

## Did BPA Bite The Dust?

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A common definition of the word dust refers to fine, dry particles of matter. From dust storms on earth to cosmic dust, just about everywhere that any form of matter is present, dust will also be present. That includes the ubiquitous household dust that seems to magically appear in our homes on every surface and in the form of dust bunnies under furniture.

Household dust consists of particles of most every form of matter that is present in our personal environment, including particles of us. From skin cells and hair, to fabric fibers, to pollen and soil particles, household dust has it all.

Although it may be just an annoyance to you, household dust is a [topic of research](#) for some scientists. Of particular scientific interest is the presence of trace levels of environmental contaminants that are found in household dust. Understanding which contaminants are present in dust and how they got there can provide important information about the contaminants in our environment and how they move around.

Household dust can also be a source of human exposure to environmental contaminants and, thus, a potential health risk. This is especially so for infants and toddlers who spend a lot of time on the floor and are prone to put everything in their mouths.

One of the environmental contaminants that has been measured in household dust is [bisphenol A](#) (BPA), which is primarily used to make polycarbonate plastic and epoxy resins. Clear and highly shatter-resistant, polycarbonate is used in common consumer products such as bicycle helmets, sunglass lenses and CDs. Epoxy resins are tough, durable materials that excel as protective coatings used to prevent corrosion of metal products.

Recent studies have reported BPA in household dust samples from 15 countries in North America, South America, Europe, Asia and the Middle East. Importantly though, the levels of BPA have consistently been reported to be very low, in the range of one part per million (ppm) or below.

Along with reporting the levels of BPA in household dust, many of the researchers also estimated the level of human exposure to BPA from dust. Even more importantly, these researchers also consistently report that household dust is a minor source of exposure to BPA and the levels of exposure from dust are far below safe intake limits for BPA set by government bodies worldwide.

With the very sensitive analytical methods available today it is possible to detect ultra-trace levels of BPA in dust along with a wide variety of other contaminants. At least for BPA though, dust may still be annoying but it's not a health concern.

### **Why Do Scientists Study Dust?**

People spend as much as 90% of their time in indoor environments. Consequently, our indoor surroundings can be a significant source of exposure to environmental contaminants simply by virtue of the amount of time we spend there. A comprehensive understanding of health risks posed by environmental contaminants thus requires an understanding of which contaminants are present in our indoor surroundings, how they get there, and how much exposure occurs.

Household dust is ubiquitous and essentially is a form of debris that represents a cross-section of everything that enters the indoor environment, regardless of how it got there. In that regard, household dust can provide a snapshot of contaminants that are present in the indoor environment from all sources.

In addition to providing clues to what is present in the indoor environment, household dust can also be a vector for exposure to environmental contaminants. We may not intend to eat dust, but a small amount of dust probably finds its way into every one of us. Household dust may be a particularly important vector for infants and toddlers due to their proximity to the floor where dust tends to accumulate, and their frequent hand-to-mouth behavior.

One of the first environmental contaminants found in dust was lead, which at the time was likely present due to its common use in paint and as a fuel additive. Since those early reports more than 40 years ago, scientists have conducted a growing number of studies that document the presence of a wide range of environmental contaminants in household dust.

## **Is BPA Present In Dust?**

One such contaminant that has been studied is BPA, which has been measured in household dust samples collected from 15 countries in recent years: [Belgium](#), [China](#), [Columbia](#), [Germany](#), [Greece](#), [India](#), [Japan](#), [South Korea](#), [Kuwait](#), [Pakistan](#), [Romania](#), [Saudi Arabia](#), [Sweden](#), [United States](#), and [Vietnam](#). In most studies, dust was collected from vacuum cleaner bags and extracted with a solvent to generate samples that could be analyzed with sensitive analytical instruments.

In general, BPA was found in nearly all dust samples, but only at very low levels. Typical levels of BPA were similar across the 15 countries with median concentrations of 1 part per million or less (0.1-1 microgram BPA/gram dust).

Most of the studies also looked for other common environmental contaminants in dust, although the studies were not consistent in the selection of contaminants for analysis. Perhaps not surprisingly since dust collects most everything present in our surroundings, other contaminants were also frequently reported to be present. However, measuring the presence of contaminants doesn't tell us where they came from and, most importantly, whether their presence poses a health concern.

## **Are The Levels Of BPA In Dust A Health Concern?**

Beyond simply measuring the presence of BPA in dust, most of the studies also aimed to evaluate whether the levels found are a health concern. To do this, estimated intakes of BPA were calculated using standard assumptions for ingestion of dust by different age groups. Dust ingestion rates for infants and toddlers are higher than for adults due to different behavior patterns for the different age groups.

The importance of BPA exposure from ingestion of dust can then be evaluated in two ways. First, exposure from dust can be compared with estimates of exposure to BPA from all sources to determine whether dust is a significant source of exposure. Second, exposure from dust can be compared to safe intake limits for BPA that have been established by government bodies worldwide to determine whether exposure to BPA from dust is a health concern.

Not surprisingly, given the low concentrations of BPA found in dust, the researchers consistently report that dust is a minor contributor of BPA exposure compared to other sources. From many other studies, it's known that our diet is by far the biggest source of exposure to BPA. In comparison, dust is estimated to comprise less than 5-10% of overall exposure to BPA.

Most importantly though, exposure to BPA from household dust is far below safe intake limits set by government bodies. Even the highest estimated exposure to BPA from dust for all age groups is approximately 5,000 times below the safe intake limit set by U.S. government bodies. For example, the U.S. Food and Drug Administration (FDA) answers the question "[Is BPA safe?](#)" with the straightforward answer "Yes."

These studies are reassuring in that the results and conclusions indicate that exposure to BPA from dust is not a health concern. Nevertheless, any lingering concerns regarding BPA or other environmental contaminants in dust can be further mitigated through proper cleanliness and hygiene practices. Dust may magically appear but it doesn't have to remain.