic), refined vegetable oil and low melt fiber. One company verbally reported that the "non-toxic" flame retardant chemical was boric acid. Neither MSDS provided more chemical-specific information.

For two other MSDSes, it took digging to understand the potential health implications of materials reported.

One MSDS from Ventex, the barrier supplier, identifies antimony oxides and a chlorinated chemical in their barrier, but does not reference the potentially hazardous break-down product (in the event of a fire): hydrogen chloride. Hydrogen chloride, which is a hydrogen halide, can react with water to produce a powerful acid that is highly corrosive in the lungs. Another MSDS says they use polyester fiber and "other polymeric fibers." However, it lists antimony oxide and hydrogen halide as hazardous decomposition or byproducts, indicating that a chlorinated or brominated compound was used in the barrier.

The final MSDS showed that Ventex also makes a halogen-free, antimony-free barrier based on fiberglass.

# WHERE ARE RETAILERS NOW?

Although neither retailers consistently disclosed information on flammability, there were clear differences:

**buybuy BABY** provided no relevant information, though it mentions that mattresses meet or pass federal flammability standards for one brand of products.

**Babies"R"Us** is more descriptive, both about meeting flammability standards, and about product materials in general. However, even Babies"R"Us does not go beyond broad descriptors on flammability standards.

Information available online regarding buybuy BABY's commitments to sustainability is sparse. Their online guide to crib mattresses<sup>4</sup> does not mention fire safety standards, flame retardants, specific methods or chemicals that may be used, or even the word "chemical." They tell parents to "choose quilted vinyl or double- or triple-laminated ticking that is reinforced with nylon," despite

selling mattresses with a variety of cover materials.

We found more detailed information in the 2012 Corporate Responsibility Report<sup>5</sup>, available on the website of their parent company, Bed Bath & Beyond. They provide details about their policy eliminating bisphenol A (BPA) from children's feeding products, reusable food and beverage containers. However, these actions merely keep them in compliance with the wave of municipal and state laws regulating BPA - the first of which was passed in March 2009 (Suffolk County, NY). The Report claims that Bed Bath & Beyond has "proactively implemented limits on certain soluble heavy metals" in their products, but it does not provide details.

buybuy BABY claims to be "a leader in promoting safe sleep environments for babies, by showing bare cribs in its marketing pieces, displaying educational signage in stores, distributing safe sleep educational materials to

<sup>4</sup> [www.buybuybaby.com/store/guide/buying-guide-to-crib-mattresses/pubbbg30012](http://www.buybuybaby.com/store/guide/buying-guide-to-crib-mattresses/pubbbg30012)

<sup>5</sup> [www.bedbathandbeyond.com/store/static/CorporateResponsibilityReport](http://www.bedbathandbeyond.com/store/static/CorporateResponsibilityReport)

Baby Registrants and customers both in-store and online, as well as providing thorough training to buybuy BABY Associates.” However, they do not mention fire safety standards, flame retardants, or the word “chemical,” leaving parents without essential information about products.

Publicly available information about Babies“R”Us is more detailed, but is housed under the parent site (Toys“R”Us). The Toys“R”Us Safety Standards and Prac-

tices<sup>6</sup> provides specific values for limits of some chemicals in products (lead, cadmium), references relevant federal legislation, and details their efforts to reduce or eliminate BPA, phthalates, and PVC from their products. The Report provides similar information on their FAQ page<sup>7</sup>, including an entire section on BPA. Unfortunately, we could not find any information about preferences or requirements for how products meet fire safety standards.

## RECOMMENDATIONS

Contrary to popular belief, it is both legal and common practice to include toxic chemicals in the makeup of products made for and marketed to babies and children. That’s because the major federal law meant to regulate chemicals, the Toxic Substances Control Act, is a widely acknowledged monumental failure that does not adequately protect people. Chemicals are put on the market without first being proven safe, and nobody can get adequate information about them. Not the government, not product makers, and certainly not consumers. Parents are flying blind. It’s just not possible for a parent to make fully informed choices about what their baby or toddler is exposed to throughout the day.

### For Retailers

We’ve launched a campaign that will begin to change that, called *Getting Ready for Baby*. With great purchasing power comes great responsibility, especially when it comes to infants and children. That’s why we’re calling upon the two major domestic infant and toddler product retailers, buybuy BABY and Babies“R”Us, to get tough on toxic chemicals. A growing collaboration of 65 groups has joined together to urge these two baby product suppliers to call for removal of a list of chemicals known as the Hazardous 100 + from the products they sell. Flame retardant chemicals are well-represented on this list, as are heavy metals, formaldehyde, bisphenol A, phthalates, triclosan and perfluorinated chemicals.

### For Product Makers

Know and disclose all materials and chemicals used in products to customers and to retailers. Use tools like the GreenScreen for Safer Chemicals to select the least toxic materials, or consider redesigning products, as some

product makers in this report have done, to safer chemicals or materials. Take advantage of resources, such as those offered by the BizNGO Workgroup for Safer Chemicals and Sustainable Materials, and set a corporate policy to avoid all toxic chemicals. It’s what people want, so businesses that favorably differentiate themselves in this manner will reduce potential liability, protect brand name, and expand their customer base.

### For Parents

Choose products that describe what they contain. Don’t rely on blanket claims of “non-toxic” or “natural” as no laws govern the use of those words. If it’s not on the label, ask a store representative and call the manufacturer for more information. This will help in making smart shopping choices to protect loved ones, and signal manufacturers and retailers that access to this information, and to truly non-toxic products, matters to parents.

### For Lawmakers

Learn from history. Whenever a toxic chemical has been phased out of production or banned in particular uses, the store shelves were not empty, the economy did not collapse, and public health was improved. For instance, since lead was removed from paint and gasoline, blood lead levels have dropped significantly. Also, now that the PBDE flame retardant chemicals are banned in California, levels are dropping in people. Importantly, when powerhouse retailers like Walmart and product makers like Procter and Gamble announce their intentions to require disclosure and phase out of a list of chemicals, it demonstrates achievability that should drive better state and federal policy.

<sup>6</sup> [www.toysrusinc.com/safety/practices/](http://www.toysrusinc.com/safety/practices/)

<sup>7</sup> [www.toysrusinc.com/safety/faq/](http://www.toysrusinc.com/safety/faq/)

# APPENDIX 1: MANUFACTURER DETAILS

Company	2011 Reporting	2013 Reporting	Sold at buybuy BABY	Sold at Babies“R”Us
AFG Baby Furniture (Baby Mile)	Declined to provide information on flammability	No reply as of 10/14; website has no flame retardant (FR) details		No flammability standard information provided
Baby Cache	N/a	No reply as of 10/14; website does not address flammability		No flammability standard information provided
Bloom	N/a	Coir mattress uses wool barrier; inner-spring uses rayon/silica barrier website does not address flammability	No flammability standard information provided	
Colgate Mattress Atlanta	Silica	Rayon barrier material. Don't use FR chemicals in foam. Website provides description.	Meets all federal and state safety standards	
Da Vinci Decor (Million Dollar Baby)	Willow style: Kevlar barrier; Others: Antimony in vinyl cover	Willow style uses Dupont "cotton-like material" barrier and kevlar thread. Others: Antimony in vinyl. Website claims "free of TRIS... and toxic flame retardants"		Meets Federal flammability standards
Delta (Simmons Kids)	Declined to provide information on flammability	No reply as of 10/14; no information on website	No flammability standard information provided	"100% chemical free cotton fire protection meets or exceeds all federal flammability standards..."
Dream on Me	Declined to provide information on flammability	Declined to provide ; website has no FR details		Meets Federal flammability standards.
Foundations (Child Craft)	Declined to provide information on flammability	Redesign in Oct. is a flame barrier (material not disclosed), with FR-free foam, website has no FR details		No flammability standard information provided
Kids Basics (Fisher Price)	N/a	Boric acid in barrier, website does not address flammability		Meets or exceeds all flammability... requirements.
Kolcraft (Sealy)	Refused to provide information on flammability	Innerspring mattresses use no flame retardant barrier or chem., 10% use foam with boric acid barrier; website does not address flammability		Claims vary: no information provided, variants of "Meets or exceeds all flammability ...testing and does not contain toxic [FRs]."
La Jobi (Serta)	Boric Acid	Barrier of cotton/poly blend and Serta brand Fireblocker, unable to reach Serta for details by 10/14; website does not address flammability	No flammability standard information provided	Claims vary: no information provided, variants of "meets all federal safety standards"
Lullaby Earth	N/a	Products designed to meet flammability standards without FR barrier or chemicals.; website provides description	No flammability standard information provided	No flammability standard information provided
Naturepedic	Hydrated silica, baking soda	Products designed to meet flammability standards without FR barrier or chemicals.; website provides description	No flammability standard information provided	"No ...antimony, brominated or chlorinated [FRs] [or] boric acid..."
Safety 1st	N/a	No reply as of 10/14; website provides no FR details.		"Exceeds Federal flammability. standards without use of any harmful chemicals."

The mattresses listed below are not sold at buybuy BABY or Babies"R"Us.

Mattress Manufacturer	Reported in 2011	Reported in 2013
IKEA	Declined to provide FR information	Declined; website does not address flammability
LA Baby	Boric Acid	Boric acid in barrier; website does not address flammability
Moonlight Slumber	Modacrylic fiberglass	Modacrylic fiberglass without halogens; website shows "natural internal flame barrier" for each mattress
Natura World Inc	Classic: Boric acid; Organic: Wool	No reply as of 10/14; on website, classic does not address flammability, organic has wool layer
Natural Mat	Wool	Wool, mohair; website says no FR chemicals or barriers are used, product designed to meet standards without.
Nook	Organic: wool; lite: silica	Pebble Pure: wool, Lite: Silica; website provides no FR details.
Organic Mattress, Inc.	Wool	Wool barrier; website provides information
Pure Rest Organics (EcoBaby)	Wool	Wool barrier; website provides information
Savvy Rest	Wool	Wool barrier; website provides information
Shepherd's Dream	Wool	Wool barrier; website provides information
Sleeptek	Wool	Wool barrier; website provides information
Soaring Heart Natural Bed Company	Wool	Wool barrier; website provides information
Sopora	N/a	Modacrylic Fiberglass with chlorinated compounds and antimony; website reports "naturally flame resistant stocking barrier" without detail
Strobel	Silica (removable)	No reply as of 10/14; no clear information on website
Suite Sleep	Wool or Silica	Wool barrier; website provides description
Vivetique	Wool (foam) or none (innerspring)	Products designed to use wool barrier, or nothing, to achieve flammability standard. One all-cotton innerspring product that doesn't meet flammability standards is available with a prescription. Website provides information.
White Lotus	Boric acid or none	Organic: wool barrier, alternative: boric acid powder with prescription; website provides description

## APPENDIX II: RESOURCES

### [www.gettingready4baby.org](http://www.gettingready4baby.org)

This site has information about the campaign calling for baby product retailers to adopt chemical management plans that phase out chemicals on "Hazardous 100+" list, with resources for retailers and product makers.

### [www.bizngo.org](http://www.bizngo.org)

The BixNGO workgroup for Safer Chemicals and Sustainable Materials offers numerous resources to businesses looking to choose safer solutions.

### [mindthestore.saferchemicals.org](http://mindthestore.saferchemicals.org)

This site has information about the campaign to move the top 10 retailers to adopt strong chemicals management policies and phase out "Hazardous 100+" chemicals. It is organized by the Safer Chemicals, Healthy Families coalition.



*This report was written by Bobbi Chase Wilding, Kathleen Curtis and Katie Kelly of Clean and Healthy New York for the Getting Ready for Baby campaign of the Workgroup for Safe Markets.*

*Clean and Healthy New York bears sole responsibility for its content.*

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[www.gettingready4baby.org](http://www.gettingready4baby.org)

*The information in this report is intended to provide information about materials used in crib mattresses as reported by the companies via their websites and through email and telephone communications made to Clean and Healthy New York in Fall 2013. We do not recommend or reject any specific mattress manufacturer or product. Our survey of manufacturers covers a representative majority of crib mattress manufacturers selling their products in the U.S. market. However, we make no claim that our survey was exhaustive. Any oversights were entirely unintentional and do not represent discrimination by the authors. Further, we make no claim that a specific chemical or material of concern as identified in this report will cause a specific health outcome for a child. The information in this report is intended solely as an educational tool, to provide parents with useful information to consider in their decision-making process. We also hope it encourages companies to become more transparent in their disclosures of the chemicals and processes used to manufacture their products and to seek discontinuance of the use of toxic chemicals.*