



# DETOX YOUR HOME!

16 of the **WORST** toxins found in the home  
plus the tests and treatments that could **save your life!**



HealthPowerBoost.com

# DETOX YOUR HOME

**Toxins in the home kill literally millions of people per YEAR.**

*This is absolutely not an exaggeration!*

Here is my free, full-length report on **16 of the WORST toxins found in the homes of millions of people**; plus the simple tests and treatments that **could save your life.**



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# Introduction

**We live in a toxic world** – and this has colossal health consequences for billions of people. For example: 9 out of 10 people are estimated to be breathing air that contains high pollutant levels, while a staggering **7 million people per year** are now estimated to die from air pollution (indoor and outdoor). [1]

Astonishingly, 2.31 million of those deaths are from **indoor air pollution**. The EPA has in fact stated indoor air quality to be in the **top 5 public health risks** [2] and the WHO has called indoor air pollution “the world’s largest single environmental health risk”. [3] People are spending on average around 90% of their time indoors and levels of numerous air pollutants in highly insulated modern indoor environments can sometimes escalate to **up to 100 times higher** than outdoor levels.

*And that’s just the air...*

If you didn’t know just how many toxic and carcinogenic chemicals you are being exposed to, right now, in your home environment, then **pay very close attention to this document**. Your mind will be blown – but you will be able to take action. The scenario is probably way worse than you

think and it's not an overstatement to say that it's potentially fatal. These are facts – and knowledge can save your life.

You are meant to live a full, healthy life **without chronic disease**. That's what our bodies were “evolutionarily designed” to do. That's what should be normal. **Chronic illness is not normal**.

**I want you to be healthy and live a longer, more enjoyable life** and I've been studying this topic for many years. Here's my full, detailed free report on how to detox your home.

References to research sources are in grey boxes at the foot of each section.

#### **References:**

[1] Air pollution in the Western Pacific. WHO.

<https://www.who.int/westernpacific/health-topics/air-pollution>

[2] Why Indoor Air Quality is Important to Schools. EPA. <https://www.epa.gov/iaq-schools/why-indoor-air-quality-important-schools>

[3] Indoor Air Pollution. Our World In data. <https://ourworldindata.org/indoor-air-pollution>



# Links to Test Kits / Meters Mentioned:

## Best Rated Air Quality Test Meters:

Best rated carbon monoxide detector on Amazon:

<https://amzn.to/3LgAMcK>

Best rated home radon (handheld) detector on Amazon:

<https://amzn.to/3urLk2q>

Best rated PM2.5 / PM10 air quality (particulate matter) test meter on Amazon: <https://amzn.to/3Gwf80r>

Best rated home radon + VOC (room) detector on Amazon:

<https://amzn.to/3ooDDWT>

## Best Rated Water Test Kits on Amazon:

Best rated tap water / well water test kit on Amazon (tests for lead, copper, bacteria, nitrates, nitrites, chlorine, alkalinity, pH and hardness: <https://amzn.to/3grXGQ5>

“16 in 1” drinking water test kit <https://amzn.to/3rrF20> that tests for “even more stuff”, including mercury, chromium and bromine.

Top rated bacteria in drinking water test kit (detects 50 species) <https://amzn.to/3oDscL7>

Best rated arsenic water test kit on Amazon:

<https://amzn.to/3L5MIOa>

Best rated lead water test kit on Amazon:

<https://amzn.to/3GzZQHL>

Best rated mercury water test kit on Amazon (this one also covers lead, copper and iron): <https://amzn.to/3HI2OLG>

Best rated EPA-certified “paint, dust and soil” lead testing kit on Amazon: <https://amzn.to/32Z0zEX>

### **Best Rated EMF Test Meter:**

[TRIFIELD Electric Field, Radio Frequency \(RF\) Field, Magnetic Field Strength Meter](#)

### **Best Rated Air Purifiers:**

Best rated True HEPA (particulate) air purifier on Amazon.com (4.8 out of 5 with 10,000+ ratings)

<https://amzn.to/3sgMVpm>

Best rated VOC (gas phase) air purifier on Amazon.com

<https://amzn.to/3B4jfQ3>

Best “high end” air purifier for VOCs and particulates: [IQAir GC MultiGas](#)

### **Best Rated Water Purifiers:**

Best rated countertop “carbon block” purifier on Amazon:

<https://amzn.to/3B0DP3L>

Best rated “whole house” carbon-stage water purifier on Amazon: <https://amzn.to/3rwhdFr>

Best rated small reverse osmosis water purifier on Amazon:

<https://amzn.to/3318WQd>

Best rated high capacity under-sink reverse osmosis water purifier on Amazon: <https://amzn.to/32ZoDY7>

# The Golden Rule: Test, Test, Test!

While the modern era has new problems, it also has new solutions. One of the greatest of those solutions is that we can **test and get incredibly accurate facts** as never before seen in our history.

Testing is a **beautiful thing** – and it's available to you **right now!**

Prior to the modern era of **data-driven insight**, very many people died with **no clue whatsoever** as to the **actual cause**. 200 years ago, you might have been catching deadly lung cancer through Radon seeping up from the ground into your home; and dementia via water pipes made from lead – and you would have had **no way to know** what was killing you.

This problem persisted into and throughout the 20th century, for example with asbestos, mercury and tobacco smoke. It was only really in the latter half of the 20th century that the full impacts of environmental pollution began to be known.

Nowadays **we can test for practically type of toxin** – and gain powerful data-driven insight that can help us change our lives dramatically.

**Testing is your best friend in this war and testing your home for toxins could absolutely save your life.** I regard the testing of your living environment as being almost on par with getting your labs done by your doctor; it makes absolute sense for this to be a fundamental part of your health routine.

How can you be confident in your health **not** knowing what you are being exposed to – while also knowing that millions **are** being killed by toxins in the environment?

For a simple real-world example, if your home had no carbon monoxide detector, you would never know if you are being exposed to this **potentially fatal** gas. Install a certified carbon monoxide detector and now you know for sure. You get certainty, peace of mind, better health and in all likelihood a more valuable home!

Think of it this way: **There is no such thing as a “bad result” from a test.** (Assuming the test is accurate of course). If a test of your home reveals the presence of a toxin you had no idea about, you just “dodged a bullet” and can now take action. If the test reveals no toxin, then you increased the value of your home with data that not only looks good on

paper but shows that you took care over your prospective buyers' health. It's a win-win.

**Take action.** I've linked to test kits, meters and purifiers throughout this article that scored the highest ratings in consumer reviews and / or I have used personally on my own home (quite a few, because as a dedicated "health nut" I have geeked out on this topic for several years!) Logically, the more things you can test for, the better.

**Another huge benefit** of getting these tests / meters: **You have them for the future.** Next time you are house hunting, you can test a property (very often as simple as waving a hand held meter around in the air) when viewing the home. This could enable you to avoid potentially hazardous properties. You also likely did the homeowner a favor, because they might not have known!

**Yet another benefit:** You can test "before and after" your remediation steps to determine whether or not your actions had a beneficial effect. You can also test the efficacy of your air and water filters, plus get actual data on when it's time to replace the filters; as opposed to a manufacturer estimate that may be designed to get you to buy more filters than you need (but in some cases, such as respirators, cartridge replacement after time/exposure may be a legal requirement so check).

Ok, let's dive in.

# 1. Radon

Most people don't have any idea just how deadly this is!  
Radon is **the #1 cause of lung cancer among non-smokers** (21,000 cases estimated per year in the USA alone). [4]

Radon in fact kills **more than 6 times the number of people** than home fires and carbon monoxide poisoning *combined!*

Let that sink in!

## What Is Radon?

Radon is a naturally occurring, colorless, odorless gas (completely undetectable to the senses – you have no idea if it's there or not unless you test for it). It is a byproduct of the decay of radioactive elements such as uranium and radium present throughout the earth's crust – and it seeps up out of the ground all over the world.

In outdoor settings this isn't a problem, but – you've guessed it – now that our homes are more sealed than ever before, radon accumulates in the house; up to potentially deadly levels that are far above those of old days. What an irony that on account of our efforts to reduce energy and fossil fuel usage, we are being exposed to more radon than ever before!

Radon, being radioactive, is carcinogenic.

## What Is A Safe Level Of Radon In Your Home?

The safe level of radon is **unknown**, however there are guidelines. The EPA has recommended homes be fixed if the air radiation level is above 4 pCi/L (picocuries per liter of air) and to “consider action” if the level is between 2 pCi/L and 4 pCi/L.[4]

The average level in USA homes, according to the EPA, is 1.3 pCi/L – however your levels are also going to vary considerably based on additional factors; predominantly the **permeability of your subfloor / foundation** and the **ventilation** aspects of your home. It’s estimated that 6% of USA homes have elevated radon levels. That’s about one in sixteen. [5]

## Radon Hot Spots:

While some radon is found in all soils, the level of radon being emitted from the ground into the air is significantly affected by your **geography**; depending on the rock types and levels of radioactive elements in the earth’s crust in your locality. The EPA has provided a [map of Radon Hotspots for](#)



[the USA](#). Here's a [radon map for the UK](#). For other countries just do a search on “\_\_(your country)\_\_ radon map”.

In occasional cases, radon levels inside homes can be **extremely elevated**. A famous incident was that of Stanley Watras, who worked at a U.S. nuclear power plant and “set off the radiation alarms” in a plant that had not yet been fueled! It turned out that his unventilated basement had radon levels **so high** that the residual radon he was bringing into the workplace triggered the radiation alarms. His cancer risk was thought equivalent to **smoking 135 packs of cigarettes per day!**

This crazy incident, strangely, changed the world – and sparked global awareness of the radon issue.

## **Radon Action Steps:**

**STEP 1) Understand that radon kills, and that it could kill you.**

**STEP 2) Get a home radon test.** This is something I think everyone should do. You can either hire a professional tester ([link here for the USA](#)) or you can order a home test meter.

**USA:**

Here's a highly rated and popular Radon detector on Amazon (4.4 stars from 1,101 ratings) that also tests for mold, humidity and TVOC (total volatile organic compounds).

[Airthings 4200 House Kit, Radon, Mold Risk & Indoor Air Quality Monitoring System.](#)

Less-expensive but still very highly rated home radon detector: [Airthings Corentium.](#)

Here's a highly rated home radon detection / alarm system for continuous monitoring: <https://amzn.to/3HIegXN>

**UK:**

[Airthings 4200.](#) This radon detection system comes with an iOS/Android app for continual air quality monitoring / data reporting. Less expensive: [Airthings 224.](#)

### **STEP 3) Vapor Barrier.**

For homes with a crawl space (typical in USA), a vapor barrier is an essential. A **6-mil** vapor barrier (6/1000th of an inch; 0.152mm) is typically specified to be installed, with the seams taped / sealed to resist ingress of radon (*and moisture, and chlordanes!*) into the crawl space and the rest of the building. In some cases a **sub-membrane ventilation system** is installed, which pumps out radon trapped beneath the barrier. Crawl space ventilation is considered valuable (this is

very often lacking in older buildings) and active ventilation fans can be installed to pull fresh air into the crawl space / exhaust the toxic air. Get professional evaluation and check code requirements.

**STEP 4) For homes without a subfloor / crawl space (typical in the UK)** that reveal elevated radon levels, a **radon mitigation sump** can be installed. This is a professional install and is performed by drilling and installing piping from outside the building into the area beneath the foundation. The radon sump will contain an electric fan which pulls out radon, piping it up and away into the atmosphere. This is more often seen in the UK, where homes don't normally have crawl spaces and the ground floor is literally "on the ground".

[Example UK radon sump services here](#). A further important step is to seal any cracks in the foundation slab, which limits the ingress of radon into the building.

**STEP 5) Increase ventilation in the home.** Open windows and consider **active air intake / extraction systems** – which will likely increase overall air quality (assuming the outdoor air quality isn't worse and assuming you are not pulling *more* of the radon into your home from your subfloor! **Pulling fresh air in** may prove more healthful than pulling stale air out unless your **make up air** comes from a fresh source! Try circulating fresh air through the house and re-testing with the meter. See the section on **positive vs. negative air pressure** at the end.)

**STEP 6) Can air purifiers remove radon? NO, they absolutely cannot!** (Warning, rant ahead.)

Despite the astonishing lies (and sheer incompetent cluelessness) of the various affiliates attempting to push products, **there are NO air purifiers that are actually rated for radon removal.** Even the “Rolls Royce” air purifier brand – [IQAir](#) – makes **no mention whatsoever** of radon removal. **Air purifiers remove a lot of things, but not radon!**

Please understand this! I was disgusted at the **outright lies** (and sheer stupidity) I found swamping the search results on this topic: Garbage articles *in droves* with straight-up incorrect information are being written by **incompetents** who have no business whatsoever providing information on “potentially fatal if you get it wrong” health topics. Here’s how these people operate: They hire 5-dollar article writers who have zero actual knowledge of the topic, but put all the right “keywords” in the article and do various other “tactics” so that it makes the Google top ten.

Forget Q&A sites on this one too. Most of the answers I read on there are patently and even dangerously false.

Remember: A search engine algorithm **cannot detect accurate content and cannot rank content on the basis of**

**its accuracy / truthfulness.** There is no computer yet invented that can distinguish truth from lies! Only humans can do that. **Just because something makes the top 10 search results, that does not in any way, shape or form mean that it is factually correct.** In fact, it probably means it is *less* likely to be factually correct – because “gaming the search results” is regarded by many as an easier way to make a fast buck than by providing high quality information! It is entirely the fault of the search engines (and their deranged ideals of replacing human evaluation with machines) that this scenario even exists!

Air purifiers **cannot remove radon, carbon monoxide or carbon dioxide from homes.** These molecules are significantly smaller than typical VOCs and due to their physical properties they are not **adsorbed** by activated carbon. Ok, rant over. It’s important though.

**STEP 7) New buildings:** Designs of new buildings should conform to construction techniques and code requirements designed to minimize ingress of radon from the subsoil into the building. A 6-mil polyethylene vapor barrier will likely be specified on top of a 4-inch layer of gravel, below the foundation slab. [Polyguard Products](#) (no affiliation) offer an 85-mil barrier (2.159mm) which is laid down **prior to the concrete pour.** [6] No messing around! This product is **way above spec** (we like “above spec”) and designed for higher life expectancy / superior resistance. Given how many people

are killed by radon, this seems an **extremely** worthwhile investment to me! Polyguard seem like the real deal to me and their website is worth a read.

**References:**

[4] What is EPA's Action Level for Radon and What Does it Mean?

<https://www.epa.gov/radon/what-epas-action-level-radon-and-what-does-it-mean>

[5] [https://en.wikipedia.org/wiki/Health\\_effects\\_of\\_radon#Accumulation\\_in\\_dwellings](https://en.wikipedia.org/wiki/Health_effects_of_radon#Accumulation_in_dwellings)

[6] Radon Vapor Barrier: What Is It and How to Install It (Polyguard Products)

<https://polyguardproducts.com/2021/12/radon-vapor-barrier/>

# 2. Lead

A staggering 900,000 people were estimated to be **killed by lead toxicity** in 2019. [7]

**900,000 in one year!** And that was a typical year!

*You were worried about global warming??*

*900,000!* You would almost be better off with a new type of lockdown preventing you from **entering** your home! Crazy, huh? ;)

This is no joke, though: Lead is linked to heart disease, stroke, seizures, anemia, infertility, intellectual disability and many more symptoms – with an estimate that it contributes towards 0.6% of the overall world disease burden. [8]

Lead is deemed **unsafe at any level**. There is no known safe level of lead exposure and one of the great problems with lead is that of **bioaccumulation**: The body can barely eliminate it, and so levels of lead in the body can increase over time, leading to health impairment of gradually increasing severity.

Most people don't take lead toxicity very seriously. You should.

While significant efforts have been made to reduce lead use, there are **very numerous ways** in which you might be exposed to lead. Here are some (this is quite a list):

**Water pipes:** Lead water pipes, famous for making the Romans crazy, were (astonishingly) only banned in the 1970's. Many **old water pipes** are thus **still made of lead** – and some more recent metal pipes may have been joined with solders containing lead. **This doesn't just affect poor countries:** It's estimated that 14 to 20% of lead exposure in the USA is from tap water. A famous 2021 study by the Guardian [9] found lead in **118 of 120 samples of tap water** from across the USA. Get your tap water tested! See the links to test kits at the foot of this section.

**Paint:** Lead has been banned from paint since 1978 (USA) and 1992 (UK), with various other countries banning at other times. **Any** surfaces painted prior to that are likely to contain lead. Given that surfaces are typically “just painted over” many times, this means properties that were built before 1978 may contain layers of lead paint. If these surfaces are sanded, drilled, cut or otherwise damaged, dust and vapors containing lead can be released – and this work may also be illegal, depending on your location.

**Old household objects:** The presence of lead in paint also means household objects, such as antique toys, that were painted **prior to 1978** will likely contain lead. Imported



goods, especially older ones made in poorer countries, may contain lead. Antique pewter objects likely contain lead.

**Metal candle wicks:** Certain types of candle made in developing nations continued (at least until recently) to have wicks with a metallic core. You probably won't see candles with metal wicks now – unless you are dealing with old products. If you do – the wicks are lead based and release lead vapors when the candle is burned. Avoid.

**Gasoline:** Lead in gasoline is finally now completely banned worldwide since 2021! Yes, it took that long. Lead has been banned from gasoline since 1980 in Japan, 80's-90's in developed nations, 1996 in USA. Since then, other nations have followed suit with Algeria, the last nation to ban lead in gasoline, doing so in 2021.

**Vintage toys:** I remember lead toy soldiers still being around when we were kids. If you have these collectible items around the home, be very careful that children do not handle them and especially do not put them in their mouth (potentially fatal!)

**Plastics:** I was shocked to learn that lead has not been banned from use in plastics! [10] It is included as a softener in some plastic materials.

**Jewelry:** While lead has been banned from jewelry in developed countries, some **cheap imported jewelry** may still contain a **concoction of metals** - including lead and cadmium. A major news story in 2006 featured a child who died after swallowing a small item of imported jewelry that had been made from lead. Since then significant efforts have been made to reduce / eliminate the use of lead but it's not impossible that lead remains in some products. Beware that articles made with "Tibetan Silver" (and some other similar marketing names) are **not silver but are undefined alloys** that may in some cases contain nickel, lead and arsenic. [10b]

**Electronics (Solder):** While some locations have banned lead solder in electronic devices, cheap / standard electronics / DIY solder (and solder used for stained glass) is still commonly "60/40" – 60% tin, 40% lead. Looking on amazon (both UK and USA) I can still buy 40% lead solder with about three clicks! Despite the significant push towards lead-free solder, a huge number of electronic items were made using tin/lead solders. During soldering work, which melts the solder, some vapor will be produced, meaning lead could be absorbed via breathing. Repair of older electronics and **any** work with lead solder should be done using correct fume extraction. Protective gloves should be worn.

**Roofing:** Lead flashing is still used for roofing and sheet lead can be purchased easily both online and from hardware stores.

**Fishing:** Split lead shot is still widely used in fishing. Some of this material is inevitably lost, ending up in waterways.

**Shooting:** Various bullets and air rifle shot of course use lead as a major component.

**Soil:** Soil may contain residual lead or be contaminated via pollution from lead-containing materials.

## **Lead Action Steps:**

### **1. Lead Testing:**

You can order lab tests (blood and / or hair sample) in order to determine your personal levels of lead (and other heavy metals).

Here's an [EPA certified, highly-rated “paint, dust and soil” lead testing kit from Schneider Labs.](#)

Here's a highly rated [Home Rapid Lead Paint Test](#) that can be used on various materials with 30 second results. Note that if there are lead paint layers **underneath** more recent non-lead paintwork, you may need a sample of the old paint layer from underneath.

Here's a highly rated [Lead In Drinking Water Test Kit](#)  
Here's another lead in water testing kit that claims to be the  
“most sensitive available”: <https://amzn.to/3oDsm5b>

## 2. Lead Paint Removal:

The removal of lead paint may come under legal restrictions, depending on your location.

USA: The removal of lead paint now falls under the EPA's [Lead Renovation, Repair and Painting Program](#) requirements. Follow the section of the guide that applies to you.

UK: Here's the guide from gov.uk on dealing with lead paint in your home

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/221085/pb10973-leadpaintleaflet.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/221085/pb10973-leadpaintleaflet.pdf)

## 3. Lead In Tap Water:

For test kits, see the section on **tap water** for water test kits.  
Filtration: the [Berkey water purifier](#) is rated to remove over 99.99% of lead from tap water.

## 4. Lead Removal From The Body:

The typical method followed is **chelation**, which is the use of specific medications that bind lead and pull it out of the body. There are also natural protocols – a complex subject fraught with poorly researched information – but some of these may have real benefits.

#### References:

[7] Lead Poisoning And Health. WHO.

<https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>

[8] Lead Poisoning. Wikipedia. [https://en.wikipedia.org/wiki/Lead\\_poisoning](https://en.wikipedia.org/wiki/Lead_poisoning)

[9] We sampled tap water across the US – and found arsenic, lead and toxic chemicals.

Guardian, 2021. <https://www.theguardian.com/us-news/2021/mar/31/americas-tap-water-samples-forever-chemicals>

[10] Lead in Consumer Products. CDC.

<https://www.cdc.gov/nceh/lead/prevention/sources/consumer-products.htm>

[10b] Tibetan Silver, Wikipedia.

[https://en.wikipedia.org/wiki/Tibetan\\_silver](https://en.wikipedia.org/wiki/Tibetan_silver)

# 3. Indoor Use Of Solid Fuels

This was a shocking statistic: Of the **2.31 million people** who are killed each year by indoor air pollution, by far the greatest proportion of these deaths are caused by the **use of solid fuels indoors, for cooking or heating.** [11]

This problem is by far the most prevalent in **poor countries**, where access to clean energy sources may be minimal. The use of solid fuels in houses and huts is widespread, generating smoke which is inhaled, causing lung disease, heart disease and cancer. In very poor locations, there may also be far less in the way of efficient smoke exhaust systems and therefore highly elevated smoke levels in the building on an ongoing basis.

## **Indoor Combustion Action Steps:**

- If you still use wood or coal burning stoves or indoor open fires, ensure that chimneys / fume extraction systems are functional and efficient.

- Switch to “clean fuels” for heating and cooking if possible – electricity / natural gas and in areas where these are unavailable, ethanol.
- Fit rated [carbon monoxide detectors](#) in rooms containing combustion appliances.
- Take care not to breathe smoke wherever possible and ventilate with fresh air.

**References:**

[11] Indoor Air Pollution. Our World In data. <https://ourworldindata.org/indoor-air-pollution>

# 4. Asbestos

It's estimated that asbestos **kills somewhere around 100,000 persons per year** worldwide. Despite its use now being heavily restricted, inhalation of asbestos fibers **STILL** remains as the **#1 cause of occupational cancer** in the USA!

*Why is this?*

- a) Because construction workers, firefighters, shipyard workers and others are routinely exposed to materials that were produced in the era of highest asbestos use (1950's to 1970's).
- b) Because symptoms of asbestos exposure can take decades to appear.
- c) Because asbestos is **still legal** for some uses, in some places, in some quantities.

## **How Are People Usually Exposed To Asbestos?**

Around 125 million people are exposed to **asbestos dust inhalation** in the workplace, which is the predominant source of dangerous exposure. [12]



Asbestos was very heavily used in the building industry in the 20th century and was once considered a “wonder material”. It was used in cavity wall insulation, floor tiles, roofing, fire doors, heating systems, cladding and more. It is still extremely commonplace in homes, predominantly those built or modified in the 20th century: It’s prudent to assume that if your home was built or substantially modified between 1940-2000, it very probably contains asbestos materials.

Touching asbestos is not considered dangerous; it is the breathing of the dust that causes the harm. The general recommendation given on asbestos materials is thus to leave them alone if possible, as they are regarded as “safe if undisturbed” – however disturbance (drilling / sawing etc) of the material creates dust, which then presents a potentially fatal hazard.

## **Brake Dust And Asbestos**

Asbestos is also a component of many car brakes and clutch parts. Working in the automotive industry (and being in areas of high vehicular traffic) puts you at significant risk of exposure to brake dust. Brake pads and some clutch parts may contain 35% asbestos, which gives them their heat resistant qualities. These components wear over time and when your brake pads are worn, all of the pad that is “gone” has been converted to dust. If you think that asbestos fibers are visible, think again: I was dismayed to read that one nanogram (1

billionth of a gram) of brake dust can contain 90,000 asbestos fibers. [13] So if you live near a road where vehicles apply their brakes regularly, you are probably getting exposure without being aware of it. Wet cleaning of car parts, HEPA air purification and limited exposure to locations of heavy vehicle braking are advised.

## **What Is A Safe Level Of Asbestos?**

There isn't one! NIOSH has stated that there is no level of exposure below which clinical effects do not occur. [14]

What's particularly scary about asbestos is that you might have no idea that you harmed yourself through exposure to it for *decades* after the exposure. Symptoms of mesothelioma / asbestos poisoning can typically take 30+ years to manifest – and mesothelioma is almost always fatal.

The only thing to do is to take great precautions to avoid exposure – and hope for the best.

## **When Was Asbestos Banned?**

**USA:** It's very bad news – and many people don't even know this. In the USA, the EPA banned asbestos pipe insulation in 1975, and then issued a full ban in 1989 – however (you'll be horrified), the ban was OVERTURNED in 1991 due to enormous industry pressure. Various other bills / proposals to

ban asbestos have been introduced in the USA, but none has been successful. [14] So while asbestos is *regulated* in America, and despite the high number of people that have been killed by asbestos, **the USA does not have a full asbestos ban**. Over 50 countries do – but the USA still imports around 750 tons of asbestos per year.

Asbestos is still legally used in the USA in various products including brake pads (yes that means asbestos dust particles in the air whenever car brakes are used!), fireproof products, fire safety clothing, roofing, gaskets and friction materials. [14]

**UK:** only banned asbestos completely in 1999, although some types were banned in 1985. Artex (textured ceilings) were still using asbestos up to the mid 1980s.

**Australia:** finally banned chrysotile asbestos in 2003.

**EU:** outlawed import, export or manufacture in 2005.

## **Asbestos Action Steps:**

### **Testing**

Testing for asbestos is most often done by professional companies, who will take a sample of suspected materials in the home for analysis. Here's a highly rated home test kit

(USA) from the EPA Certified Schneider Labs:

<https://amzn.to/32YvGQZ> – which will allow you to send a sample to their lab for analysis. You can send dust (submit 1 gram) or other materials.

Purchasing a good quality [PM \(particulate matter\) test meter](#) will indicate both the overall level of dust particles in your home's air (and the effectiveness of an air purifier in removing them) however this does not tell you whether there is asbestos in the dust.

## **HEPA Air Purification**

If you live in a home built in the 20th century or earlier, consider investing in an HEPA air purification system; preferably a high quality one such as the [IQAir GC MultiGas – Medical-Grade Air Purifier](#). It's expensive for a good reason – because it does its job extremely well – and could add years to your life!

## **Removal Of Asbestos Materials**

Removal of asbestos from your home should be regarded as a task to be done by professional specialists – and the use of certified services may be a legal requirement (depending on your region). It is very often advised to “just leave it alone” because any damage to the material will release dust. In the

UK, there are some recycling centers that will accept sheet asbestos but the process is somewhat expensive and detailed; requiring double-bagging of the sheets. Wearing a high quality respirator such as the [3M, with cartridges rated for particulate matter](#), should be considered absolutely essential when handling asbestos materials; and a [disposable coverall](#) will keep the dust off your clothes, meaning it can be contained and not end up being released later from your clothes into your living environment.

You will have lots of fun (sarcasm, sorry) wrapping asbestos sheets in plastic if you are dealing with large, heavy roofing sheets (ask me how I know!) Yes, the previous owner of my home left me a nice present when they moved out: 10 large asbestos roofing sheets, deliberately hidden behind a fence panel.

This kind of selfishness is incredibly widespread, it seems. I could probably have made a legal complaint but in the end I decided to just pay a company to dispose of it. It ended up costing me £700 to have the asbestos removed and disposed of correctly.

I've even seen asbestos sheets "fly tipped" - deliberately dumped in the countryside. What a disgrace.

**References:**

[12] Asbestos: elimination of asbestos-related diseases. WHO, 2018.

<https://www.who.int/en/news-room/fact-sheets/detail/asbestos-elimination-of-asbestos-related-diseases>

[13] Auto Mechanics and Asbestos <https://www.asbestos.com/occupations/auto-mechanics/>

[14] Is Asbestos Banned in the United States? Asbestos.com <https://www.asbestos.com/mesothelioma-lawyer/legislation/ban/>

# 5. Tap Water Pollutants

Tap water can contain an **astonishing** array of poisons. To list them all and explain their consequences would fill a book; there may be **hundreds**.

You **don't want these substances in your body** – but the good news is that this is a problem that can be fixed without too much difficulty via testing and filtration. I will highlight just a few:

**Chlorine:** This is included to kill bacteria in water so that it is “safe to drink” when it reaches your home; however chlorine has numerous health effects and has been linked to cancer.

**Heavy Metals:** 118 out of 120 samples of tap water from across the USA tested positive for lead in a recent study. Arsenic and mercury can also be found in many tap waters. See the separate sections for more details on those.

- **Fluoride:** Highly controversial. Endocrine disruptor and neurotoxin. Needs special filter stages,

- **“Forever Chemicals” – PCBs, PFAS** and more. More on forever chemicals in the dedicated section below.
- **Phthalates and bisphenols:** Plastic water bottles may leach chemicals such as bisphenols [15], phthalates and others into water – and then of course the bottles become a further waste problem. Glass bottles are better in terms of water purity but of course glass manufacture / distribution is resource intensive and those resources include fossil fuels, which are adding toxins to the air... If you are going to buy bottled water, stick to **glass bottles** and ascertain that the water came **from a real spring** and not some tap / filter somewhere. In the EU, look for the words “Natural Mineral Water”. I do not know the equivalent in the USA but there are some brands that really are just packaged up filtered water. You will save significant money in the long term as well as cut down on plastic pollution if you filter your own.

## **Tap Water Pollution Action Steps:**

### **1) Get your tap water tested**

**USA:** Here’s a highly rated comprehensive water test which reports on 200 different parameters using an EPA certified lab: <https://amzn.to/3LnRpTz> (this one looks amazing but is expensive).



Here's a highly rated tap water / well water test kit which tests for lead, copper, bacteria, nitrates, nitrites, chlorine, alkalinity, pH and hardness. <https://amzn.to/3grXGQ5>. Here's a "16 in 1" water test kit <https://amzn.to/3rrF20T> that tests for more stuff, including mercury, chromium and bromine. Note that these tests will not pick up PFAS or PCBs.

**UK:** Here's the top rated drinking water test kit on Amazon.co.uk: <https://www.amazon.co.uk/Health-Metric-Drinking-Water-Test/dp/B01N5K7LR3/> (pH, copper, chlorine, nitrite, nitrate, lead, bacteria).

Note – best to test your water before and after purification to ensure the filters are doing what they are supposed to do.

## **2) Check if your tap water is fluoridated.**

Run a web search on “water fluoridation map \_\_\_\_\_” with the name of your country.

## **3) Filter, filter, filter!**

The best water filters are going to be [Reverse Osmosis \(RO\) systems](#) and [Carbon Block systems](#).

These have a few “pros and cons”: Carbon block systems (better than carbon granules for water filtration) will remove VOCs and numerous chemical toxins – but not dissolved

“healthy minerals”; whereas RO will also remove minerals – including the healthy ones – lowering total dissolved solids (TDS).

Carbon block systems **do not remove fluoride**, which requires dedicated filter stages or reverse osmosis.

Here’s my pick of water filters:

**USA:** Here’s a highly rated whole house water filter system on Amazon <https://amzn.to/3J54M9g>. This one has 3-stage (sediment, iron/manganese removal, carbon block) filtering and claims removal of chlorine, sediment, herbicides, industrial solvents, iron, manganese and more. A whole house system of course removes the undesirable components from the entire house water supply which means you should be protected from breathing chlorine in the shower / absorbing chemicals in the bath too.

Here’s a highly rated home reverse osmosis system that claims to remove 99.99% of lead, fluoride, arsenic, chlorine and bacteria from drinking water. <https://amzn.to/3urtHQg> This seems a good system and reverse osmosis is well-established as a technology; though I am not sure I buy their marketing “The healthiest water on Earth”, nor the whole schtick about “alkaline water”. I don’t do “claims”; show me the science please!

**Countertop water filter I:** For a countertop system, I use the top-rated “Berkey” range of carbon block water purifiers.

USA link: <https://amzn.to/3opsiWy>

UK link: <https://www.amazon.co.uk/Berkey-Gravity-Fed-Filter-Purification-Elements/dp/B00CYW3EVO/>

These remove an incredible array of pollutants including pharmaceuticals, heavy metals, viruses, pathogenic bacteria, VOCs, pesticides, perfluorinated chemicals (Yes!!), trihalomethanes, radionuclides, gasoline. This system also makes a fantastic “off grid” water purifier – though I would still boil water taken from natural sources.

Note that carbon block does not remove fluoride; however an add-on fluoride filter is available for the Berkey:

<https://amzn.to/3upOq7j>

**UK:** Here’s a RO system that scored highly in reviews on Amazon (4.4 out of 5 with 44 reviews):

<https://www.amazon.co.uk/Waterdrop-Reverse-Filtration-Tankless-Hardness/dp/B08XWW2RD2/> and here’s a whole house water filter system with sediment and carbon block stages: <https://www.amazon.co.uk/iSpring-WGB22B-2-Stage-Filtration-Sediment/dp/B00LBHIW8S/>

Note that if you have very hard water, the scale will reduce the lifespan of water filter cartridges.

Test again after filtering to verify your filter (and your test kit).

**References:**

[15] Bisphenols. Fidra, 2021. <https://www.fidra.org.uk/projects/bisphenols/>

# 6. Mercury

Mercury is on the WHO's **top 10 list of chemicals of major public health concern** and even minor exposure can cause serious health problems. [16]

Significant efforts have now been made to reduce or eliminate the highly toxic element mercury from domestic products, however there are still many sources of exposure.

## **Sources Of Mercury Toxicity:**

**Fish / Seafood:** Consumption of fish is now regarded as the most significant mercury source for humans. The highest concentrations of mercury are found in the largest marine creatures: Tuna, king mackerel, swordfish and dolphin meat. Small fish i.e. sardines are typically much lower in mercury.

**Mercury fillings:** If you have silver-colored (amalgam) dental fillings; these contain around 50% mercury. While the standard line is to “leave them undisturbed”, it's been proven that they continue to release mercury into your body throughout your life, which then accumulates in your other tissues in gradually increasing quantities. Mercury filling removal should be performed by a specialist dentist who uses a “dam” and ventilation equipment to remove mercury vapor

that is created by drilling these fillings out. Example of such a service (USA):

<https://www.swissbiologic.com/mercuryremoval>

**Some consumer products:** Mercury is still used in some consumer products; notably in CFL lightbulbs (“spiral bulbs”), mercury thermometers, some barometers and some thermostats. It may also still be found in old heating systems and the various mercury-containing products from the 20th century and before that still remain in our everyday world.

**CFL Lightbulbs:** Oh, how the CFL bulbs were touted from the heavens as being “green”. (*It’s marketing; you think they care less about you?*)

The bulb is highly fragile and if one breaks in your home, then mercury vapor is released.

CFL bulbs require correct recycling – however a very large number of these items must get **broken and / or just thrown in the trash globally**. If CFL bulbs end up in landfill and break (highly likely), the mercury is released.

A very significant quantity of mercury must have been released into the environment as a result – and while some people might think “Well who cares, if it is in some landfill somewhere and not in my home” – that type of thinking has a flaw; which is that mercury **bioaccumulates** and

**biomagnifies** – migrating up the food chain in increasing concentrations until it ends up back in you and your family!

*Do you still think these bulbs are “green”??*

**Coal:** Coal burning releases mercury vapor and those who live nearest coal burning plants are likely to be most strongly affected; however the mercury ends up in soil, waterways and then into marine organisms... and up the food chain, back into our bodies.

**Gold mining:** Gold mining is a further significant source of mercury pollution entering the environment.

## **Mercury Action Steps:**

### **Mercury Testing (Soil / Ground Water):**

Here's a [mercury test kit that also test for other heavy metals including cadmium, chromium, mercury and thallium.](#)

### **Mercury Testing (Body):**

Top mercury poisoning specialist [Dr. Chris Shade](#) advises a “triple test” for mercury in the body – hair, urine and blood. This is because of the tendency of mercury to resist

elimination from the body: A urine sample alone may show low levels while the level in the body is significantly elevated.

## **Mercury Detox:**

I have studied this in great depth; but note that overall, this is a **big topic** outside the scope of this work. I'll try to sum it up super-fast:

**Chelation therapy** is the “front line” method typically used in cases of mercury poisoning – though it has challenges + potential side effects and is advised to be undertaken in a **professional medical context**.

“Natural” methods of mercury removal include: **Saunas** (small amounts of mercury are exuded in sweat), **chlorella**, **MCP** (modified citrus pectin), **ALA** (alpha lipoic acid), **NAC** (N-acetyl cysteine) and **Liposomal Glutathione**. **Omega-3 fatty acids**, **selenium**, **iodine** and **vitamin D** are considered useful supplements.

The body's ability to eliminate mercury naturally is **very limited**, hence with mercury detox it is always advised to go **slowly** (we are talking several months to a few years) in order to avoid / limit “*retox*”.



**Retox** is a very important concept to understand when it comes to mercury removal: Mercury elimination is regarded as a three-stage process in the body: Mobilization, transport and elimination.

Liver and kidney detox (**milk thistle, seagreens, dandelion & more**) are advised by naturopaths as the **first step** because the **elimination** pathways should be optimized before one attempts to **mobilize** the mercury; otherwise it will “recirculate” and “retox” the body – not good! Removal of remaining mercury fillings is next, then begin the “natural mobilization and elimination” protocols.

**Chlorella** is somewhat controversial and may cause more harm than good unless used in conjunction with other methods in the correct manner: It is reported to **mobilize** mercury but not **eliminate** it, meaning that if the kidneys are already overwhelmed (likely), retox is possible (you’ll feel horrible as well as exacerbating the problem). MCP appears to be a fairly safe and gentle protocol. ALA is advised to be used strictly under the Cutler Protocol (break the daily dose into 4, take each part 6 hours apart and don’t miss any steps; then pulse 5 days on 2 days off) and NAC has been reported by various scientific studies to be successful in remediating mercury poisoning. [17]

For more on the topic of mercury detox, study [Dr. Chris Shade](#).

## **Mercury Cleanup In The Home:**

**If a CFL bulb breaks:** The amount of mercury in a CFL bulb is small – but all mercury is toxic and “it all adds up”. The EU advises [18] that if a CFL bulb breaks in the home, to air out the room, clean up using a damp cloth, avoid skin contact with the broken bulb and not to use a vacuum cleaner. Personally I am not confident that this is sufficient – and think that hazardous material protective gear (respirator, gloves) should certainly be worn. Thankfully LED bulbs seem set to replace other bulb types and I think these are worth the switch.

If a significant (visible) quantity of mercury is spilled in the home, it’s now regarded as a “haz mat job”. Professional cleanup is advised and this can be tens of thousands of dollars. Best to remove mercury-containing products from your home right now and dispose of them correctly.

## **Water Filtration:**

Good news: The [Berkey carbon block water filter](#) is claimed to remove over 99.99% of mercury from water. Replacing CFL bulbs and other mercury-containing items (dispose of correctly) will reduce the risk of future exposure.

## **Air Purification:**

Researching on this, I know that IQAir makes [a specialized unit for dental practices](#) that perform mercury filling removal (and I observed that this was the unit in use when I had my mercury fillings removed!) I was not able to ascertain whether their “regular” units remove mercury vapor from the air but I expect that one would be able to ascertain this via direct contact with the company.

#### References:

[16] Mercury and Health. WHO.

<https://www.who.int/news-room/fact-sheets/detail/mercury-and-health>

[17] N-acetyl cysteine treatment reduces mercury-induced neurotoxicity in the developing rat hippocampus. J Neurosci Res (2012) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3306130/>

[18] Mercury in Compact Fluorescent Lamps. Green Facts.

<https://copublications.greenfacts.org/en/mercury-cfl/index.htm>

# 7. Arsenic

Many people don't give **arsenic** a second thought, considering it the stuff of Victorian crime novels: Nothing could be further from the truth and I was shocked at how widespread and serious this problem is!

*Are you ready for a shock?*

Arsenic contamination of groundwater is **very widespread indeed**, occurring naturally in many locations worldwide; including **25 states in the USA** plus China, Mexico and India. The WHO has identified arsenic as one of its top *chemicals of concern*; estimating that **over 140 million people in 50 countries** have been consuming drinking water at levels above the recommended limit. [19] A study in *Nature* scientific journal places the number much higher, reporting **300 million** affected. [20] Take your pick, it's a **massive** problem either way.

Long term arsenic exposure has been linked to cardiovascular disease, diabetes, impaired cognitive development, cancer and more. Arsenic is categorized by the IARC as **carcinogenic in humans**.

Arsenic contamination in some regions is **increasing dramatically**; for example India, where it is reported to have increased 145% in the last 5 years. [21] Contamination of groundwater is regarded as the most significant source of arsenic exposure, while additional arsenic exposures may be caused by tobacco smoking, some industrial processes and some food products.

## **Arsenic Action Steps:**

“Fixing” the problem on an individual level in the developed world is not that difficult; in the sense that both RO and carbon block water filtration can remove arsenic very efficiently from drinking water. The greater part of the problem is that much of the poisoning is occurring in poor / rural regions. A further issue is that very many people are either unaware of the problem or consider it trivial.

### **1) Explore maps of “Arsenic hot spots”:**

Here’s a map from the United States Geological Survey of Arsenic levels in the population. It’s quite a shock when you see just how many people are above the 10 µg/L “safe” level: <https://www.usgs.gov/mission-areas/water-resources/science/arsenic-and-drinking-water>.

Here's arsenic in the UK from the University of Cambridge's Arsenic Project:

<https://www.geog.cam.ac.uk/research/projects/arsenic/maps.html#uk> Other maps can be found readily via search.

**2) Test:** The best way to address arsenic would be first to test for it using a water test kit. This should be considered a high priority if the property receives **well water**. [Here's the top rated water arsenic test kit in Amazon](#)

**3) Remediate:** Whole-house carbon block filtration provides a near-perfect solution. A smaller countertop unit such as the [Big Berkey](#) will remove arsenic from drinking water, which is the most significant source of exposure. Reverse Osmosis systems also work very well.

#### References:

[19] Arsenic Fact Sheet. WHO

<https://www.who.int/news-room/fact-sheets/detail/arsenic>

[20] Arsenic exposure in Indo Gangetic plains of Bihar causing increased cancer risk.

Nature, 2021. <https://www.nature.com/articles/s41598-021-81579-9>

[21] Water of death: How arsenic is poisoning rural communities in India. Guardian,

2021. <https://www.theguardian.com/global-development/2021/jun/24/water-of-death-how-arsenic-is-poisoning-rural-communities-in-india>

# 8. Insecticides / Herbicides / Pesticides

Another of the WHO's top ten "chemicals of concern" is the insecticide / herbicide group. In 2004, a report estimated the number of pesticide poisoning cases at 3,000,000 per year, with the number of deaths per year at 250,000. [22]

Many of these cases will have been in agricultural workers in poor regions (being supplied with the chemicals of course by megacorps who know darn well their poisons are being used without safety clothing).

However note that **you are being exposed to pesticides in your home, whether you personally use them or not.**

Here's what you can do.

## **Pesticide Action Steps:**

**a) Pesticide drift from local spraying.** This is prevalent either in agricultural areas or from municipal weed control programs. Keep windows closed if spraying is known to be

taking place. Pesticides in air are removed by [high quality VOC-phase air purifiers](#) (this is the best rated one on Amazon).

**b) Tap water.** Pesticides that have ended up in the tap water supply are a simple fix with a carbon block filter such as the [Berkey](#).

**c) Eating produce that was sprayed.** The principal way to avoid this at present is to buy organic and/or grow your own produce organically. Pesticide exposure from non-organic produce can be reduced by peeling (and discarding the peel), especially the area closest to the “pesticide pool” – the top part of the fruit in (for example) apples and by limiting the intake of the [types of produce known to be highest in pesticide residues](#).

**d) Home Pest Control.** Having poisons in and around the home is a significant health risk both for your family and pets. Many dogs have been killed by eating mice or rats that had been killed by poison. **Natural pest treatments are available** for just about every form of pest from rodents to termites. Here’s an [excellent guide to natural pest control](#) I found on Amazon, written by a 25-year president of a pest control company (serious expert). **This book has my top recommendation.** I learned **tons** from his astonishing expertise and regard some of his methods as absolute genius.



**e) Existing pesticides in and around the home.** Pesticides that have been stored in and around the home can be removed and disposed of (you must do this safely / legally through official recycling/disposal centers). If there has been a spillage or you have leaking pesticide containers, **call a poison control center.**

**f) Off gassing from old termite treatments** (a little-known but potentially major hazard!) This one requires a greater explanation: In the 20th century, homes in termite-prone areas were routinely treated with a “soil drench” (it’s as bad as it sounds) of insecticides, including the terrible now-banned “forever chemical” **chlordane**. 100 gallons per 1000 square feet of home area was considered a standard treatment prior to the laying of foundations.

While this awful procedure has thankfully, now been confined to history, the problems it caused are **ongoing**. Chlordane and other similar chemicals are highly **persistent** – meaning they do not decompose naturally and continue to off-gas for decades. Despite being banned in 1988, Chlordane was found in a shocking 64% of US households in 2009. It’s likely still there, off-gassing continually into the air you breathe. I wrote a full report on Chlordane here: [Dangerous Pesticide Found In 64% Of U.S. Homes 20+ Years After Being Banned.](#) Remedies for this scenario are going to include correct vapor barriers, crawl space ventilation, [VOC-phase air purification](#) and fresh air intake fans.

## References:

[22] Pesticides and Health. WHO, 2004. [https://www.who.int/mental\\_health/prevention/suicide/en/PesticidesHealth2.pdf](https://www.who.int/mental_health/prevention/suicide/en/PesticidesHealth2.pdf)

# 9. Forever Chemicals / Persistent Organic Pollutants – PFAS, PCBs, Dioxins And More.

This section is a bit heartbreaking and most people don't know enough about it. You need to know.

“Forever chemicals” or “Persistent Organic Pollutants” are names that have been given to a wide group of toxic manufactured substances that **do not readily biodegrade** and are thus accumulating in the environment – both as they continue to be produced and as **products already made with them** begin to disintegrate.

The *Stockholm Convention on Persistent Organic Pollutants* now [lists](#) over 20 groups of chemicals / individual substances that are of particular concern. Over half of this list are pesticides / insecticides – many of which are **now banned yet continue to cause problems** due to their persistence, bioaccumulation and ability to be carried by water, soil or air to locations thousands of miles from where they were produced.

You probably have several of these substances in your home right now and **almost certainly have them in your body** in detectable quantities. Here are a few:

**PCBs:** The main class of forever chemicals that people are aware of is **PCBs**. Toxicity problems of PCBs were identified in the 1960s. PCB manufacture was banned in the USA in 1979, UK in 1987 and by the Stockholm Convention on Persistent Organic Pollutants in 2001 – but by this time an estimated **1.2 million tons** had been manufactured. [23] There are around 130 different PCBs altogether and these chemicals are **still persistent** in old electronics, fluorescent light ballasts, vacuum pumps, plastics, adhesives and more. PCBs are still being released into the wider environment from old landfills, incorrect / illegal dumping of PCB wastes, burning of old items that contained them and more. PCBs can travel thousands of miles in air and water and then **biomagnify** [24] in living organisms (increase in concentration as they travel up the food chain) – with a half-life in the body of over a

decade. [23] They are thus now found **all around the world**, causing widespread environmental damage. PCBs have been found to cause cancer, neurological effects, thyroid problems, immune system effects, transgenerational effects and more. [25]

**PFAS (polyfluorinated alkyl substances):** In the UK, recent reports [26] have highlighted that tap water is **not even being tested** for the highly toxic **PFAS** – a highly concerning group of forever chemicals that are minimally regulated at the current time.

Some PFAS are reported to take **over 1000 years** to degrade and are therefore **almost impossible to get rid of**. [27] PFAS are found in soil and water; and are bioaccumulating in living organisms – including us! There are over **4,700** PFAS [28] and these have been linked to a huge array of serious health problems including endocrine disruption, testicular cancer, kidney cancer and thyroid disease. There is much that is still unknown about these chemicals – but it is established that levels of some of the “novel” PFAS are increasing in human bodies and are already often above levels considered to cause adverse effects in humans.

**Dioxins:** Another group of persistent chemicals; the dioxin group contain some **very** highly toxic substances. Over 90% of our dioxin exposure is through food, notably meat, fish and animal products; exposure can be limited to some extent by

trimming the fat from meat, as this is the part of the animal's body where the highest concentration accumulates.

## **Forever Chemicals Action Steps:**

**Water filtration:** Take care to eliminate forever chemicals from your drinking water (asap!) via [carbon block filtration](#) – and avoid other sources of exposure such as teflon cookware by choosing cast iron, pyrex, [earthenware](#) or [stainless steel cookware](#).

**Air filtration:** Indoor air and dust are now regarded as major sources of human exposure. [29] [Combined VOC and HEPA air filtration](#) will mitigate, as will as spending more time outdoors in natural environments.

**Handling Old Electronics:** Electronics recycling / repair is a particular risk. **Old capacitors** are infamous for leaking and are a noted exposure risk for PCBs. If you are handling / dismantling old electronics for any reason be aware that PCBs can be absorbed via skin contact. Nitrile gloves are reported to be PCB-resistant. [23]

***Mark my words:*** You will be hearing much, much more about forever chemicals in the coming decades as this is a serious problem that has received too little coverage. Some of these chemicals (for example dioxins) are extremely toxic in

trace quantities, which makes them very difficult to detect and deal with.

The entire arena of forever chemicals is destined to become a major topic of concern as the full significance and tragic consequences of our past (and present) actions is understood. Just because a “forever chemical” is banned, it does not mean it’s the end of the story.

### References:

[23] Polychlorinated biphenyl. Wikipedia.

[https://en.wikipedia.org/wiki/Polychlorinated\\_biphenyl](https://en.wikipedia.org/wiki/Polychlorinated_biphenyl)

[24] Biomagnification. Wikipedia. <https://en.wikipedia.org/wiki/Biomagnification>

[25] Learn about Polychlorinated Biphenyls (PCBs). EPA.

<https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs>

[26] UK ‘flying blind’ on levels of toxic chemicals in tap water. Guardian, 2021. <https://www.theguardian.com/environment/2021/mar/25/uk-flying-blind-on-levels-of-toxic-chemicals-in-tap-water>

[27] What are PFAS? <https://www.pfasfree.org.uk/about-pfas>

[28] Emerging chemical risks in Europe – PFAS. European Environment Agency.

<https://www.eea.europa.eu/publications/emerging-chemical-risks-in-europe>

[29] Persistent Organic Pollutant. Wikipedia.

[https://en.wikipedia.org/wiki/Persistent\\_organic\\_pollutant](https://en.wikipedia.org/wiki/Persistent_organic_pollutant)

# 10. Carbon Monoxide

Protective measures against carbon monoxide (CO) are now a legal requirement for homes in many countries.

Although a huge fuss is made around CO, I have to note that the statistics are somewhat low when compared to some of the other pollutants on the list:

Worldwide deaths from carbon monoxide poisoning were estimated at 4.6 deaths per million persons in 2019. [30] That's around 35,400 total.

In the UK, **around 20 people per year** are estimated to be killed by CO poisoning. This number is less than 2% of the number of people killed by radon (around 1,100 per year in UK) [31] – so why isn't radon testing mandatory? Why aren't lead and arsenic detectors mandatory? The number of asbestos-related deaths in the UK is even higher – around 5,000 per year (2021 statistic). [32]

My point is not to trivialize the protective measures regarding CO – they are clearly beneficial and you should of course



keep it legal, but I have to say I find this discrepancy of focus a little... odd: Surely the most dangerous conditions should get the most attention?

## Carbon Monoxide Action Steps:

In the UK it's now a legal requirement (since 2015) for landlords to have at least one carbon monoxide (CO) alarm in each storey of a property and a CO alarm in any room containing a solid fuel stove. Alarms must be tested prior to the commencement of any new tenancy.[33]

The scenario is likely to be similar in other countries; check the regulations for your region, get the CO alarms that your region legally requires you to have, fit them, test them:

Here's the best rated carbon monoxide detector on Amazon:  
<https://amzn.to/3LgAMcK>

Here's a highly rated [CO detector / alarm on Aliexpress that also tests for propane and natural gas](#) – very useful if your home has gas appliances.

### References:

[30] Worldwide epidemiology of carbon monoxide poisoning. Hum Exp Toxicol, 2020.  
<https://pubmed.ncbi.nlm.nih.gov/31789062/>

[31] <https://www.ukradon.org/information/risks>

[32] <https://www.hse.gov.uk/statistics/causdis/asbestos-related-disease.pdf>

[33] The Smoke and Carbon Monoxide Alarm (England) Regulations 2015: Q&A booklet for the private rented sector – landlords and tenants. UK Gov.

<https://www.gov.uk/government/publications/smoke-and-carbon-monoxide-alarms-explanatory-booklet-for-landlords/the-smoke-and-carbon-monoxide-alarm-england-regulations-2015-qa-booklet-for-the-private-rented-sector-landlords-and-tenants>

# 11. Formaldehyde

**Formaldehyde** is a **known carcinogen** that is found in **almost all homes!**

Formaldehyde (chemical formula HCHO) is a **VOC** (volatile organic compound) and was categorized in 2011 as a **known human carcinogen** [34] with a list of further adverse health risks associated with it.

It's a component of the manufacture of an **enormous** range of consumer goods – and not only that, but it **off gasses continuously** from those goods into the air you breathe – for years! Formaldehyde is also a component of cigarette smoke. Some of the worst culprits are memory foam, paints, varnishes, wood glues, carpets, furniture, **plywood** and other bonded wood products such as OSB and particle board.

That chemical smell you get from new memory foam? That's formaldehyde.

Due to its extremely widespread use in industry, occupational exposure to formaldehyde is extremely common: The air in almost all buildings (especially modern ones) will test positive for formaldehyde. You are in all likelihood breathing

this known carcinogen continually as you sleep and go about your day – unless you take action.

A big part of the problem – as with other indoor air pollutants, is that in our quest for energy efficiency, modern homes are more “sealed” than ever before. While this cuts down on heating bills and therefore fossil fuel consumption, it also means that the air in your home can become significantly toxic, with formaldehyde and other chemicals being trapped, building up to much higher levels.

## **How Much Formaldehyde Is Safe In Air?**

In 1992 OSHA reduced the standard for occupational exposure of formaldehyde to 0.75ppm (parts per million). [35] The UK workplace exposure limit is currently 2.0ppm [36]. A 2011 assessment of available scientific data, taking other health risks of formaldehyde other than cancer into consideration, recommended an indoor air limit of 0.1ppm. [37]

My home air pollution test meter is currently registering 0.048 mg/m<sup>3</sup> HCHO (Formaldehyde) in my office. This needs to be converted to ppm; now this is a little difficult, but I finally found a good converter [mg/m<sup>3</sup> to ppm converter here](#). The molecular weight of Formaldehyde is 30.02598, don't forget to add that number! I finally arrived at 0.03909 ppm.

# Formaldehyde Action Steps:

## 1) Get an HCHO test meter:

[Best reviewed high price HCHO test meter on Amazon.com](#)

(looks excellent, great reviews!)

[Best reviewed HCHO test meter on Amazon.co.uk](#)

[Best reviewed HCHO test meter on Aliexpress](#)

Many of the meters available on the marketplace will test for multiple pollutants. The more high-end devices [such as this one on Aliexpress](#) have built-in intake fans to pull the air in to the meter and thus get better readings.

I bought the [best reviewed inexpensive meter from Aliexpress](#), which will also test carbon monoxide, carbon dioxide, total volatile organic compounds (TVOC), PM2.5 (particulate matter) and has warning alarms for high levels – nice. It seems to be working well for TVOC and HCHO but I don't think it would be among the best for PM2.5, on the basis that it doesn't have an intake fan, which I think would improve the ability to sample air particulates.

A good test meter will also reveal whether your air purification devices are doing their job.

## 2) Adequate ventilation!

Assuming the air outside your home is fresher than the air inside (you can test this also!), open doors and windows to let fresh air circulate, as far as it is safe to do so.

### 3) VOC-phase air purification

(will also get rid of numerous other pollutants!)

Note the HEPA filters are for particulates (dust, mold, pollen) and are not “gas phase”. For a “high end” air purifier that covers both gas phase and particulate phase, check out this one which many consider the “Rolls Royce of air purifiers” is the [IQAir GC MultiGas – Medical-Grade Air Purifier](#). It’s very expensive but very highly regarded and will filter “just about everything” – particulates **including asbestos**, VOCs including HCHO, mold, odors, smoke and gases. I have one of the IQAir machines. What’s a more important use for your money than your health? I can’t think of anything.

### 4) **Let new materials off-gas in a safe place for a while**

If you buy new products known to be high in formaldehyde (such as plywood, memory foam, chipboard), try to obtain them **weeks or even months before** you need them, if possible; then store them in an outbuilding, garage or other clean, dry storage location where they can **off-gas** for a while in an unoccupied / less occupied area – before bringing them

into your living area. Unwrap and separate the products so that the VOC can disperse! The longer the product is left, the lower the remaining level.

## 5) Go outside!

Get some fresh air daily.

### References:

[34] National Toxicology Program 15th Report On Carcinogens.

<https://ntp.niehs.nih.gov/whatwestudy/assessments/cancer/roc/index.html>

[35] National Cancer Institute; Formaldehyde and Cancer Risk. <https://www.cancer.gov/about-cancer/causes-prevention/risk/substances/formaldehyde/formaldehyde-fact-sheet>

[36] UK Health And Safety Executive. Formaldehyde.... its safe use in foundries.

<https://www.hse.gov.uk/pubns/iacl88.htm>

[37] Identifying an indoor air exposure limit for formaldehyde considering both irritation and cancer hazards. Crit Rev Toxicol (2011)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3175005/>

# 12. Paint

I will **never, ever** use “ordinary toxic paint” **EVER** again in a home I live in.

While **lead** compounds have now been phased out of paint and overall VOC (volatile organic compound) levels reduced, oil-based paints may still contain **hundreds** of toxic or carcinogenic compounds.

Unless you are a materials scientist, you would be simply amazed at the list of toxic chemicals that are in ordinary household paint – even the water based stuff! Phthalates, APEOs, isothiazolinones, MI, heavy metals, VOCs and other toxins abound.

Even water-based paints **almost certainly give off VOCs** – unless they are **specifically certified as VOC-free**. Be aware that nebulous “greenwashing” labeling terms such as “natural”, “low VOC” and “healthy” don’t necessarily mean much. The number of possible ingredients in paint is staggering and these are not normally listed on the can.

Bear in mind that the off-gassing **doesn’t stop when the paint is “dry”**. Oh no. VOCs continue to be released, in gradually decreasing quantities, for possibly a year or more! So any newly-decorated home is going to be giving off a



gradually decreasing but continuous stream of toxic molecules into the air you breathe.

There are further issues with paint: Paints that may be labeled non-toxic for humans are not necessarily safe for the environment. For example, propylene glycol is considered safe for human exposure but has terrible consequences for waterways, which means that pouring excess paint down drains / cleaning brushes, rollers and trays may be damaging to aquatic environments.

## **Paint Toxin Action Steps:**

The solutions here are fairly straightforward and in many cases cover the same ground as other indoor air pollutants:

- 1) Understand that “normal paint” contains numerous toxins and that these are going to be off-gassing into your living space for years, with the amount highest at first and gradually decreasing over time.
- 2) VOC test meter.
- 3) [VOC air purification](#) / fresh air intake.
- 4) Use **certified VOC-free non-toxic paint** for decorating / redecorating:

**USA: Ecos Paint** is considered a “gold standard”. ECOS lists all of their ingredients on their product pages. I checked their website and their wall / ceiling paint is [stated](#) to conform to ASTM-D-4236 standard for non-toxicity, CDPH 01350 standard for zero VOC emissions and is water based. Not seeing these products on Amazon but their website will have buying info.

**UK:** I used [Lakeland](#) brand when I was renovating a home in the UK and was **extremely** satisfied with the results!

I was also very pleased to notice that this paint seems hard-wearing: Moving some furniture, I bumped it into one of the walls that had been painted this year. “Great”, I thought to myself “that’s damaged the new paintwork”. Taking a closer look, I was surprised that there wasn’t a mark and that nothing had chipped off. Not seeing these on Amazon.co.uk; I ordered directly via their website.

# 13. Air Fresheners

*You keep using this word “freshener” ... I do not think it means what you think it means.*

While air *purifiers* remove pollution from the air, air *fresheners* do not actually remove anything (stale or otherwise) from the air – but they do add something to it:

“Fragrance”.

*Ahhh... but fragrance... how nice!*

**Nope.** Despite the nice, earthy-sounding moniker that makes you think of pretty ladies skipping joyfully through alpine meadows in the springtime... **fragrance is nothing of the sort.**

It is typically a chemical concoction made in a factory from numerous synthetic ingredients; **the exact identity of which does not legally need to be disclosed.**

**Many** of these ingredients have negative health effects: The State of California has stated that some common ingredients in air fresheners are carcinogenic [38] – and I can personally attest to getting an “instant headache” from those awful

fragrance sprays that too many people spray on used goods before shipping them from an eBay purchase.

Whether they are trying to mask their personal odors, or think these concoctions have some kind of anti-disease effect, I know not. What we do know is that they are unhealthy: A 2010 study found a link between air fresheners and breast cancer. [39]

## **Air Freshener Action Steps:**

### **Get rid of them!**

Note – “ionizers” are widely considered to have a minimal effect on air quality and are generally regarded as nowhere near as good as HEPA filters. [40]

### **References:**

[38] Nazaroff, W. & Weschler, C. (2004). Cleaning products and air fresheners: exposure to primary and secondary air pollutants. <http://www.sciencedirect.com/science/article/pii/S1352231004002171>

[39] Zota, A., et. al. (2010). Self-reported chemicals exposure, beliefs about disease causation, and risk of breast cancer in the Cape Cod Breast Cancer and Environment Study: a case-control study. <http://www.ehjournal.net/content/9/1/40>

[40] IQAir: Do Air Purifiers Work? <https://www.iqair.com/blog/air-cleaning-technology/do-air-purifiers-work>

# 14. Mold

**Mold** is linked to a surprising array of health problems. I wrote a detailed report on mold illness here: [Mold Illness: What It Is And 17 Signs You Have It.](#)

Grey mold (the kind that appears on decaying fruit) is bad, but **black mold** is especially toxic and can cause a wide array of symptoms. Black mold may not always be visible (for example caused by leaks in an unvisited basement or attic) and may be implicated in various unexplained health issues.

## **Mold Action Steps:**

Mold is caused by damp conditions. So the first step in addressing mold issues is to **fix the source of damp.**

Damaged pipes, leaking roofs, damaged or blocked rain gutters (extremely common), failed moisture seals around baths, sinks and showers, and poor ventilation are common causes of damp conditions in a property. Look for signs of staining on walls, musty odors and the classic persistent wheezy “mold cough”.

If a significant sized area of black mold is discovered, **professional mold remediation** is certainly advised and may be legally required, depending on your region.

[HEPA air filtration](#) of good quality will remove mold spores from the air and should bring near-immediate benefits, however the source of mold should also be addressed.

Here's a moisture meter that got excellent reviews and can help pinpoint damp conditions in building materials:

<https://amzn.to/3GsEJHz>

Here's a highly rated home mold test kit with fast turnaround from an accredited lab: <https://amzn.to/3upKqDK>

# 15. PVC

PVC – poly vinyl chloride – is a very common type of plastic in consumer goods – denoted by the number “3” on the recycling information label. It’s also carcinogenic and toxic. PVC is used for dessert trays, plastic pipes, shower curtains, saran wrap, vinyl flooring and more. Not only is PVC toxic but when PVC is manufactured, **phthalates** are added into the mix in order to increase flexibility – including sometimes the carcinogenic phthalate Di (2-ethylhexyl) phthalate (DEHP). Phthalates are known to leach from PVC and are toxic. Of particular risk to health are any situations where PVC is heated or burned; with the classic example being plastic shower curtains, which may “off gas”. If you can “smell plastic”, then you are certainly breathing it: My conservatory had an old vinyl floor and when the sun hit, it would heat up. I am pretty sure I was getting a hefty exposure from this as it smelled strongly of plastic out there. It’s gone now.

Many medical devices are made from PVC that includes Di (2-ethylhexyl) phthalate – for example catheters and feeding tubes. The softness of these plastics makes them less uncomfortable for the patient, however the leaching of DEHP could be an issue. The UK Gov regards evidence of this as “inconclusive” [41] – however phthalates have been linked to

asthma, breast cancer, ADHD, obesity, type II diabetes, autism spectrum disorders and reproductive problems. [42] PVC is very flammable and also releases highly dangerous chemicals when burned – including dioxins – making PVC smoke one of the more dangerous components in smoke from household fires.

## **PVC Action Steps:**

**Home testing** – here’s a [Phthalate / BPA home test kit](#) (hard to find and expensive!)

Removal of the source materials is going to be more manageable in general:

- a) Get rid of PVC products around the home as appropriate and take care to avoid buying new.
- b) Check food containers and avoid food packaged in #3 plastics where possible.
- c) Never burn PVC – either indoors or outdoors.
- d) Replace plastic shower curtains with non-PVC types or if possible a shower door made from (safety) glass.
- e) Look for “phthalate-free” shampoos and conditioners.



f) Avoid heating PVC containers in microwaves.

g) Carbon block water filters such as the [Berkey](#) should remove almost 100% of these chemicals from water, [VOC-phase air purifiers](#) should remove them from air.

**References:**

[41] DEHP phthalates in medical devices. UK Gov.

<https://www.gov.uk/government/publications/dehp-phthalates-in-medical-devices/dehp-phthalates-in-medical-devices>

[42] Phthalates are everywhere, and the health risks are worrying. Guardian, 2015.

<https://www.theguardian.com/lifeandstyle/2015/feb/10/phthalates-plastics-chemicals-research-analysis>

# 16. Cleaning Chemicals

It might surprise you to learn that under the **Federal Hazardous Substances Act**, manufacturers are **not required** to list all of the ingredients in household cleaning products – despite some of the findings of terrible health consequences of these chemicals!

Known ingredients such as bleach are highly toxic, presenting a potential health hazard and risk to children. Other ingredients may be toxic or carcinogenic. Then of course there is “fragrance” – see the section on air fresheners for more on this.

## **Cleaning Chemicals Action Steps:**

The good news is that you can dump these products and use non-toxic natural alternatives that often work just as well if not better! If you must have them, be sure of course to keep them well out of reach of children and pets.

I wrote a full post detailing [Top 22 Must-Have Copycat Cleaning Recipes](#); these are natural alternatives to oven

cleaner, furniture polish, carpet cleaner, toilet cleaner and more.

# 17. EMFs / Electrosmog

This is a controversial one and I deliberately bumped it down to the end of the list. **Electro-magnetic fields** (also known as “Electrosmog” or “EMF pollution”) are regarded by some as harmful. There is *some* scientific support for this position. Some people appear / claim to be more sensitive than others. I bought the [TRIFIELD Electric Field, Radio Frequency \(RF\) Field, Magnetic Field Strength Meter](#) and wandered around my property, checking the strength of the various fields. It was quite interesting! I learned that:

- a) **LED lightbulbs** emit an unexpectedly strong electric field, which is stronger the closer you are to the bulb. I was able to start picking it up about three feet away from the bulb.
- b) No fields whatsoever of the electrical “mini sub station” across the street were detectable from inside my home.
- c) **Mobile phones** are kicking out significant levels of EMFs even when you are not making a call. “Cellular data” seems to be “doing stuff” in the background continually; whether this is some evil agency spying on you or some megacorp

secretly using your device for crypto mining, or none of the above, I have absolutely no idea!

**d) Airplane mode** on the iPhone really did cut off the emissions; about 5 seconds after entering airplane mode it fell to zero.

**e) EMFs vary enormously throughout a property**, being very low in some places and surprisingly high in others.

**f) Faraday Boxes:** Placing phones / wi-fi routers inside closed metal boxes (“Faraday cages”) does eliminate the fields (but also your ability to use the device!)

One valuable thing you can do with these meters is to experiment with different locations in your property, finding and avoiding hotspots. You can also evaluate other properties and locations upon visiting. I suppose also you could use this kind of device in a “James Bond” context; you could sweep an area for WiFi emitting devices, if you need to do that. I found all this very interesting but to be honest I was not really sure to what extent household EMFs are actually affecting me / which of the fields surrounding us is worst. I remain “cautiously open minded” about the whole thing. I certainly think keeping your mobile phone away from your body as much as possible is a good idea, both when making a call and when the device is just switched on. I have also gone completely WiFi-free at home – using a router with switchable WiFi to leave it completely off and using a wired

(Ethernet) connection, which is faster anyway but has the minor inconvenience of trailing cables.

# **Addendum: Ventilation Procedures Must Be Done Correctly Or They Could Make Problems Worse! (Many Don't Know This)**

## **A) Positive vs Negative Air Pressure:**

This is important to understand: If you have extractor fans pulling air out of a home, but no air inlets – then that extraction creates *negative air pressure* inside a home – a very slight vacuum – that has a drawing effect. Where's the “make-up air” going to come from?

The answer isn't so great. The make-up air is going to get pulled from “wherever it can come from” – for example through floor and wall cracks; drawing whatever filth is “down there” into your home.

If the home is very well sealed / insulated and there's “nowhere else for the air to come from”, it might also be pulling more radon into your home from below the foundations! This is a major health risk!

## **B) You Are Breathing Your Basement Air!**

Most people are not aware of this and it's VITAL to understand for the sake of your health!

**Hot air rises.** This creates a natural upwards convection effect in most homes. Air is drawn in to the basement through any gaps and cracks, then up through cracks in the floorboards into the main living areas, then up and out through the attic.

Add to this the effect of extractor fans – for example in bathrooms or above kitchen stoves. While those remove undesirable air, they may be replacing it with even more problematic air!

Many basements are damp, moldy, filthy and toxic. They are principal sources of radon. If the subsoil was treated with chlordane or similar termite treatments (now banned!) then chlordane is still going to be off-gassing up into the crawl space and then into the home. If there is damp anywhere in the basement, you are going to get mold spores which get drawn into your living area. If fibreglass insulation was used on the subfloor then your make-up air might be being pulled right through it, bringing microparticles of fibreglass into your air. Lead paint, asbestos and other materials generate



dust, especially if disturbed. Rodents spread filth, stink and disease. You get the picture.

## **Air Quality / Ventilation Action Steps:**

A very useful first step for the overall health of the home is to **fix up your basement**. Openings should be properly closed off and small gaps covered with steel “hardware cloth” (not spray foam!) to prevent rodent access, with correct ventilation (check the code requirements) to allow fresh air to enter.

A **vapor barrier** should be correctly installed to prevent evaporation of moisture into the crawl space. 6mil (6/1000 of an inch) is typically specified but “thicker is better”.

Any water leaks or other problems should be fixed. If there are toxic materials of any kind stored down there, remove and store / dispose of them correctly.

b) When installing extractor fans, investigate the installation of a **make-up air fan**. This quite simply pulls in an equivalent volume of fresh air to the volume being pulled out by the extractor. A further consideration to investigate is a fresh air intake fan that creates **positive air pressure** and “pushes” toxic air out “through the cracks” rather than pulling toxic air via whatever cracks are in the building.

c) Follow building codes. I wrote this last section based on what “makes sense to me” and it may or may not conform to codes requirements, which vary from region to region.

## **Final Thoughts:**

I would suggest get your house tested for **as many things as possible!** We live in a toxic world. This is real, it’s not a joke. More advantages of testing:

**1) Certainty is a beautiful thing.** You KNOW for sure. If you have strange, unexplained or confusing symptoms, at the very least you can start crossing things off the list and saying “nope, it’s definitely not that”.

**2) Testing gives peace of mind** that you are not exposing yourself daily to toxins that could cause serious health consequences (or even death, no joke) in a few years time.

**3) If you do identify a problem,** you can address it and finally start getting well, which is worth more than anything!

**4) Keep all the test results.** Every negative test is a plus point that bumps up the value of your property. Imagine the time comes to sell and you can say “here are all the test results, we have had the house tested for lead, radon, mold, asbestos, chlordane etc and it checks out. Here is the result

from the tap water test, air quality test, VOC test. I don't know about you – but as a home buyer I would LOVE that information. It could be a deal maker!

**5) Keep the test meters.** Once you own a bunch of test meters / kits, you can avoid toxic environments in the future. Imagine you are looking for a new home. You can identify and avoid toxic homes and dodge a possible nightmare. Houses having unforeseen (and expensive) problems is a very common thing. Recently read of someone whose bill for mercury cleanup from an old heating system came to over \$40,000.

And what value can you put on your life, that of your loved ones and on our precious environment? Those things are beyond price.

Be well,



HealthPowerBoost.com

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