Cadmium

By: Ryan Ricca

Cadmium

Cadmium is a chemical element with symbol Cd and atomic number 48.

It is a soft and bluish-white metal

Cadmium can be found in the earth's crust. It always occurs in combination with zinc. Cadmium is also in industrial workplaces.

Symptoms: inflammation may start hours after the exposure and include cough,dryness and irritation of the nose and throat, headache, dizziness, weakness, fever,chills, and chest pain.

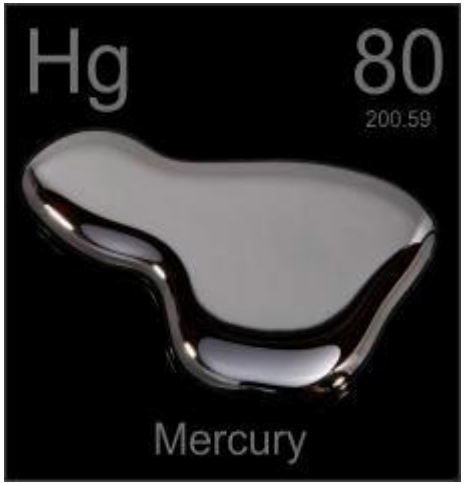
Exposure: It has a low permissible exposure limit. Acute exposure to cadmium fumes may cause flu-like symptoms. More severe exposures can cause tracheobronchitis and more.

Diagnostic tests: Chest X-ray, Measurement of oxygen saturation, Renal and hepatic functions, Cadmium blood levels.

Treatments: Chelation therapy, fluid replacement, supplemental oxygen, improving ventilation by opening windows, installing or running an exhaust fan.

Outcome: In extreme severe cases of Cadmium exposure it can lead to death. Also respiratory and cardiovascular effects can occur.

Mercury



By TJ Gomes

Mercury

Mercury is found mostly in Spain and Italy, they have more than half of the world's supply. Mercury was commonly used in the leather bands inside men’s hats; this is where the Mad Hatter came from in Alice in Wonderland. Used to be used in thermometers.

Exposure to Mercury include damage to the brain kidneys and lungs. Can cause many diseases such as acrodynia, Hunter-Russell syndrome and Minamata disease.

Symptoms typically include sensory impairment (vision, hearing, speech), disturbed sensation and a lack of coordination. The type and degree of symptoms exhibited depend upon the individual toxin, the dose, and the method and duration of exposure.

They are very limited on ways to treat patients exposed to Mercury and only have a few drugs to help.

Uranium

Found in China, Russia, Kazakhstan, Mexico, Namibia, Greenland, South Africa, United States, Canada and Australia

associated with veins or other lenses in igneous, metamorphic or sedimentary rocks.

Uranium is a heavy metal, and is radioactive, exposures can lead to short-term or long-term side effects

such as, kidney disease, and/or bone or lung cancer

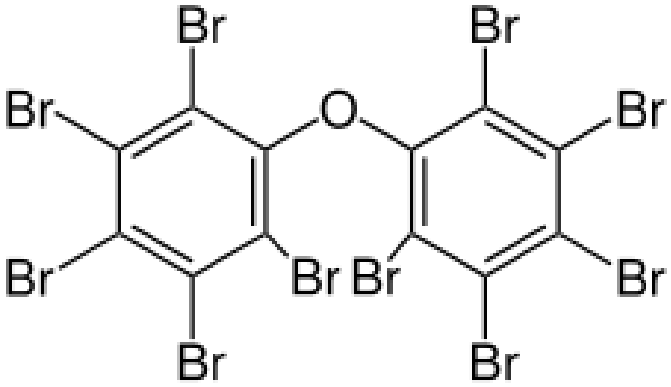
Urine and blood tests can help determine if you have been exposed to uranium

Everyone is exposed to uranium in food, air, and water as part of one's natural environment-- toxic when overexposure occurs

Decabromodyphenyl ether Deca

Allyson weakliem

About the toxin



It is a flame retardant

Found in Electronics, furniture, carpets

The hazards: learning and difficulties, hearing problems, decreased sperm count in animals

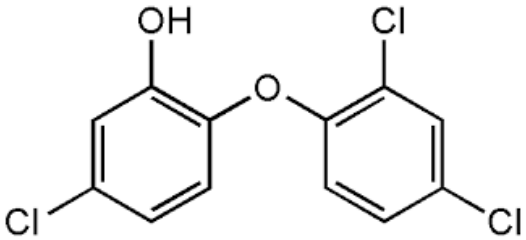
Exposure 7 (micrograms per kilogram body weight per day)

Is now banned from products

Testing blood to find it

Triclosan

Michelle D’Allegro



Where is it found?

Toothpaste, soaps, detergents, toys, and surgical cleaning treatments

How is it exposed?

Exposure may occur through ingestion of toothpaste, mouthwash, or dentifrices containing triclosan and through dermal contact with consumer products containing triclosan, or through consumption of contaminated food and drinking water.

Symptoms of Exposure?

Triclosan poisons a specific enzyme that many bacteria and funguses need for survival.

Thyroid hormones and estrogen-related effects (prognsis)

Increase in the frequency of allergies, asthma, and eczema

Tests?

Urinary tests are used to see the level of toxicity caused by triclosan

Parabéns

By: Joe DeMato

Where

Parabens are typically found in cosmetics to prevent the growth of harmful bacteria and mold.

The parabens most commonly used in cosmetics are methylparaben, ethylparab ben

Symptoms & Dangers

Parabens can mimic estrogen and disrupt the body's hormone system

In 2004, a study by the University of Reading in the United Kingdom found concentrations of parabens, particularly methylparaben, in human breast tumors.

Phthalates

By Sreenidhi Yelagoila

1 Where It's Found? / Exposure?

Location: USA, Canada and The European Union. Used to make plastics flexible

Exposure: Outdoor air concentrations are higher in urban and suburban areas than in rural and remote areas.

2 Symptoms ? / Diagnostic tests?

Symptoms Irritation of the eyes,skin,nose,throat; headache,dizziness,nausea;possible polyneuropathy, vestibular dysfunction, pain, numbness, weakness, exhaustion, spasms in arms and legs

Diagnostic Tests Always seek professional medical advice about any treatment or change in treatment plans.

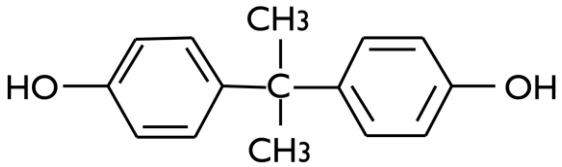
3 Treatment / Prognosis

Prognosis: Prognosis varies depending on the type and degree of exposure.

Treatment: Decontamination, symptomatic and supportive measures,Always seek professional medical advice about any treatment or change in treatment plans.

BPA

Jenna Devchand



Found in: Polycarbonate plastics- often used in containers that store food and beverages, such as water bottles

Symptoms: Early puberty, breast cancer, obesity, ADHD

Type of exposure: Consumption: eating/ drinking out of containers containing BPA; Also absorbed through the skin

Diagnostic tests: Urine tests show BPA levels

Treatments: Consumption of Black Tea, probiotics, & melatonin can reverse effects

Prognosis: Long term effect of the symptoms

Carbon Monoxide

Roshan Soni

Summary

Found in fumes anytime one burns fuel in cars, trucks, stoves, grills

Combines with hemoglobin and replaces oxygen, leaving a person without the necessary amount of oxygen in their body.

Treated with fresh oxygen and the usse of a hyperbaric chamber.

Cardiac monitoring is a common test. Blood tests can be used to determine the amount of oxygen vs carbon monoxide

Symptoms

Headache

Dizziness

Chest Pain

Vomiting

“Flu-like” symptoms

Excessive exposure can cause death

Perfluorinated Chemicals

Perfluorinated Chemicals are compounds Carbon-fluorine bonds. As seen on the previous slide, these chemicals are in fast food containers, rain coats, non-stick cookware and a variety of other everyday products. It can also be found in the water supply and a common way it enters the supply is through fire-fighting foam. Additionally the acceptable amount is 70 parts per trillion.

These chemicals contribute to greenhouse gases and generally harm the environment and are rare to naturally occur.

Exposure can Cause neonatal death, tumors and damage to the immune, liver and endocrine systems.

Blood, Urine and Sweat testing is how levels are tested.

There is only treatment for water and soil, once inside of humans it will naturally disapate but there is no action that can be taken.

POLYVINYL CHLORIDE

Bobby Zauner

Where is it found?

Abbreviated as PVC this odorless solid plastic is found almost anywhere

Used to make pipes, pipe fittings, Vinyl flooring/siding and thousands of other things

Symptoms

Dizziness

Inebriation,

Fatigue,

Numbness

Tingling of the extremities

Visual disturbances

Type of Exposure

Inhalation

Skin/Eye contact

Ingestion

Diagnostic Tests

- CBC, glucose and electrolyte determinations
- Liver and Kidney function tests

Treatments

No antidote

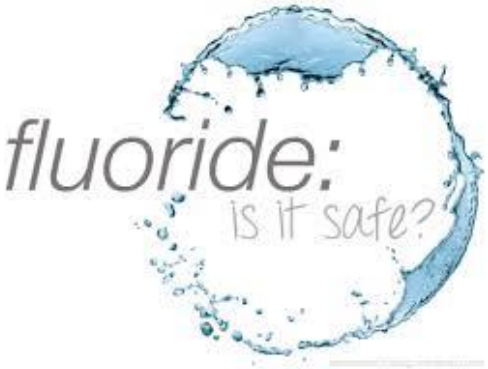
Most exposed people recover completely

Prognosis

Single small exposure is unlikely to cause long term effects

Many years of exposure can affect the liver, nervous system, and skin.

Long-term exposure can cause a rare form of liver cancer.



Fluoride

By: Bella Dameo

Wheres is it found?
Fluoride is found naturally in soil, water, foods, and several minerals

When exposed to the toxin?
Good: It helps prevent tooth decay and makes teeth stronger
Bad (prognosis): It can cause permanent tooth discoloration (dental fluorosis), stomach ailments, acute toxicity, skin rashes (perioral dermatitis), and impairment in glucose metabolism.

Symptoms:
Symptom onset usually occurs within minutes of exposure, but may be delayed. Manifestations of fluoride toxicity are predominantly gastrointestinal

Treatments:
- Electrolytes may be used to correct imbalances resulting from fluoride toxicity.
- Calcium chloride is administered to correct hypocalcemia that may result from fluoride poisoning

How much can cause toxicity?
- 5 mg/kg (5 milligrams of fluoride for each kilogram of body weight)
- The dose is sufficient to cause severe poisoning, and in the absence of medical treatment, can be lethal

Found in these products:
- Toothpaste (eg, sodium monofluorophosphate)
- Vitamins
- Dietary supplements (eg, sodium fluoride)
- Glass-etching or chrome-cleaning agents (eg, ammonium bifluoride)
- Insecticides and rodenticides (eg, sodium fluoroacetate)

Volatile Organic Compounds (VOCS)

Numerous different organic chemicals that become vapor or gas

VOCS are released from burning fuel, such as gasoline, wood, coal, or natural gas. They are also emitted from oil and gas fields and diesel exhaust. They also come from solvents, paints, glues, and other products that are used and stored at home and at work.

Many volatile organic compounds are also hazardous air pollutants. When they combine with nitrogen oxides, they react to form ground-level ozone, or smog, whic

Common places to find VOCS:

- Carpet, vinyl flooring
- Composite wood products
- Upholstery and foam
- Air fresheners, cleaning products
- Cosmetics
- Fuel oil, gasoline
- Smoking
- Dry cleaning, photocopiers
- Cooking, hobbies

VOCS continued

Long-term exposure health effects (years to a lifetime) :

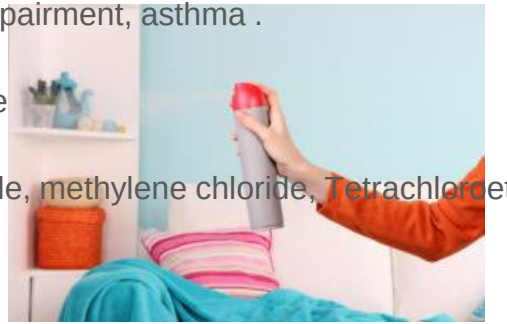
Cancer, damage to the liver, kidneys, and central nervous system

Short-term exposure health effects (hours to days) :

eye and respiratory tract irritation, headaches, dizziness, visual disorders, fatigue, loss of coordination, allergic skin reactions, nausea, and memory impairment, asthma .

Common examples of VOCS in our homes are

Benzene, ethylene glycol, Formaldehyde, methylene chloride, Tetrachloroethylene, Toluene, Xylene, 1,3-butadiene.



Arsenic

...

By: Tyler Gallagher

Facts

- It is a natural poison. Number 33 on the periodic table
- Been known and used since roman times as an alloy to harden copper and lead
- Arsenic is found in the earth's crust. It binds with the soil and rocks.
- Most people become exposed through arsenic contaminating water or the soil where food is grown.
- People who become poisoned through large concentrated amounts die rapidly
- Affects the gut, heart, and nervous system
- Acute poisoning causes pigmy spots and overtime can lead to cancer through

Asbestos

Rebecca Uhrik

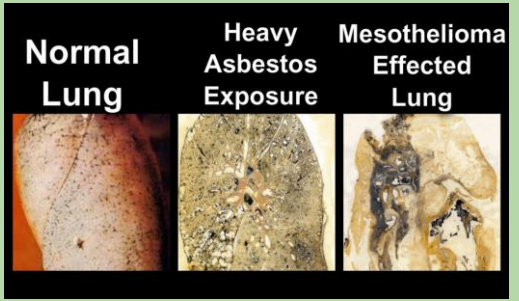
- Mineral used in heat resistance, tensile strength, and insulation.

Used in vents, commercial construction, woven in fabric, and mixed with cement.

- Construction workers and military veterans are most affected.
- Causes mesothelioma, Cancer of the lungs

Causes Chest pain/difficulty breathing

- inhale or swallow asbestos fibers, has to be heavy repeated exposure



- X-Rays of the chest
- Oxygen therapy, removing secretions from lungs, and thinning secretions
- Treated early in stage 1, 70% have 5 years/ 26% have 5 years in stage 3

Formaldehyde

Formaldehyde is a colorless chemical with a strong pickle-like odor that is commonly used in many manufacturing processes.

This chemical is found in pressed wood products (plywood, particle board, paneling), foam insulation, wallpaper and paints, synthetic fabrics, cosmetic and personal products.

Some short term symptoms are eye, nose and throat irritation, coughing, headaches, dizziness and nausea. Possible that it could also cause cancer if exposed to it.

Treated with antibiotic eye drops, water or saline to flush eyes and skin. Milk, water or activated charcoal is given to deactivate the chemical if it has been swallowed.

Radon

Radon is an element with the symbol Rn its atomic number 86. It is a radioactive, colorless, odorless and noble gas.

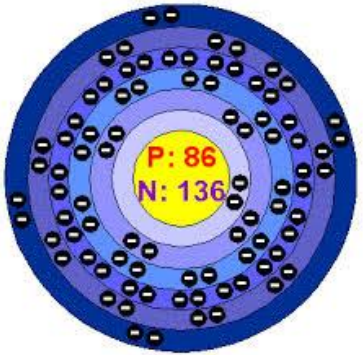
Radon is a naturally occurring radioactive gas and comes from the natural breakdown of uranium. It is usually found in rock and soil, but in some cases, well water may also be a source of radon.

Symptoms include: a persistent cough, wheezing, heavy breathing, and lung infections

Prolonged exposures to Radon gas can result in a person developing lung cancer as well.

Treatment for radon gas is only testing for it and then trying to stop the exposure.

When houses are sold, a home must pass a radon test prior to the sale taking place. There are radon that can be placed in the lowest level of a home if the radon level is too high.



Cyanide

Maeve Dwyer

Symptoms:

- Headache, dizziness, or confusion
- Anxiety or restlessness
- Nausea or vomiting
- Shortness of breath or rapid breathing

Found In:

- Factories that make plastics, paper, jewelry, or textiles
- In the soil, either naturally or from industrial processes
- Smoke from a fire or cigarette, or exhaust from a car

Exposure:

Inhale, touch, or swallow cyanide.

Diagnostic Tests:

Blood tests will be done to check your organ function and oxygen level.

Immediate Effects:

Poisonous chemical gas that prevents your body from absorbing oxygen. The lack of oxygen can damage your organs.

Prognosis:

Cyanide is extremely deadly and most people will not survive if there is no immediate treatment.

Treatments:

Oxygen will be given to help restore oxygen to your cells, and to prevent more damage.

Cyanide antidotes will be used to bind with the cyanide so your body can remove it through your urine.

Charcoal may be used to absorb cyanide that you have swallowed.

Tetrodotoxin

Ally McCorry

What and Where

Potent poison found mainly in the liver and organs of many varieties of fish.

Commonly Puffer-Fish

Human exposure occurs when the flesh and/or organs of the fish are undercooked and eaten.

Can also be found in:

Mollusc, eggs of horseshoe crabs, skin of certain frogs, skin of some species of salamanders

Symptoms and Effects

Symptoms

Paraesthesia begins 10-45 minutes after ingestion

Tingling of tongue and mouth

Nausea, vomiting, epigastric pain

Interferes with the transmission of signals from nerves to muscles.

Can cause paralysis in muscles

Poisoning can be fatal

A dose of 1-2 mg (Hard to be exact as different fish carry different concentrations of Tetrodotoxin.)

1.4 ounces of pufferfish

.

Treatments and Outcome

Treatments

Attention to airways, breathing and circulation

IV fluids, pressors or antiarrhythmics

Remove toxin from the intestinal tract by the usual toxicologic modalities

Intensive hospital care for 12-20 hours

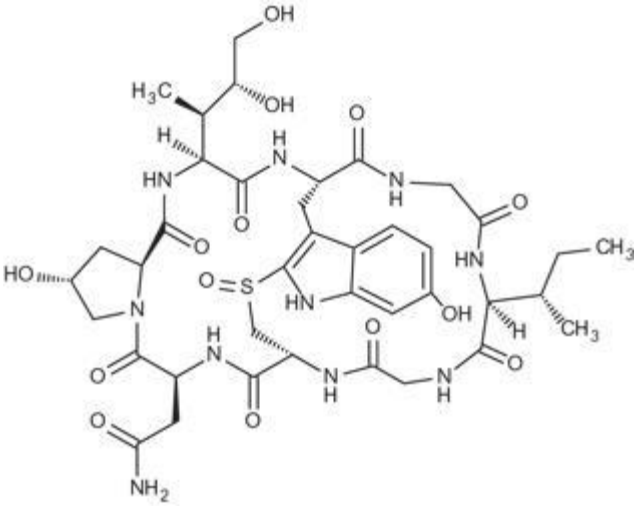
Over the counter drugs (tylenol, advil, etc.) for pain

Outcome

If survive longer than 24 hours, a few days of strong medication will lead to a complete recovery

Alpha-amanitin

Kaprice white



Alpha-amanitin

Alpha-amanitin : A cyclic peptide (polypeptide chains) of eight amino acids. One of the most toxic fungi

Found in a mushroom called Amanita phalloides also known as the “death cap” or “destroying angel”

Symptoms: symp. reported in 10-24 hours after ingesting the mushrooms include Diarrhea and cramps but these go away. The 4th or 5th day the toxin has severe effects on the kidneys and liver which leads to system failure and death.

Diagnosis: Diagnosis is difficult because of the amount time it takes for symptoms to occur

Treatments: Antibiotics and/or pumping of the stomach immediately after ingestion

Prognosis: System failure and Death

Glycoalkaloid

By: Heidi Schweitzer

Glycoalkaloid

Found in many plants in the potato family

Considered a natural toxin and is used as a natural pesticide and fungicide to protect the plants from bugs and animals

Effects of eating a plant that contains glycoalkaloid is gastrointestinal effects that normally begin about 8-12 hours after eating but will stop after 2 days.

Common symptoms include vomiting, nausea, stomach cramps and headaches.

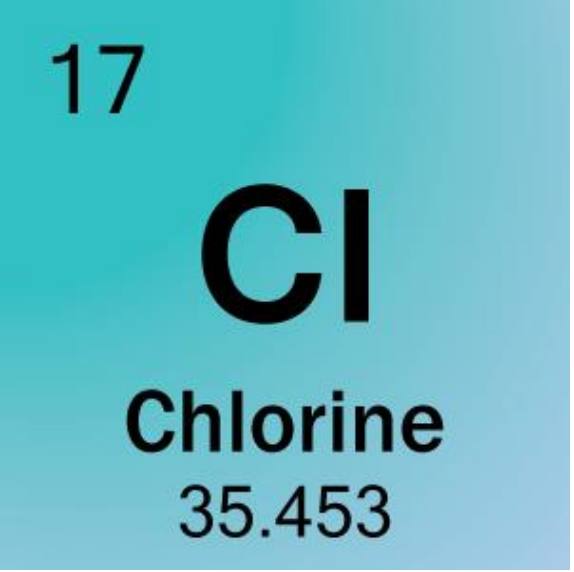
Less common symptoms are hallucinations, or extreme effects like death

Potatoes that get more sunlight have a higher concentration as well as potatoes stored at very low temperatures

The amount of glycoalkaloid found in food can be genetically modified to prevent poisoning

When treating glycoalkaloid call poison control, but it's like food poisoning and just needs to be waited out

Almost anytime someone is poisoned by glycoalkaloid they recover fully, but few times if the case is very bad the patient could die



Chlorine

Project By: Lauren Matticoli

Where is it found/used?

Pesticides

Chemicals

Rubber

Solvents

Used to kill bacteria in drinking water and swimming pools

Used in sanitation process for industrial waste/sewage

Used as disinfectant and fungicide

Used to bleach paper/cloth

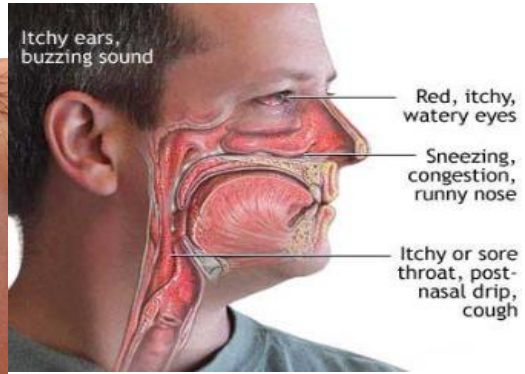
Responses that an individual may have when exposed to chlorine/Symptoms:

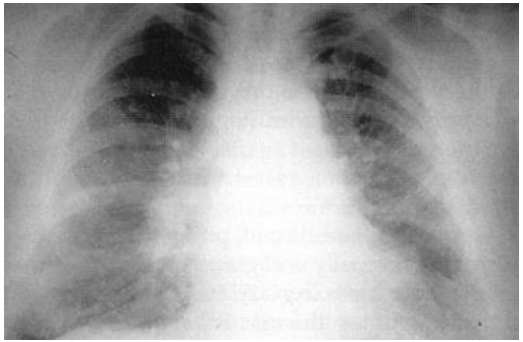
Exposure to extremely high levels of pure chlorine gas can cause lung collapse and death.

Exposure to high levels can cause pulmonary edema, rapid breathing, wheezing, blue coloring of the skin, vomiting, accumulation of fluid in the lungs, severe eye and skin burns, loss of vision, and lung pain.

Exposure to low levels of pure chlorine gas is irritating to the respiratory tract, eyes, and skin. Exposure can cause sore or swollen throat, coughing, choking, sneezing, pneumonia, chest tightness and pain, headache, dizziness, watery eyes, blurred vision, nausea, vomiting, vomiting blood, severe abdominal pain, skin blisters and irritation, difficulty breathing, and pain or burning in the stomach, nose, eyes, ears, lips, or tongue.

Some people may develop an inflammatory reaction to chlorine called reactive airways dysfunction syndrome, a type of asthma.





Diagnostic Test/ Treatments/ Prognosis:

No good diagnostic test- based on environment

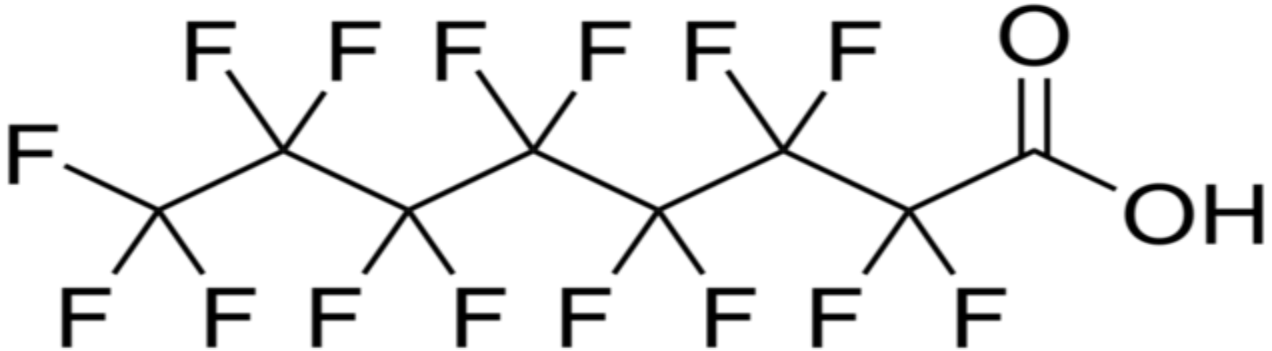
Seek medical attention ASAP!!! It gives you a better chance for full recovery if you receive medical health promptly.

If you get chlorine on your skin/eyes, flush area with running water for at least 15 minutes

The outlook for recovery depends on the amount of chlorine swallowed/inhaled and how quickly treatment is obtained.

PFOA
(Perfluorooctanoic Acid)

Joe Schmieder



Info

PFOA can be found in Industrial Waste, Stain resistant carpets, Carpet cleaning liquids, house dust, microwave popcorn bags, and in some cookware(Teflon)

Some symptoms could be....

- Affect the developing fetus and child, including possible changes in growth, learning, and behavior.
- Decrease fertility and interfere with the body’s natural hormones,
- Affect the immune system, and
- Increase cancer risk.

Mainly goes undetected, appears when giving birth or when attempting to have a child

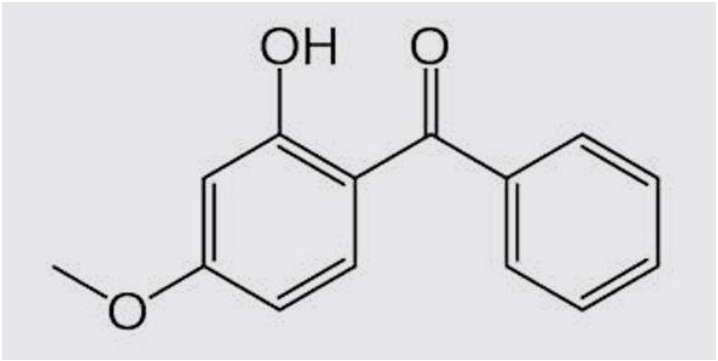
Oxybenzone - Sydney McAlister

Where is it found?

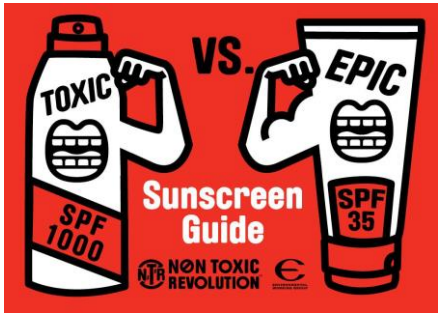
- Sunscreen, nail polish, lotion, lipstick

Why is it used in these products?

- Helps to preserve cosmetic ingredients by preventing their deterioration from the sun



Oxybenzone Responses Sydney McAlister



When in the bloodstream, this chemical..

- Acts as a type of estrogen which leads to early development for children
- Can make its way into the breastmilk of mothers
- Can cause cancer

This chemical becomes toxic when UV radiation reaches the skin that has already been penetrated by the chemical.

Diagnostic tests - skin samples will be taken to see if the chemical has penetrated the skin

Treatments - staying out of the sun or taking corticosteroids to attempt to remove the chemical.

Prognosis - dependent on how intense the symptoms become (ie cancer) the outcomes vary. A small amount of exposure can be reversed by simply staying out of the sun. With a mild exposure steroids can be used. However with cancer chemotherapy must be used and the outcome is hard to predict.

Chloroform

By: Jordan Artman

Information About Chloroform

It is a colorless, sweet-smelling, dense liquid that is produced on a large scale as a precursor to PTFE and refrigerants

Chloroform enters the environment from chemical companies and paper mills. It is also found in wastewater from sewage treatment plants and drinking water to which chlorine has been added.

Chloroform can enter the air directly from factories that make or use it and by evaporating from water and soil that contain it

Chloroform can enter your body if you breathe air, eat food, or drink water that contains chloroform. Chloroform easily enters your body through the skin. Therefore, chloroform may also enter your body if you take a bath or shower in water containing chloroform. In addition, you can breathe in chloroform if the shower water is hot enough for chloroform to evaporate.

Exposure to Chloroform

Was previously used as an anaesthetic but ended up having negative effects and being dangerous.

Exposure to anything more than 900 parts of chloroform in a million parts of air is considered dangerous.

Symptoms include:

-changes in respiratory rate
-cardiac effects
-gastrointestinal effects
-nausea
-vomiting
-effects on the liver, kidney, and central nervous system

Can be associated with long term health effects, but the chances of death are extremely low.

There are no reliable tests to determine how much chloroform someone has been exposed to or if it will effect the person. There are measurements done to determine how the amount of chloroform in the air, blood, urine, and body tissues, but this does not determine how much exposure.

One of the 20 most used chemicals in the United States

- Produced from volcanoes and forest fires
- Natural part of crude oil, cigarette smoke, and gasoline

How do you get exposed?

- Inhalation
- Ingestion
- Skin contact/ absorption

Benzene is used to make...

- Plastics
- Nylon
- Explosives
- Rubber
- Lubricants
- Dyes
- Paint
- Detergent
- Drugs
- Pesticides

Gianna Clarke

Overexposure can cause the following symptoms....

- Dizziness
- Rapid or irregular heartbeat
- Headaches
- Tremors
- Confusion
- Unconsciousness
- Vomiting

Treatment...

Blood, urine, and breath tests shortly after exposure to test for overexposure to Benzene. If they're positive, you will have to rest and get a series of other tests

Long-term exposure to high levels have been linked to...

- The development of leukemia and other cancers
- Various menstrual issues in women and birth defects in their children
- Death

Acetone

- Found in: nail polish remover, cleaning supplies, plastic cement, liquid or paste wax and polish, detergent and paint remover and alcohol.
- Exposure: One can be exposed by investing it, breathing it in or absorption through the skin
- Responses to Acetone: High exposure-death, coma, respiratory issues, unconsciousness, seizures, damage to liver and skin. Moderate to High Exposure- headaches, fatigue, nausea, dizziness and shortening of the menstrual cycle for women.
- Diagnostic tests show a large formation of acetone results in increased blood levels) and increased excretion in the urine. Alcohol consumption are common causes of ketoacidosis.
- Treatments: Pumping one's stomach or receiving oxygen are the most effective treatments
- Prognosis: The larger the amount of acetone one is exposed to, the worse the responses get. Many people say if you survive 48 hours after a moderately high exposure, the chances of recovery are good.