

# How Your Mattress May Harm Your Health

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › Considering you're spending a third of your life on top of your bed, your mattress could be a significant source of toxic chemical exposure
- › Harmful flame retardant substances you might find in mattresses include PBDE, Deca, boric acid, antimony, melamine, vinylidene chloride, bromine and formaldehyde, all of which are associated with serious health effects
- › Toxic chemicals aren't the only way your mattress might make you sick. Other factors that could harm your health include dust mite droppings, mold and fungi, sweat, saliva, urine and dander from pets sharing your bed
- › When shopping for an organic, chemical-free mattress, look for one with Global Organic Textile Standard (GOTS) and/or Global Organic Latex Standard (GOLS) certification. The value of other mattress labels is discussed
- › The best and purest mattresses on the market will adhere to multiple safety standards. Be especially careful when choosing a mattress for your child, as products intended for children and babies are also those most likely to be doused in flame retardant chemicals

When shopping for a mattress, there are a number of factors to take into account, beyond perceived comfort. In time for Presidents' Day mattress sales, The New York Times listed several tips to help you select your ideal mattress. Among them:<sup>1</sup>

- 1. Assess quality and durability** — Bedding and medical experts recommend looking for memory foam with a density of 3 pounds per cubic foot or greater, and coils with

a gauge of 13 to 15.

- 2. You typically get what you pay for** — A recent New York Times test of 20 foam mattresses suggested models in the \$1,000 range and over were of higher quality than those costing less than that. A high-quality mattress will last you about 10 years, so it's worth investing in the highest quality you can afford.
- 3. Comfort is subjective** — What's too hard or too soft for one person may be just right for another, and this includes those with back pain. While a 2003 study<sup>2</sup> in The Lancet concluded medium-firm mattresses improved pain and disability among patients with chronic nonspecific low-back pain the best, your best bet is to try out a variety of firmness levels.

The New York Times recommends taking your own pillow along when shopping for a mattress, and lying in your normal sleeping position for about 15 minutes on the mattress under consideration.

While a comfortable mattress is certainly important, if you have back pain you may want to consider addressing your sleeping position as well. As explained by chiropractor Dr. Peter Martone,<sup>3</sup> it's important to sleep with your spine in a neutral position, which means sleeping on your back with a pillow tucked beneath your neck, not your whole head. To learn more, please see the hyperlinked article.

- 4. Take advantage of trial periods** — As noted by Ron Rudzin, CEO of The Saatva Company, your mattress not only should feel comfortable when you first go to bed, but, "You have to feel good when you wake up" as well.<sup>4</sup>

Many mattresses now come with a 30-day trial period, and if you're not completely satisfied with its performance, return it and try another one. After all, you'll be sleeping on it for the next decade, so it's worth the effort to find the right one.

## **Many Mattresses Are Loaded With Toxins**

A factor that wasn't on The New York Times' tip list was making sure the mattress doesn't contain toxic chemicals. From a health perspective, this may well be your most important consideration. As of July 1, 2007, all U.S. mattresses are required to be flame retardant enough to withstand exposure to a 2-foot-wide blowtorch flame for 70 seconds.

While manufacturers can achieve this either by natural methods or chemical means, many resort to the use of flame retardant chemicals.<sup>5</sup> Harmful flame retardant substances you might find in a mattress, including those from "high-end" brands, include:<sup>6,7,8</sup>

**Polybrominated diphenyl esters (PBDEs)** – PBDEs have been linked to endocrine disruption<sup>9</sup> developmental neurotoxicity,<sup>10</sup> reproductive problems,<sup>11</sup> thyroid dysfunction<sup>12,13</sup> and certain cancers,<sup>14</sup> just to name a few.

PBDE has been banned in the U.S. since 2004 due to health concerns, but if your mattress contains polyurethane foam and was manufactured before this date, it might still contain this dangerous class of flame retardants.

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**Decabromodiphenyl oxide** – This is a flame retardant chemical similar to banned PBDE, linked to hair loss, memory loss and possibly cancer. As a group, flame retardant chemicals have been identified as one of 17 "high priority" chemical groups that should be avoided to reduce your risk of breast cancer.<sup>15</sup>

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**Boric acid** – A respiratory irritant used to kill roaches,<sup>16</sup> boric acid is linked to reproductive, developmental and neurological damage.<sup>17</sup>

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**Antimony** – A metal that may be more toxic than mercury and formaldehyde, it's linked to cancer and heart problems.<sup>18</sup> Antimony leaching from polyvinyl chloride (PVC) cot mattress covers has also been linked to sudden infant death syndrome.<sup>19</sup> Elevated temperatures, urine, saliva and detergents used to clean the cover were all found to enhance the release of antimony, and may do the same if it's in your mattress.

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**Melamine**<sup>20</sup> — Linked to cellular damage, kidney malfunction, reproductive damage and cancer.<sup>21</sup>

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**Vinylidene chloride** — While not as common as some other flame retardants, this chemical, a potential carcinogen, may still be used. Health effects include central nervous system effects such as convulsions, sedation, spasms.<sup>22</sup>

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**Bromine** — A corrosive chemical, chronic exposure effects to this chemical include pulmonary edema.

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**Formaldehyde** — This is a highly toxic poison and cancer-causing agent.

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## Your Mattress Can Be a Significant Source of Toxic Retardants

The U.S. Consumer Products Safety Commission admits flame retardant chemicals such as these are toxic and that you can absorb them into your body; however, they deem the amounts emitted from your mattress to be so small as to not cause any adverse health effects.

But that's the claim made for most sources of toxic exposure, be it food, air, water, cleaning products, furniture, electronics, personal care items — you name it. And when you add all these exposures together, we're no longer talking about minute amounts.<sup>23</sup>

Considering you're spending a third of your life in bed, your mattress could be a significant source of toxic exposure, and if you look around, you'll find anecdotal reports of people getting sick from toxins traced back to their mattress.<sup>24</sup>

Unfortunately, it's virtually impossible to find out what's really in your mattress as manufacturers are not required to label or disclose which chemicals their mattresses contain. Your best bet is therefore to seek out manufacturers that specify their mattresses are chemical free.

Keep in mind, though, that just because a company may have certified chemical-free foam in their mattress, that does not necessarily mean the entire mattress is free of flame retardants.

The flame retardant chemicals are frequently embedded in a separate mesh fabric layer on top of the foam, underneath the top fabric layer, so the fact that the foam is chemical free means little in this case. Instead, you'll want to look for mattresses made entirely of naturally flame resistant materials, such as Kevlar, wool or organic cotton.

## Your Bed Could Be Making You Sick in More Ways Than One

Toxic chemicals aren't the only way your mattress might make you sick. Last year, CNN Health<sup>25</sup> listed a number of factors that might come into play, including:

- **Dust mite droppings** — According to some research,<sup>26</sup> 4 in 5 American homes have at least one bed with dust mites, and while the mites themselves do not pose a health hazard, their feces are highly allergenic.<sup>27</sup>

To control dust mites, the American Lung Association recommends reducing humidity in your bedroom, reducing places where dust mites can thrive, replacing carpets and regularly wet dusting and mopping your floors.

- **Mold and fungi** — In one study,<sup>28</sup> 10 pillows tested were found to contain 47 different species of fungi. To minimize mold and fungal growth, use a HEPA filter-equipped air purifier next to your bed.
- **Sweat** — Some studies suggest you'll sweat out up to 26 gallons of sweat into your bed each year, which could promote staph or strep infection. To minimize your risk, wash your linens in hot water at least once a week.
- **Pet dander, saliva and urine** — If you have pets, consider not letting them sleep in your bed. If you do allow pets in bed, wash your linens more frequently, and vacuum your mattress and pillows at least once a week.

# Organic Mattress Labels You Can Trust

If you're looking for a safe mattress, you need to know what to look for on labels. Some terms, such as "natural," mean virtually nothing, while other labels, such as "organic," may be misleading (as it could mean only part of the mattress materials are organic). Consumer Reports has previously issued a guide<sup>29</sup> of what such labels really mean. Here are some highlights to consider:

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## Best Mattress Labels

- **Global Organic Textile Standard (GOTS)** – At least 95% of the mattress materials must be certified organic. Certain substances, including flame retardants and polyurethane (common in memory foam products), are prohibited.
- **Global Organic Latex Standard (GOLS)** – This label applies to latex mattress and ensures only organic latex is used.

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## Good Mattress Label

- **Oeko-Tex Standard 100** – This label sets limits on the emission of toxic chemicals such as formaldehyde and volatile organic compounds (VOCs). Chemical flame retardants, colorants and allergenic dyes are prohibited.

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## Labels With Some Value

- **CertiPUR-US** – This applies only to polyurethane foam and prohibits certain substances, such as PBDE. Testing is required for formaldehyde and other toxins. Just remember that this testing applies to foam only, and not the other fabric layers that may contain flame retardant chemicals.
- **Greenguard** – The finished mattress must be tested for specific emission limits of formaldehyde and other VOCs.

- **Greenguard Gold** – The same as Greenguard but with tighter emission limits.
- **Organic** – A mattress may be labeled organic even if only parts of it are organic (and other parts contain harmful chemicals). For instance, the label may read "made with organic cotton."
- **Organic Content Standard 100** – This applies to the percentage of certified-organic materials in the mattress. It also ensures proper tracking of organic cotton from its source to the finished product.

## The Best Mattresses Have Multiple Labels You Can Trust

A mattress needn't have just one of the certifications above. The best and purest mattresses on the market will adhere to multiple safety standards, giving you the ultimate in safety and comfort.

Be especially careful when choosing a mattress for your child, as products intended for children and babies are also those most likely to be doused in flame retardant chemicals. You spend from six to nine hours every night with your face in close proximity to your mattress, breathing in these chemicals. Your children spend even longer sleeping, with their faces even closer to the mattress surface, so be sure to look for a chemical-free mattress for your child.

### Sources and References

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- <sup>6</sup> [People for Clean Beds Chemicals Used to Flameproof Mattresses](#)
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