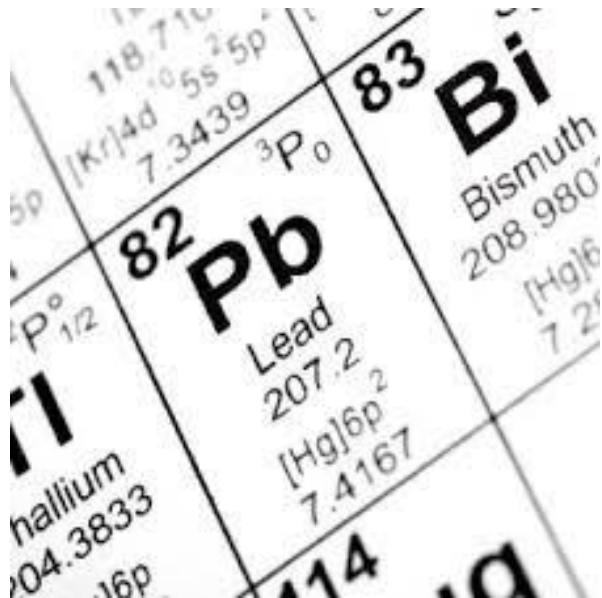


List of hazardous materials in our E-waste

Hazardous Materials and their Effects
on us and the Environment

I. Lead

- Is known to damage the central and peripheral nervous system, the blood system and kidneys



A close-up photograph of a section of the periodic table. The element Lead (Pb) is prominently displayed in the center, with its atomic number 82, symbol Pb, name Lead, atomic weight 207.2, and electron configuration [Hg]6s²7.4167. To its right is Bismuth (Bi) with atomic number 83, symbol Bi, name Bismuth, atomic weight 208.980, and electron configuration [Hg]6s²7.29. Other elements visible include Polonium (Po) above Pb, Thallium (Tl) to the left of Pb, and Hg to the right of Bi.

82	Pb Lead 207.2 [Hg]6s ² 7.4167	83	Bi Bismuth 208.980 [Hg]6s ² 7.29
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- An exposure with lead has serious negative effects on the brain's development
- Can leach and contaminate the environment and groundwater
- Has acute toxic effects on plants, animals and humans

II. Cadmium

- Classified as toxic with irreversible effects on humans
- Can be absorbed through respiration or taken up with food.



Unsafe substance

Dangerous levels of cadmium are reportedly being used in children's jewelry imported from China.

What is cadmium?

- Soft, whitish metal, occurs naturally in soil


Why is it bad?

- Known to cause cancer; can hinder brain development in young children

Where is it used?

- In rechargeable batteries, pigments, electroplating and plastic
- It's cheap, shiny, strong and malleable at low temperature

Source: Los Alamos National Lab



A periodic table of elements with the element cadmium (Cd) highlighted in blue. The element card for cadmium is shown in the foreground, tilted slightly to the right. It contains the following information: "cadmium", "48", "Cd", and "112.411".

Element	Metal
Melting point	321 C (610 F)
Boiling point	767 C (1,412 F)
Phase*	Solid
*At room temperature	

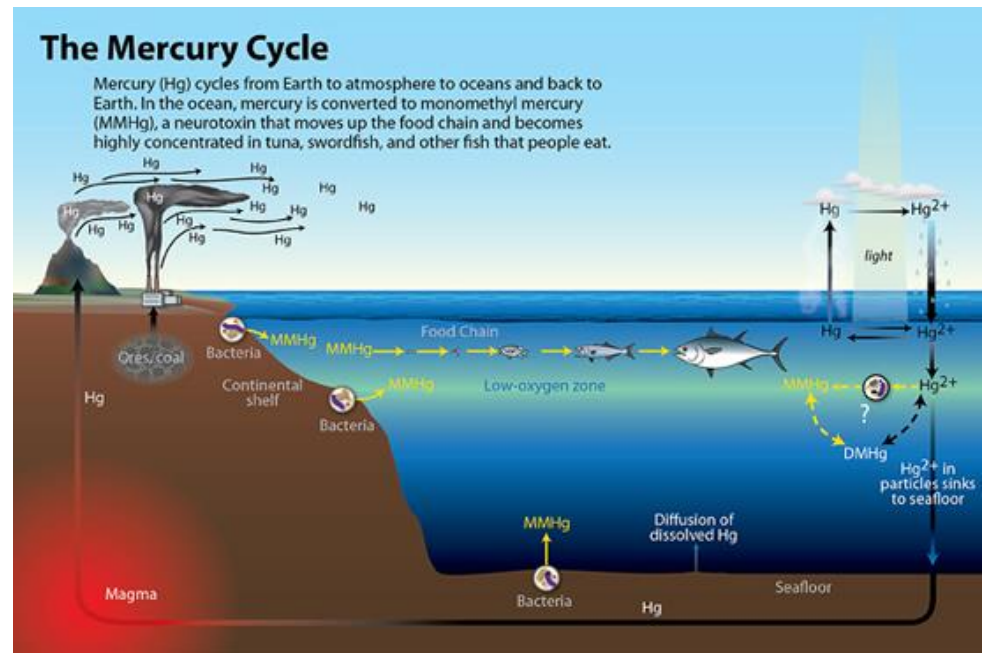
Graphic: Melina Yingling © 2010 NCT

- is known to cause cancer and hinder children's brain development
- occurs in components like semiconductors, infrared detectors and SMD chip resistors.

III. Mercury



- Easily accumulates in living organisms and concentrates through the food chain.
- Is found in high rates in nearly 70% of fish.



- causes chronic damage to the brain.
- is used in sensors, switches, discharge lamps, medical equipment, data transmission, mobile phones etc.
- every year, an average of 400.000 pounds of mercury is used in electronics.

IV. Hexavalent Chromium or Chromium type IV

- it easily passes through the membranes of cells causing various toxic effects.
- even in small concentrations, it causes strong allergic reactions
- can cause DNA damage

Chromium IV oxide before transformation to Hexavalent Chromium



Chromium IV polluted water



WANTED
By the Electronics Community for crimes against Planet Earth and its inhabitants.

Hexavalent Chromium

A.K.A.: Calcium Chromate, Chromium Trioxide, Lead Chromate, Zinc Chromate, Strontium Chromate

Atomic Weight: Unknown

Usually Found In: Spray Paints, Chrome Plating, Coatings, Stainless Steel

Remarks: Hexavalent Chromium and its compounds are found in many workplaces and present one of the greatest workplace hazards around

CAUTION: Hexavalent Chromium is a known Carcinogen and has been linked to a statistically significant increase in lung Cancer, Ulcers and permanent eye damage

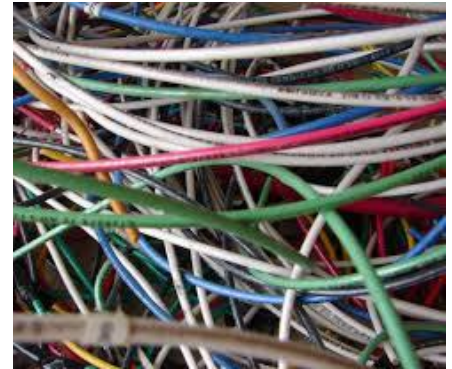
SemiconductorStore.com
Leading the "Lead-Free" Revolution

Lead Free

V. Plastics



- contained in nearly 99% of e-waste
- plastic isn't biodegradable, so Earth can't digest it.
- causes pollution as well as it poisons the environment.



- can accumulate in the human body via the food chain, especially via fish.
- it might increase the risk of cancer
 - can cause impotency
- when plastic incinerates, it forms dioxins



- dioxin is a toxic gaz, which at high levels has terrible effects on humans.
- best example is the Agent Orange program of the U.S. Army during the Vietnam War.
- dioxin poisoning can lead to malformations, stillbirths and brain damage.

VI. PVC

PVC is used in some cabling and computer housings, although most of them are now made of ABS plastic. PVC cabling is used for its fire retardant properties, but once alight, fumes from PVC cabling can contribute to fatalities. PVC is difficult to recycle and contaminates other plastics in the recycling progress. But the main concern is that PVC generates dioxins and furans while incineration. It is the major cause of dioxin formation all over the world.



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AGENT ORANGE

Dioxin poisoning : Examples



Viktor Andriyovych Yushchenko ,former President of Ukraine, before and after Ingestion of hazardous amounts of TCDD, the most potent dioxin and a contaminant in Agent Orange. He suffered disfigurement as a result of the poisoning, but has been slowly recovering.



Dioxin is a dangerous gas, which at high levels has terrible effects on humans.

Best example is the “Agent Orange”-program of the U.S. Army in Vietnam during the Vietnam War.

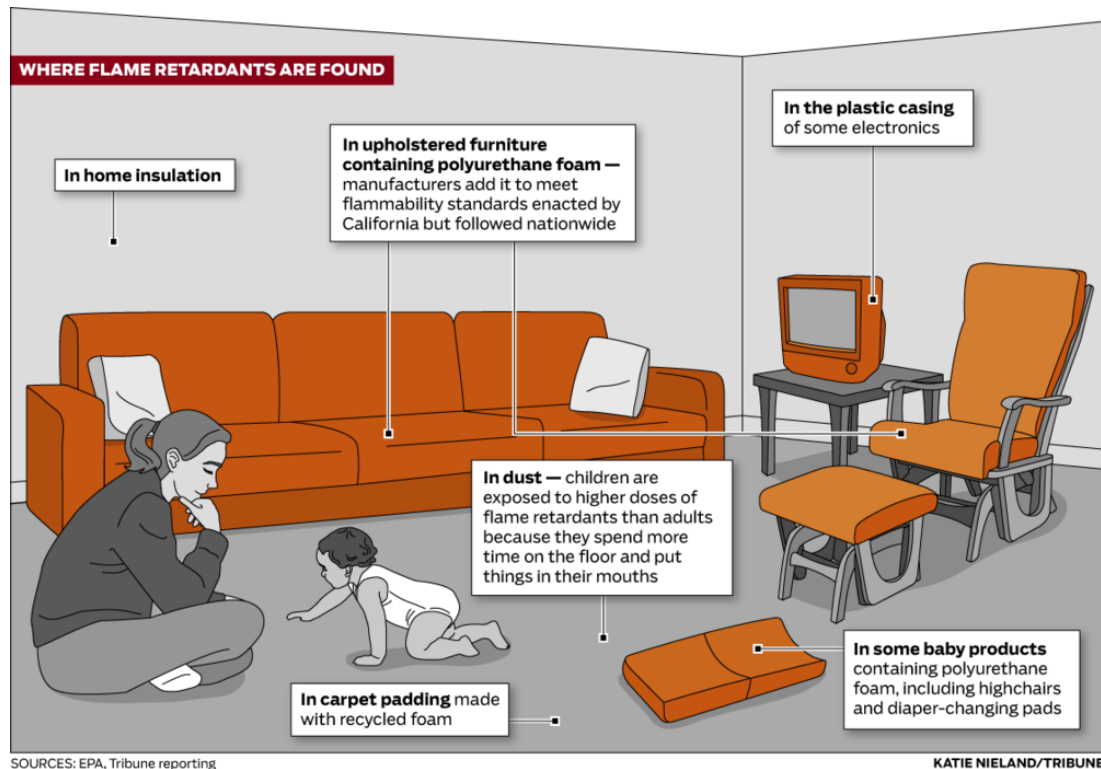
They exposed the Vietnam people with high levels of dioxins, causing prenatal malformations of babies and a lot of stillbirths until the 4th generation.

VII. Brominated Flame Retardants

In French : Agents ignifuges bromés



- commonly used in electronic products as a means for reducing flammability
- are used in printed circuit boards, in connectors, in plastic covers and cables, kitchen appliances, plastic covers, TV sets, and even textiles
- research has revealed that the amount of PBDEs (Polybrominated Diphenylethers, umbrella term for brominated substances including BFRs) in human breast milk is doubling every five years
- new-born mice fed with PDEs showed abnormal behaviour and were less active, almost apathetic
- an exposure in early life can induce neurotoxic effects similar to those caused by PCBs or pesticides



- they reduce levels of the hormone thyroxin (essential hormone for the normal development of all species) in exposed animals and have even crossed the blood brain barrier in the developing foetus
- PBDEs are also suspected to cause or increase risk of cancer of the digestive and lymph system
- there were already incidents where BFRs were added by error to cattle feed and contaminated animals and humans through the food chain (some nine million people were affected)
- there were studies on these people which proved that they had a 23 times higher chance to develop digestive cancers.
- the presence of PFBs in Artic seal samples indicates a wide geographical distribution. They are found in alarmingly high rates in the aquatic environment and are primarily found in the bottom sediments and polluted rivers.
- once released to the environment, they easily get in the food chain, where they get concentrated until they reach us.

Guiyu and Agbogbloshie : A journey to the losing side

Most of our e-waste isn't recycled. 75 % of the West's e-waste is shipped to poorer countries and landfilled there. The local population works on these dumping grounds and in order to earn a living extract from the e-waste the precious components, often in hazardous processes for their health and the environment. (cooking of cablings to extract gold, incineration of computers to get rid of the plastic covers to extract precious metals, etc.)

There are many dumpinggrounds like this all over the world. I will take two well-known examples :

- Agbogbloshie in Ghana

- And Guiyu in China

Two “trashboys” in the middle of our discarded electronics



Major cause of dioxin formation





The bridge to the “village center” , the village is built upon tons of e-waste. An average of 50000 tons arrives in Agbogbloshe each year.



The outlet of the local river into Agbogbloshe. This river is normally on the level of the huts.

The river and his source, the Korle Lagoon are known as two of Earth's most polluted bodies of water.



In China, e-waste has become big business; this child will never frequent school and has an average life expectancy of 30 years at best. He lives in Guiyu, China also called “Earth’s e-waste fortress”. There are practically no pictures from Guiyu, because the government hardly gives a Permission to enter the city.



The different components are conscientiously separated from each other through hazardous processes like the cooking of electronic cables. The average lead/blood concentration from children living in Guiyu is 2 times the official ceiling limit of the normal lead/blood concentration.

They are the true victims of our consumer society...



Think about it!

You can help to alleviate the situation by informing your relatives about this topic, by reducing your amount of e-waste and supporting the concept of a conscientious converse with this problem for example through ONGs or politics.