

# CADMIUM

## **Where its found:**

- Cadmium is found in industrial workplaces
- Also found in some industrial paints and batteries

## **Responses:**

- Cadmium laden dust quickly leads to respiratory tract and kidney problems which can be fatal. Acute exposure to Cadmium fumes may cause flu-like symptoms such as chills, fever, and muscle aches.
- These symptoms may resolve in a week if there is no respiratory damage.
- More severe exposure can cause tracheobronchitis, pneumonitis, and pulmonary edema.
- Symptoms of inflammation may start after hours after the exposure and include cough, dryness and irritation of the nose and throat, headache, dizziness, weakness, fever, chills, and chest pain.

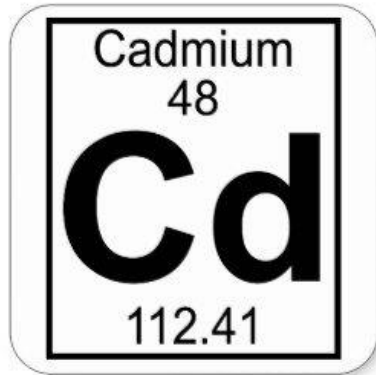
## **Testing:**

- Under some circumstances, the occupational health and safety administration requires screening for renal damage in workers with long- term exposures to high levels of cadmium
- Blood or urine tests provide a better index of excessive exposure in industrial situations.

**The exposure needed to cause toxicity:** acute- chronically

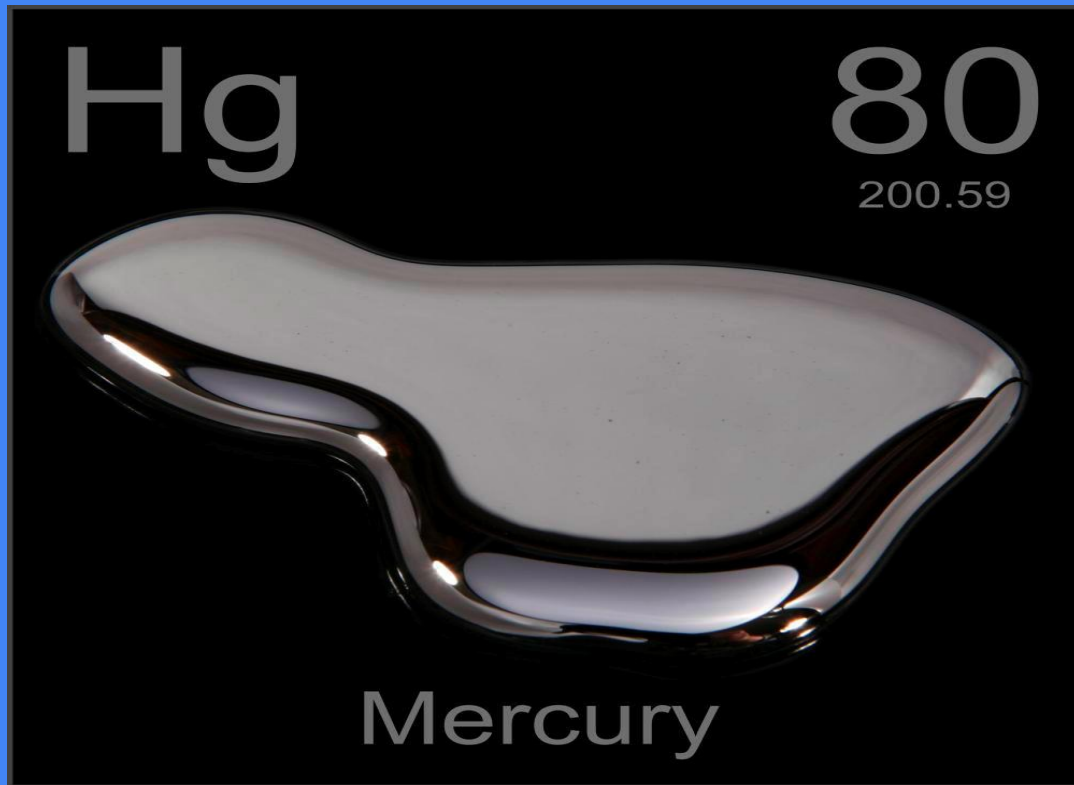
**Treatments:** fluid replacement, mechanical ventilation, maintaining a clean work area with no dust, washing hands before eating and drinking, disposing contaminated work clothes, wearing proper personal protective equipment

**Prognosis:** the outcome of cadmium toxicity can be as minor as a fever to as major as kidney damage and death.



# Mercury

Maddy Bird



# Where is it found?

Thermometers

Household Switches

Lamps

Batteries

Paints

Old sets and toys

Athletic Shoes

Pesticides

Irons

Antiseptics

Blood Pressure Gauges

Barometers

Microwave Ovens

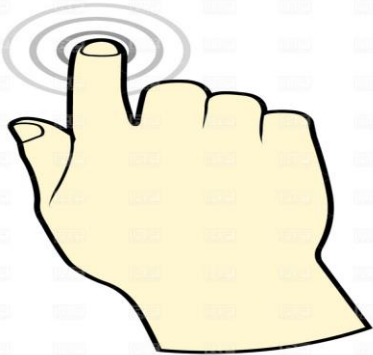


# Response to exposure of Mercury:

If it is swallowed it passes through your body and very little is absorbed.

If you touch it, a small amount may pass through your skin, but not usually enough to harm you.

It can be inhaled because it slowly vaporizes into the air over time. Can only be harmful if it's a large amount being breathed in.



# Symptoms:

- Cough
- Sore throat
- Shortness of breath
- Chest pain
- Nausea
- Vomiting
- Diarrhea
- Increase in blood pressure or heart rate
- A metallic taste in the mouth
- Eye irritation
- Headache and vision problems.



# Tests and treatments for Mercury exposure:

- Tests:

- Urine or blood samples can be tested to see if you have been exposed to too much mercury.

- A urine test is preferred for measuring elemental mercury.

- A blood test can be used to measure exposure to high levels of mercury if you can be tested within three days of being exposed.

- If the test results are positive, poison control will be called.

- Treatment

- Removal of the toxin in household

- Intravenous fluids to clear the toxins in their blood system

- Laxatives

- Dialysis



# Long term effects:

Anxiety    Excessive shyness

Anorexia    Sleeping problems

Loss of appetite    Irritability

Fatigue    Forgetfulness

Tremors

Changes in vision and in hearing.



The Mad Hatter from Alice in Wonderland was an example of a person poisoned with mercury. The brim of men's hats were made by dipping them in mercury, and when worn the mercury was able to get through the skin on your head.



# Uranium



Meghan Dhawan

# Location and Toxicity Responses

- Uranium is a silvery-white metal in the actinide section of the periodic table
- Uranium is found in China, Russia, Mexico, Greenland, Australia, and Canada – found in rocks underground
- Exposure to Uranium can result in kidney toxicity. This can be caused by breathing air containing Uranium dusts, or by ingesting substances containing Uranium which then enters the bloodstream
- In extreme cases, exposure to Uranium can even result in death. Other than that, no other symptoms are present.

# Diagnosis, Treatment, and Prognosis

- Diagnosis of Uranium: Depending on the duration of time one has been infected and how one is exposed to Uranium will determine the end result
- Treatment: The use of chelation drugs for acute Uranium overexposures is considered a controversial practice in the United States. If one decides to use it for treatment, chelation drugs must be used within four hours of exposure to Uranium
- Prognosis: If not treated properly or quickly, people that are exposed/ingest Uranium are at high risk of kidney failure and possible death

Triclosan

# Where Found and Exposure

Found in toothpaste, deodorant, and antibacterial soap.

Skin contact and ingestion can cause toxicity

# Symptoms, Tests and Treatments

Has been linked to heart disease and heart failure in a new study.

Abnormal endocrine system/thyroid hormone signaling.

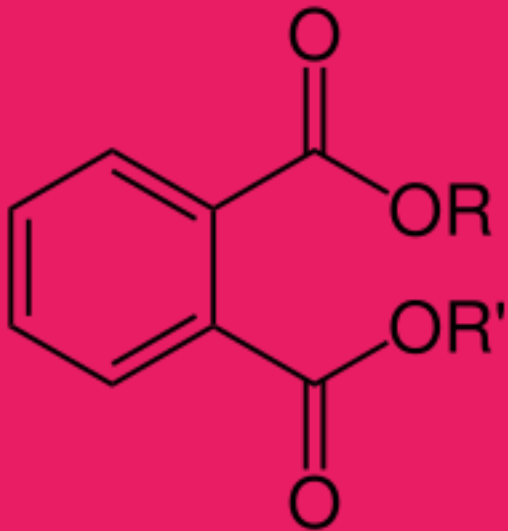
Weakening of immune system.

Children exposed to antibacterial products at an early age have an increased chance of developing allergies, asthma and eczema.

Uncontrolled cell growth.

Developmental and reproductive toxicity.

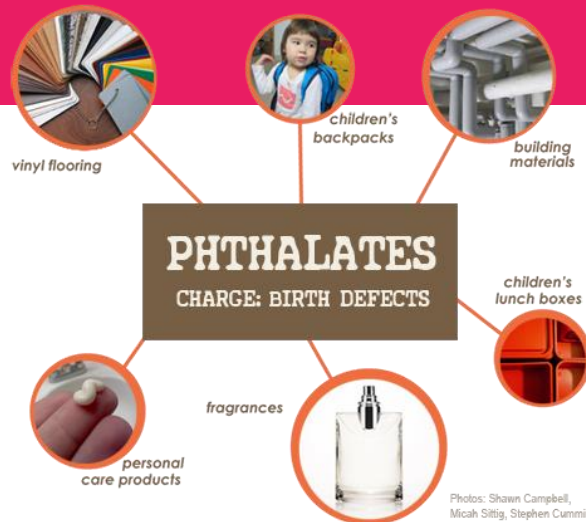
Environmental Health Perspectives (EHP) found the chemical in 75% of urine samples tested for a [study](#) focused on triclosan. And furthermore, the Center for Disease Control and Prevention detected triclosan in 58% of US waterways.

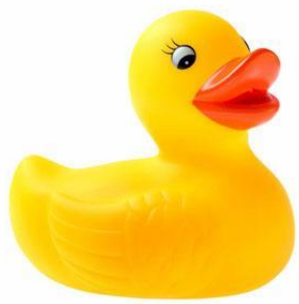


# Phthalates



Megan Luo





**Phthalates** are a group of chemicals used to soften and increase the flexibility of plastic and vinyl.

**They are plasticizers used widely in consumer products such as children's toys, cosmetics, flexible plastics, lubricants, nail polish, etc.**



- **Symptoms:** Irritation of the eyes (lacrimation), skin, nose, throat; headache, dizziness, nausea; possible polyneuropathy, vestibular dysfunction, pain, numbness, weakness, exhaustion
- Humans are exposed to phthalates by way of Inhalation, Ingestion, Skin and Eye contact and also by direct injection

Research suggests that there is an association between PVC flooring and the development of bronchial obstruction in children. This also suggests that the increasing incidence of asthma could be partially due to the increasing household use of plastics containing phthalates over the last few decades

The most specific test that can be used to determine if you have been exposed to Phthalate is the measurement of **MEHP** (ABSORPTION, DISTRIBUTION, and METABOLISM) and other breakdown chemicals in your urine or blood

It is not possible to get rid of this chemical entirely but there are ways to prevent less of it coming into your body:

- 1: Since they are detoxified through glucuronidation, take IndolPlex and Calcium D-Glucarate each 2 twice a day
- 2: Having 2 or more servings of Brassica or cruciferous vegetables a day revs up the detoxification of plastics
- 3: Far Infrared Sauna



BPA

Bisphenol A

# WHERE IS IT FOUND

BPA is an industrial chemical that has been used to make certain plastics and resins since the 1960s

# DIAGNOSTICS, SYMPTOMS, TREATMENTS AND PROGNOSIS

Diagnostics:

Urine Sample

Symptoms:

Overweight, Early Puberty, Infertility

Treatments:

Probiotics

Prognosis:

Obesity, Vitamin B Deficiency, Permanent Infertility

Carbon monoxide is a colorless, odorless, and tasteless gas that is slightly less dense than air.



# Carbon Monoxide

## By Andrew Case

Formula: CO

IUPAC ID: Carbon monoxide

Molar mass: 28.01 g/mol

Density: 1.14 kg/m<sup>3</sup>

Boiling point: -312.7°F (-191.5°C)

Melting point: -337°F (-205°C)



## Symptoms

Dull headache.

Weakness.

Dizziness.

Nausea or vomiting.

Shortness of breath. Confusion.

Blurred vision.

Loss of consciousness.

If you breathe in Carbon monoxide it causes toxicity, the diagnostic test is to have a doctor take blood, Treatment is breathing in pure clean oxygen, sometimes in a hyperbaric chamber.

Prognosis can be heart problems and brain damage. Carbon monoxide is what comes out of the back of cars and it can lead to trouble breathing, coughing, loss of consciousness.

# PVC (Polyvinyl chloride) - Tobe



PVC is the world's third-most widely produced synthetic plastic polymer, after polyethylene and polypropylene. It is Inexpensive, Strong and Durable.

It is found in plastic pipes, gutters, cable coating, swimming pool liners e.t.c.

Nothing would happen if you touch PVC, but if you put any material containing PVC into your mouth, cut or burn it and inhale it in gaseous form it becomes deadly.

Acute effects: Headaches and Dizziness. Chronic effects: Liver damage and Death

It is also known to cause cancer so treatment would have to be Chemotherapy or Surgery





### Where it comes from

Fluoride is a mineral that exists in all natural bodies of water.

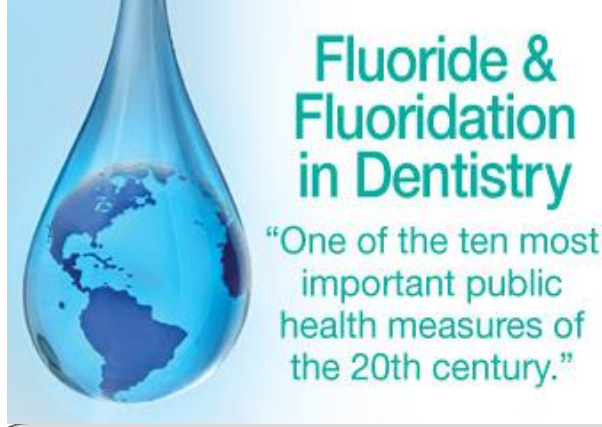
Just like iron and calcium, it dissolves into the groundwater that we collect for our drinking water. Also, fluoride is derived from natural calcium deposits in phosphate rock and then purified.

### When Exposed

When exposed to fluoride poisoning, one can experience discolored teeth, black spots on eyes, fatigue, and even painful lumps on tendons or ligaments.

### Type of Exposure and Tests

Inadequate or excessive exposure to fluoride can cause toxicity. This toxicity can be tested by taking a blood sample.



# Fluoride

by  
Zachary Tamuzza



### About Fluoride

Fluoride is a toxin often combined with salts and then added to water or toothpaste to reduce tooth decay.

Fluoride is an important nutrient for healthy teeth and fluoridation is a public health measure that benefits everyone. However, too much fluoride ingested can cause problems to thyroid, kidney, heart, or other organs.

### Treatments and Prognosis

Go to the poison control center if you have ingested too much fluoride, and if fluoride levels are insufficient, see your dentist for treatments. For a good prognosis, see your dentist regularly and do not consume high levels of fluoride.

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# Toxin: Arsenic

By: Sarah Knight

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# About Arsenic

## Where is it found?

Naturally occurring element and found in a combination of inorganic and organic substances

Forms compounds

Semi metallic chemical

## What happens if exposed?

Can be exposed by eating food, drinking water, or breathing air

Children can be exposed by eating soil

If exposed you can get arsenic poisoning or arsenicosis

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# About Arsenic

## Syptoms

Drowsiness	Headaches	Confusion	Diarrhea
Metallic taste in the mouth		Mouth produces excess saliva	
Problems swallowing		Blood in the urine	
Cramping muscles	Loss of hair	Stomach cramps	
Convulsions	Excessive sweating		
Breath smells like garlic		Vomiting	

## Treatments

Bowel irritation
Thoroughly washing and cleaning skin
Blood transfusions
Chelation therapy

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# Prognosis

Enough of it causes death

Serious medical problems

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# Asbestos

-A group of minerals used throughout many industries(insulation) for its fiber make up and resistance to heat, fire and chemicals

-Airborne asbestos fibers are toxic when in inhaled

-Symptoms of exposure include shortness of breath, coughing

- Exposure can be tested by lung function tests, lung biopsy and chest x ray

- can be treated either with surgery, chemotherapy or radiation

-Asbestos exposure often leads to cancer such as mesothelioma



# Radon

By Rohith Pasula



## Symptoms:

a persistent cough that doesn't get better, difficulty breathing, chest pains, the coughing up of blood, wheezing, hoarseness and recurring respiratory infections such as pneumonia or bronchitis.

## Type of exposure need to cause toxicity:

Radon is found in rock, soil, water, some building materials, and natural gas. You can't see, taste, or smell it. Any home, school, office, or other building can have high levels of radon. Radon is found in new and old buildings. It can seep in through any opening where the building contacts the soil. If a house's water supply contains radon, radon may enter the air inside the house through pipes, drains, faucets, or appliances that use water. Then the radon may get trapped inside the house. Studies show that nearly 1 out of 15 homes in the United States has unsafe levels of radon.

## Treatment:

To determine the most beneficial method(s) to test for lung cancer in an asymptomatic patient potentially exposed to increased radon levels, more studies are needed. Methods may include using either low-dose computerized tomography (LDCT), chest x-ray (CXR), sputum cytology, or a combination of these tests (Smith 2009; USPSTF 2004).

## Prognosis (Outcome):

Radon can cause lung cancer if not treated. Can be fatal.

\*Radon causes about 21,000 [lung cancer](#) deaths each year in the U.S.

# cyanide

- Deadly poison that makes the body unable to use oxygen
- Rapidly acting
- Used by the military

**Sources:** Smoke inhalation from fires, Plants, Manufacturing, Cigarette smoke

**Exposure:** Breathing air, drinking water, eating food, touching soil

**Symptoms:** Weakness, Confusion, bizarre behaviour, coma, sleepiness, headache, dizziness, vomiting, seizures

**Treatments:** Cardiac monitoring, cyanide antidote, abortion (if pregnant)





# Tetrodotoxin

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Messiah Divine did this!!!

# Symptoms and How you can be exposed to this toxin

## Symptoms

Paraesthesia appears in the face and extremities

Dizziness

Numbness

Nausea, vomiting, diarrhoea, epigastric pain

You can be exposed to tetrodotoxin by eating unprepared fish or fish that contain the toxin usually puffer fish, toadfish, and globefish



# Diagnostic tests, Treatments, and Prognosis

There is no known test that is used for tetrodotoxin so dietary history is a key factor in finding tetrodotoxin. Also, mouse bioassays that are used for shellfish toxin can be used. Measure routine serum electrolytes, calcium, magnesium, and ABGs to rule out metabolic causes of diffuse sensory and motor neuron dysfunction.

## Treatment:

- Go to the hospital immediately and they will remove the toxin.
- Further treatment is to support cardiovascular function until the toxin is eliminated from the body.
- After the treatment send patients to the intensive care unit.
- Symptoms usually develop within 6 hours



# Simpsons video about puffer fish

<https://www.youtube.com/watch?v=4g8KeqjSyqg>

# Chlorine

Jacqueline Chan



# Chlorine

## Found in

pools, earth's crust, and in ocean water.

used in making a variety of products including insecticides, pharmaceuticals, cleaning products, textiles, and plastics.

## Diagnostic test

Chlorine gas is more dense than air and can be collected by downward delivery or by using a gas syringe.

## Treatment

Treatment consists of removing the chlorine from the body as soon as possible and providing supportive medical care such as inhaled breathing treatments for wheezing in a hospital setting.

## Prognosis

Long-term complications may occur after breathing in high concentrations of chlorine. Complications are more likely to be seen in people who develop severe health problems such as fluid in the lungs (pulmonary edema) following the initial exposure.

# symptoms

burning in the mouth

swelling of the throat

throat pain

stomach pain

Vomiting

blood in the stools

changes in the pH balance of your blood

low blood pressure

serious injury to the eyes, including burning and irritation (In the worst case, temporary vision loss can occur.)

skin damage, potentially resulting in tissue damage, burns, and irritation

# How can you be exposed to it

People's risk for exposure depends on how close they are to the place where the chlorine was released.

If chlorine gas is released into the air, people may be exposed through skin contact or eye contact. They also may be exposed by breathing air that contains chlorine.

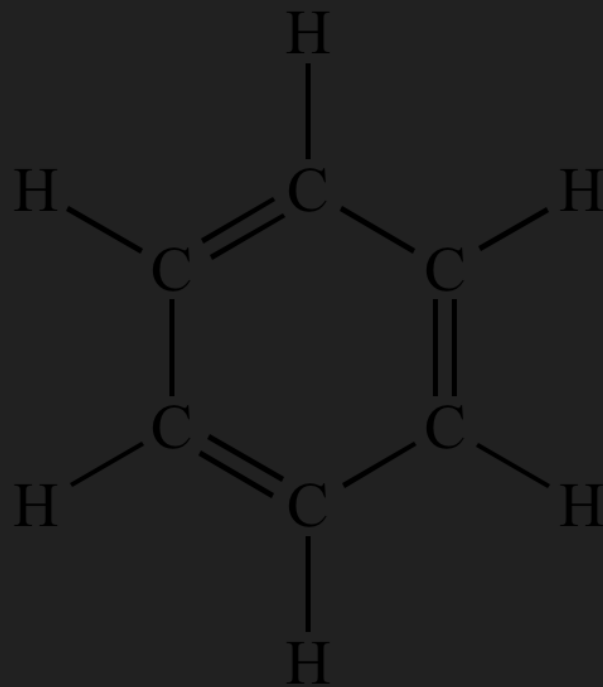
If chlorine liquid is released into water, people may be exposed by touching or drinking water that contains chlorine.

If chlorine liquid comes into contact with food, people may be exposed by



# BENZENE

Jake Schiavo



# One of the 20 Most Used Chemicals in the U.S.

- Produced from volcanoes and forest fires
- Natural part of crude oil, cigarette smoke, and gasoline.
- You can get exposed from Inhalation, Ingestion, and Skin contact.
- Benzene is used to make plastics, nylon, explosives, rubber, lubricants, dyes, paint, detergent, drugs, and pesticides.



# Symptoms and Treatment

Overexposure can cause the following symptoms... dizziness, rapid heart beat, headaches, tremors, confusion, unconsciousness, and vomiting.

Long term exposure has been linked to cause... Leukemia and other cancers, various issues with women's birth, and even death.

Treatment options would be taking a blood, urine, breath test shortly after exposure. If positive you have to rest and take more test.



# Acetone

Found naturally in plants, trees, volcanic gases, and forest fires

Can be found in household products such as nail polish remover, paint remover, detergent, cleaning products, etc.

Exposure to high level of acetone

Symptoms: low blood pressure, nausea and vomiting, sweet taste in mouth, confusion, shortness of breath

Type of exposure: must produce, inhale, or ingest acetone in a short amount of time

# Acetone Cont.

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Diagnostic test: test for level of ketone in urine (if exposed, ketones will appear) and blood test to test for ketone levels in blood

Treatments: Getting oxygen (clear air to clear acetone in blood) and/or getting your stomach pumped

Prognosis of high exposure: coma, damage to kidneys and the skin in your mouth, respiratory distress, and possible death